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Strategic International Restaurant Development

From Concept to Production



Angelo Camillo

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Strategic International Restaurant Development:

From Concept to Production

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A volume in the Advances in Hospitality, Tourism, and the Services Industry (AHTSI) Book Series

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To Maggie, who will always be there for me
To Isabell, who is following my footsteps
To Carolina, my future scientist
To Donatella, my future astronaut

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Preface

A. INTRODUCTION TO THE FOOD AND BEVERAGE SERVICE INDUSTRY

Literally, the food and beverage service industry can be defined as: "The practice or business of making, transporting, and serving or dispensing prepared foods, as in a restaurant or commissary; it is the industry concerned with processing, preparing, preserving, distributing, and serving of foods and beverages. Practically the foodservice industry can be defined as the sale of food and drinks for immediate or late consumption or either on the premises from which they were produced and sold, or in designated dining areas shared with other foodservice operators, or in the case of take-out service, prepared food for immediate consumption. The foodservice (or food service) industry encompasses food production and consumption places, institutions, and companies responsible for a meal eaten away from home or delivered to homes or other places. This industry includes restaurants, school and hospital cafeterias, military production and eating facilities, catering operations, and many others such as mobile food and beverage service or camp service. (See foodservice operations types). The companies that supply foodservice operators are called foodservice distributors or purveyors. Foodservice companies are not limited to supplying just food and beverages but also equipment and machinery such as ovens, refrigerators, stoves, and mixers. Driven by an expanding economy and elevated consumer sentiment, sales in 2020 were expected to reach $863 billion, and by 2030, the National Restaurant Association (NRA) projected the industry's sales would top $1.2 trillion. The industry's workforce, now 15.3 million, is likely to exceed 17 million by 2030 (NRA, 2019).

Most Likely Developments by 2030

1. Competition for customers will intensify. 2. It will be commonplace for restaurants to accept mobile payments. 3. Hand-held payment terminals that allow for pay-at-the-table will be commonplace. 4. Most take-out and delivery orders will be placed digitally. 5. Packaging designed exclusively for delivery and carryout will be more sophisticated and effective. 6. Regardless of the nutritional content of the food, consumers will still want comfort foods. 7. Convenience stores and grocery stores will expand their foodservice offerings. 8. More restaurant layouts will include areas dedicated to delivery and carryout. 9. State and local governments will increase restaurant industry regulation. 10. Total employee compensation costs will increase as a percent of sales. 11. More training will be provided online and on smartphones. 12. The restaurant industry will continue to be a breeding ground for entrepreneurialism. 13. Equipment used in restaurants will be more energy efficient. 14. The use of kiosks in limited-service restaurants will be commonplace. 15. There will

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be increased regulation around third-party delivery. 16. More employees will be certified in safe food handling through ServSafe products. 17. Video menu boards in limited-service restaurants will be commonplace. 18. More restaurants will be designed to reduce the use of energy and water and minimize waste. 19. Turning point-of-sale (POS) data into actionable knowledge for operators will become easier. 20. Restaurant operators will be more likely to implement more local, targeted and customized promotions. 21. Technology will be more effectively used to control costs and enhance management efficiency. 22. Women will hold a larger proportion of upper management jobs in the restaurant industry. 23. Restaurants will offer more healthy options on their menus. 24. Restaurant inspection results will be readily available to the public. 25. The federal government will enact more data-privacy rules to regulate how businesses handle customer data.

The Significance of the Foodservice Segment in the Hospitality Industry

The hospitality and tourism industries encompass many sectors that provide services to the traveler or tourist. These sectors are subdivided into subindustries and subsectors, and segments. Therefore, travelers or tourists require services while traveling/ visiting, and the hospitality industry provides those services. The Foodservice segment is an integral and extremely important part of the hospitality industry; without it, other segments may not be able to function or fully sustain their core business, such as those of meetings and conventions in a hotel setting. Within this context, the definitions can be described as follows:

Travelers and tourists: travelers include all persons traveling for business or pleasure, whether individually, as a family, or as a group of independent participants. Tourists travel for various purposes, either cultural or recreational in nature, who need services provided by the hospitality industry's various sectors, including natural, cultural, and heritage sites, museums, zoos, and theme parks. Such locations frequently include the presence of other related hospitality operations, including hotels, restaurants, and cafés. The hospitality industry includes:

1. hotels, boarding houses, motels, tourist camps, holiday centers, Airbnb.
2. Restaurants, bars, cafeterias, snack bars, pubs, nightclubs, and other similar establishments, airlines, casinos, and cruise liners operation.
3. establishments for the provision of meals and refreshments within the framework of industrial and institutional catering (for hospitals, factory, and office canteens, schools, aircraft, ships, etc.).
4. travel agencies and tourist guides, tourism information offices.
5. car and other means of transportation rentals like bikes and taxis and buses.
6. conference and exhibition centers.

B. HISTORY AND DEVELOPMENT

Since the beginning of human civilization, the search for food has played an important role in humankind's cultural evolution. Food consumption has been at the center of this evolution: eating culture, rituals, and food preferences based on environmental conditions and demographic make–up of people arose. Societies have adapted to their environmental conditions and have established harmony with specific food preferences among their members, their natural surroundings, their economies, and the universe around them. They have also established a choice of foods and drinks, developed agricultural systems

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to produce them and methods to prepare them, and evolved eating habits to reflect their taste. With the food culture, the service culture emerged, and the first evidence of service can be found in the old Greek Oneida and Odyssey, in which they depict the feature of pompous banquets; additional evidence can be found in the history of Pompei, where hundreds of taverns operated for the public.

The Romans learned the art of exotic cooking from the Etruscans, who in turn learned from Greeks. These series of events have created food cultures, rituals, and symbolism among societies and nations. With the birth of the restaurant in the Palais Royal in 1783, patrons became accustomed to generating demand; chefs, in turn, responded to this demand and then new demand by creating new dishes, new menus, and forecasting new demand. Now, in an evolving global environment, the cuisine of the world is produced locally almost anywhere, much to the credit and efficiency of the food supply chain. The agricultural industry has adapted to foodservice industry trends, and cuisine has become subject to change, just the same as the world economy. Since the early nineteen hundred, societies have lived through industrialization, mechanization, automation, and now, robotics. The restaurant industry benefited from the industrial revolution and from inventions such as the first commercial kitchen equipment invented by Count Rumford (1753–1814) (born Benjamin Thompson) (Sparrow, 1964; Brown, 1981).

Clearly, such historical trends have significantly impacted the world economies and people's well-being, particularly their living standards and eating habits and the demands, expectations, and future trends surrounding them. The European discovery of the New World represented a significant turning point in the history of food. From that discovery until the late 19th century, the U.S. earliest English, Scottish, and Irish Protestant migrants tended to preserve the food traditions they brought to the U.S. from Europe. Before the Civil War, there were major food traditions in the United States, each with English roots. Eventually, however, the presence of new ingredients, and especially contact among diverse ethnic groups, would encourage experimentation and innovation. These included a New England tradition that associated plain cooking with religious piety. With its high seasonings and emphasis on frying and simmering, a Southern tradition was an amalgam of African, English, French, Spanish, and Indian foods. In the middle Atlantic areas, influenced by Quakerism, the diet tended to be plain and simple and emphasized boiling, including the boiling of puddings and dumplings. In frontier areas of the backcountry, the diet included many ingredients that some of the English used as animal feed, including potatoes, corn, and various greens.

This backcountry diet stressed griddle cakes, grits, greens, and pork. One of the major forces for dietary change came from German immigrants, whose distinctive emphasis on beer, marinated meats, sour flavors, würsts (generalization for sausages of any kind), and pastries was gradually assimilated into the mainstream American diet in the form of barbeque, coleslaw, hot dogs, doughnuts, and hamburger. The American industrial revolution also caused major changes across industries as it allowed the increase in production, longer shelf life, and the process of national distribution of foods, although distinct regional and ethnic cuisines persisted. Immigrants from the "Southern and Eastern Europe Progressive Era" brought new foods such as cheese-making and vinegar-marinated foods to the United States, which became the center of attraction of a multicultural society (Hopkins, 2014; Smithsonian, 2020). This has been called "the melting pot food revolution."

Following World War II, shifts in eating patterns greatly accelerated. Overseas service introduced soldiers to various foreign cuisines, while population movements at home were exposed to a wider variety of American foods. Today, food appears to play a less distinctive role in defining ethnic or religious identity. Consequently, Americans, regardless of religion or origin, today eat almost any ethnic food while at the same time preserving traditions such as Thanksgiving turkey dinner. Foodservice industry operators

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concern themselves with food preparation and service evolution and attempt to anticipate demands and related industry changes such as the supply chain and resource acquisition to meet patrons' demand and keep their competitive advantage. The fact remains that with the promotion of diverse food preparation through celebrity chefs, mass media, and the effect of globalization, the trends toward a more demanding and sophisticated patron will continue to grow. This increasing demand in all areas will challenge foodservice operators to adapt to new technologies, new business communication and delivery systems, and new management systems to stay ahead of the changes.

C. MANAGEMENT AND OPERATION

Management

The most comprehensive way to describe the food and beverage management function is to dissect the food and beverage managers' job function. His/her duties and responsibility will highlight the complexity of the job function in the food and beverage service industry. Although every food and beverage service company prepare a food and beverage service manager's job description to suit their needs, one of the most complete job descriptions can be found in the U.S. Department of Labor web site in which they describe the job of a Food and Beverage Service Manager as follows:

Important Points

Experience in food and beverage preparation and serving jobs is necessary for most food service manager positions.

1. Foodservice managers coordinate a wide range of activities, but their most challenging task may be dealing with irate customers and uncooperative employees.
2. Job opportunities for food service managers should be excellent as the number of outlets of restaurant chains increases to meet customer demand for convenience and value.

Nature of Work

Foodservice managers are responsible for restaurants' daily operations and other establishments that prepare and serve meals and beverages to customers. Besides coordinating activities among various departments, such as kitchen, dining room, and banquet operations, food service managers ensure that customers are satisfied with their dining experience. In addition, they oversee the inventory and ordering of food, equipment, and supplies and arrange for the routine maintenance and upkeep of the restaurant's equipment and facilities. Managers generally are responsible for all the administrative and human-resource functions of running the business, including recruiting new employees and monitoring employee performance and training.

Managers' jobs include interviewing, hiring, training, and, when necessary, terminating employees. In addition to their regular duties, food service managers perform various administrative assignments, such as keeping employee work records, preparing the payroll, and completing paperwork to comply with licensing laws and tax, wage and hour, unemployment compensation, and Social Security laws.

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Managers tally the cash and charge receipts received and balance them against the record of sales. They are responsible for depositing the day's receipts at the bank or securing them in a safe place. Finally, managers are responsible for locking up the establishment, checking that ovens, grills, and lights are turned off, and switching on alarm systems. Technology influences the jobs of food service managers in many ways, enhancing efficiency and productivity. Many restaurants use computers to track orders, inventory, and the seating of patrons. Point-of-service (POS) systems allow servers to key in a customer's order, either at the table using a hand-held device or a computer terminal in the dining room and send the order to the kitchen instantaneously so preparation can begin. The same system totals and prints checks, functions as a cash register, connect to credit card authorizers, and tracks sales.

Many managers use inventory-tracking software to compare sales records with a record of the current inventory to minimize food costs and spoilage. Some establishments enter an inventory of standard ingredients and suppliers into their POS system. When supplies of ingredients run low, they can be ordered directly from the supplier using preprogrammed information. Computers also allow restaurant and foodservice managers to keep track of employee schedules and paychecks more efficiently. Foodservice managers use the Internet to track industry news, find recipes, conduct market research, purchase supplies or equipment, recruit employees, and train staff. Internet access also makes service to customers more efficient. Many restaurants maintain Websites that include menus and online promotions, provide information about the restaurant's location, and offer patrons the option of making a reservation.

Work Environment

Foodservice managers are among the first to arrive in the morning and the last to leave at night. Long hours—12 to 15 per day, 50 or more per week, and sometimes seven days a week—are common. Managers of institutional food service facilities, such as schools, factories, or office cafeterias, work more regular hours because the operating hours of these establishments usually conform to the operating hours of the business or facility they serve. However, hours for many managers are unpredictable.

D. TRAINING AND OTHER QUALIFICATIONS

Education and Training

Experience as a waiter or waitress, cook, or counter help is the most common way to enter the occupation. Executive chefs need extensive experience working as chefs. Many food service management companies and national or regional restaurant chains recruit management trainees from 2- and 4-year college hospitality management programs, which require internships and real-life experience to graduate. Some restaurant chains prefer to hire people with degrees in restaurant and institutional food service management, but they often hire graduates with degrees in other fields who have demonstrated experience, interest, and aptitude.

Postsecondary education is preferred for many food service manager positions, but it is not an essential qualification for many others: More than 40 percent of food service managers have a high school diploma or less; less than one-quarter have a bachelor's or graduate degree. However, a postsecondary degree is preferred by higher-end full-service restaurants and for many corporate positions, such as managing a regional or national restaurant chain or franchise or overseeing contract foodservice operations

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at sports and entertainment complexes, school campuses, and institutional facilities. A college degree also is beneficial for those who want to own or manage their restaurant.

Other Qualifications

Most employers emphasize personal qualities when hiring managers. Workers who are reliable, show initiative, and have leadership qualities are highly sought after for promotion. Other qualities that managers look for are good problem-solving skills and the ability to concentrate on details. A neat and clean appearance is important, because food service managers must convey self-confidence and show respect in dealing with the public. Because food service management can be physically demanding, good health and stamina are important.

Managers must be good communicators as they deal with customers, employees, and suppliers for most of the day. They must be able to motivate employees to work as a team to ensure that food and service meet appropriate standards. Additionally, the ability to speak multiple languages helps communicate with staff and patrons.

E. OPERATIONS

Opening a restaurant can be a beautiful dream put into reality. However, as often is the case, opening a restaurant can be a real nightmare. One must ask the questions: How do you want to open a restaurant? Build it from scratch, buy an existing one, franchise, or manage it. Whether the restaurant will be operated free-standing, in a mall, in a hotel, or in a residential neighborhood, the complexity and logistics to open such a facility are enormous. That is why statistics show that a large percentage of newly opened restaurants fail during the first year. One must conduct an actual feasibility study, research supply, and demand, and one must look at the long-term viability before determining if and what type of restaurant can be opened and operated. Operating a restaurant can be a full-time job leaving little time for family and social life.

Many celebrity chefs are now operating restaurants in first-class hotels and resorts. Whether this trend will be sustainable is unknown because the actual chef may open more than one restaurant and he/she is physically not there to represent his/her brand or offer the trust to customers that the food and beverages and service are as good as he/she would be there physically all the time. However, this strategy has made it possible to attract patrons to a hotel restaurant more than ever. For unexplainable reasons, patrons have not considered hotel restaurants as the venue to be pampered with good food and spoiled with exceptional service.

The free-standing restaurant always has the choice, and in fact, the hotel concierge greatly benefits from making a restaurant reservation for hotel patrons. As foodservice managers apply more and more analytics management, statistics show that leasing facilities to celebrity chefs in hotels shows that the in-house to guest room ratio can be substantially increased. The globalization of food and beverage service has also had an impact on the industry. Although patrons may sadly regret not having seasonal food anymore, many enjoy the food available from all over the world, anytime, anywhere. Sushi fish from Japan and fresh lamb from New Zealand flown daily to reach the restaurant patron is not impossible anymore but a reality. Also, patrons' extra disposable income allows the extra charge to be added to the bill in a speculative sense.

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Overall, restaurants have evolved to accommodate the discriminating gourmet; however, they had made their operations more complicated and more complex than they used to be in the 1980s when the computer in the back office and a point-of-sale system were options and not a requirement. Accordingly, operators and personnel will have to be constantly updated about new trends in restaurant operations and new technologies that will make such operations more efficient to generate higher returns and stay competitive.

F. BASIC STRATEGIES FOR COMPETITIVE ADVANTAGE

Food and beverage service operations are subject to the same business practices as all other businesses. Maintaining a competitive advantage is a challenge since entry barriers to open a restaurant are extremely low. Porter's model can be well applied to recognize whether a restaurant operation is viable or not. Since no institution tracks failure in the food and beverage service operations, facilities in distress often change hands without being tracked by anyone. The new owner, often inexperienced, may believe that he/she has the right strategy to succeed, only to find out a few months later that both their finances and family lives may have been put to the test and are in serious jeopardy. To maintain a competitive advantage, the food and beverage service operator must be business educated, understand the industry and the players he/she is competing against, and most of all must understand that the return on investment is much lower than other industries. A chain-owned restaurant's strategy is for restaurateurs to understand that they need to sell a concept and not ego. The chef believes he/she can cook Italian food it is not sufficient to sell a concept. Selling a concept requires creating one, the marketability in a competitive environment, and understanding a well-laid-out business and marketing plan that will support the concept. Another strategy is to find well-qualified staff that will support the concept. Sadly, the industry has a missed link; while the entire food and beverage industry and educational institutions, and mass media have concentrated more on the back of the house importance, such as a celebrity chef; no one is concentrating on service. There are thousands of culinary schools in the U.S.; however, there are very few service schools. The service staff must be strategically trained to sell, act as guest relations manager, as a marketing manager, and must represent the operation the same as the CEO would. However, this task may be impossible without adequately trained staff and paying less than desirable minimum wages. Although the industry is growing, the task of developing and implanting well-proven strategies will remain challenging for many operators and managers. One of the reasons is that there is not enough time in a day to strategize, to lead, produce, sell and administer with a low return, such as in the food and beverage service industry, the return on investment would not warrant it.

G. FOOD AND BEVERAGE MANAGEMENT PHILOSOPHY

The Food & Beverage Operation usually represents a substantial contribution to our total revenues. Profit potentials, however, are such that there is little margin for error. To be successful, one must strive for a high degree of guest satisfaction to assure repeat business one must operate in a manner conducive to the maximization of profits. The operation's success depends on our continual concern and the action to improve the way the management manages the product.

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The Food and Beverage Operation is About People

To a high degree, the success or failure in achieving business objectives depends on the employees' attitudes to bear on their job responsibilities. The management and ownership have a great concern for the work environment of the people. They are concerned with their needs as human beings, from the necessities of life to the fulfillment of purpose and dignity. They think of their employees as valuable resources and assets in recent times called "Human Capital." They try hard to create a climate that will enhance the achievement of everyone's maximum potential. However, the people must have a thorough understanding of their job responsibilities, a "voice" in how the work is to be accomplished.

Additionally, they must be aware of how their job is an integral part of the entire operation. Their attitudes and behavior hold the keys to success in the Food & Beverage Operation. The people can only be updated with product knowledge and new technologies through an extensive training program.

The Food and Beverage Operation is About the Product

A successful food and beverage product requires great "expertise" in all details, from room atmosphere to food production and proper plating. It starts with unfailing attention and control of the basics of purchasing, receiving, storing, issuing, production and control. Without sufficient attention to these basics, even the best of any other efforts toward an excellent product will be futile. With the basics effectively controlled, the management then must ensure proper and consistent preparation. For, here again, failure will render all subsequent efforts futile. Moreover, finally, the service must always exhibit a high degree of attentiveness and warmth toward the guest and be technically correct.

Any lack of attentiveness, warmth, and proficiency in the service will negate the value of all previous steps toward an excellent product. A keyword then in the quest for product excellence is "consistency." To achieve the condition of consistency, the operations must be prepared with high standards that are thoroughly organized and documented in the form of operating manuals by each food and beverage service outlet. The restaurant is a business establishment, and like all businesses, it wants to generate high business volume, and in fact, it is the volume that allows most businesses to be able to keep their doors open. Millions of dollars were invested in making it a desirable dining room to come to. Outstanding decor, furniture, and the best procurable equipment have been purchased. Thousands of dollars are spent each month on advertising. Therefore, there is no margin for error; everything must thoroughly be thought, well planned, well-executed, and well-controlled to repeat the profitable cycle. Should the profitable cycle not be feasible, corrective actions must be taken immediately, including a well-planned and executed exit strategy.

However, All of This is Just Secondary

Excellent service is what makes restaurants desirable, and if they are desirable, they will be successful and sustainable, and in turn, they can job for employees. Service is provided by employees so that all it amounts to is that the employee is a management partner because success depends upon the employees and those they work with. When employees prosper, management will prosper, and business will prosper; everyone will gain.

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Well, What is Service?

It is an attitude, common sense, and a desire to perform a good job. It is conscious of the fact that the guest is not a necessary evil. He/she is the one who spends his/her money with us.

The guest is the one who gives tips, and their size is determined by the quality of service he/she receives. Service is a cheerful smile and proper grooming. No one likes grumpy and unkempt people, and no one feels good in their presence. They are depressing. Service is making people feel good. Service is a cheerful "Yes" not a "No". Service is cooperation and a willingness to help fellow employees do their job and allow them to help management and ownership do theirs.

If we invite friends into our own homes, we have a sincere desire to make them feel good. We seat them in the most comfortable chair. We see to it that they have the best of food and drinks and want for nothing while they are our guests. In short, we fuss over them. This is precisely the attitude one must have toward guests in restaurants. With such an attitude, both management and its partners - the employees - will prosper because the restaurant will have a reputation for outstanding service. Such an outstanding service is also uniformity and rules. Some of these rules may seem obvious or insignificant, but in the same way as one hundred pennies make a dollar, little seemingly insignificant rules - when added together - have a significant total impact.

H. VIABILITY AND CRITICAL SUCCESS FACTORS IN RESTAURANT ENTREPRENEURSHIP

Thinking About Starting a Restaurant? Think Again!

Many business-minded individuals dream about owning and operating their businesses because of the perceived freedoms associated with being one's boss, the desire to be rich, and the prestige, rush, and challenges they expect to achieve by owning and operating a business (Camillo, Connolly and Kim (2008.) Nevertheless, many people underestimate how difficult launching a new business can be, the emotional toll it can take, and the personal sacrifices required to sustain a business. Starting any new business is never easy—especially if that business is a restaurant—but people are often deceived and drawn in by the fascinating aspects of entrepreneurialism and the many success stories of famous restaurants and their founders. Further, the low entry barriers allow inexperienced operators to venture into the restaurant business without trade or business skills.

However, the obstacles to success are quite high due to the restaurant business's complexities, and they help explain the high number of restaurant business failures. With relatively little investment and a targeted location, nearly anyone can start a restaurant business, but because the market is highly competitive and the managerial challenges to operate a restaurant are so great, not everyone will succeed. The road to success is difficult and not without risk. Frequently, one's enthusiasm to become a business owner clouds his/her vision and rationality; moreover, this zest tends to prevail over taking the time to follow a methodical process to assess market opportunities, conditions, and risk factors. The result is a sense of urgency that causes one to rush into a market with an incomplete or ill-conceived concept based upon faulty assumptions. Unfortunately, problems inevitably surface after the business becomes operational or a going concern—at which point it may be too late to respond or to take corrective ac-

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tion, and the entrepreneur comes to the realization that he/she lacks the skills and know-how to face the challenges that present themselves.

To succeed in the restaurant business, one must possess a strategic vision, strong business acumen, a competitive drive, and an ability to manage both the front-of-the-house and back-of-the-house operations effectively—or at least oversee and hold people accountable. A restaurant entrepreneur must possess the following skills to at least have a chance of being successful: securing a suitable location; managing finances; boosting revenues; applying proper pricing strategies; keeping labor costs, employee turnover, and food and beverage costs under control; designing and developing menus; maintaining service levels and food quality and consistency; enforcing safety and sanitation practices; finding and retaining competent labor; implementing stringent internal controls; procuring goods and services; and developing a loyal following. It is difficult to manage all these aspects of the business, and it requires the need to balance trade-offs that may arise between the different demands of the job. Inadequately managing the various trade-offs can lead to disastrous results and possibly failure for those who do not possess this specific industry knowledge. Numerous "how-to guides" like the one that appeared in a Forbes magazine's issue present over-simplified formulas to prospective entrepreneurs who intend to launch a new restaurant venture (McQueen, 1989; Nelson, 2007).

An Amazon.com search on the term "restaurant business" yielded over 15,500 results, while a search on the term "restaurant start-up" suggested over 200 books, and a search on "restaurant failure" resulted in 300 hits. The various available resources cover the gamut of nearly every facet of the business, from start-up kits and financing and marketing to operating guides and menu planning, gastronomy and food safety. One can even find a book from the popular *Dummies* series, which implies that just about anyone can enter and succeed in this business (Garvey, Dismore, and Dismore, 2004.) These resources can be invaluable to someone thinking about starting a restaurant, but they can also be deceptive by implying that the success formula can be summed up, documented in a book or article, and followed like a recipe to achieve instant success and fame. Nothing could be further from the truth.

The restaurant industry requires a great deal of business knowledge, hard work, perseverance, and sacrifice. These guides can sensationalize the benefits of owning a restaurant and mislead people into thinking it easy to succeed at what arguably one of the most is demanding and challenging businesses to run. Unfortunately, the restaurant industry has no shortage of its share of failures. It is commonly characterized as having one of the highest failure rates for new businesses despite the large body of how-to literature designed to help people succeed in this space. Perhaps many people choose not to read the available literature or heed its advice, but more likely, and the restaurant business is much more complex than words can articulate; also, it is encumbered by numerous systemic and latent variables. Given the industry's history of failure and its large number of failures, it is evident that many aspiring restaurateurs are not investing the time and effort it takes to note and learn from what has happened to others who have gone before them and fail to take the time to learn the ins and outs of the business.

Because the business environment is complex and dynamic, those lacking specialized knowledge may be fooled by the apparent low entry barriers and underestimate the next hurdles and staying power required to operate a successful restaurant. Ultimately, they will likely succumb to failure. Although the exact failure rate is not known due to the inconsistencies in how restaurant failure is defined (Parsa et al. 2005), the probability of business failure is authentic in the restaurant business. Moreover, no one is immune to the threats of bankruptcy—even fame, wealth, and prior restaurant success cannot prevent restaurant failure. Business failure is usually a demoralizing event in a person's life because it impacts both professional and personal self-esteem (Sharlit, 1990.) Many experts believe that the entrepreneur

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who experiences a business failure goes through many of the same stages of loss as individuals who suffer from the loss of a friend or loved one: shock, denial, anger, depression, and, finally, acceptance (Axelton, 1998.)

Shepherd's article, "Learning from Business Failure," calls upon the psychological literature on grief to explore the emotion of business failure, suggesting that the loss of a business from failure can cause the self-employed to feel grief, which is a negative emotional response interfering with the ability to learn from the events surrounding the loss (Shepherd, Douglas, and Shanley, 2000). The high number of failures raises an important question: "Why?" Perhaps restaurateurs feel that they are invincible or that others' mistakes do not apply to them. Alternatively, they may be just plain ignorant. Many almost categorically ignore, diminish, or grossly underestimate the risk factors associated with owning and operating a restaurant business. They also let their egos and enthusiasm cloud their vision and rational judgment. Whatever the reason, restaurant failure, unfortunately, can be hard to predict but always results in disastrous consequences (e.g., financial loss, emotional issues such as depression, tainted reputation, sour relationships, etc.) for those involved.

Restaurant viability is affected by specific influence attributes, but these attributes cannot be considered in a vacuum without considering personal/emotional influential elements. It is important to note that one's personality traits, emotions, and emotional state can be affected by the business they are in, the demands of the job, the sacrifices made, etc. However, it is also true that factors in one's life (e.g., family pressures, death of a loved one, divorce, family crises, etc.) can also affect one's emotional state, causing one to bring emotional baggage to work. This emotional baggage can cloud one's judgment, distract one's focus, and impair one's performance on the job. They will ultimately impact the financial health of his/her business and, if allowed to continue long enough, lead to business failure. Thus, it can be said that there is a dyadic relationship between one's emotional state and the health of his/her business.

The co-alignment model is the fundamental underpinning of strategic management (Olsen, Tse, and West, 1998.) It theorizes the interaction between, and alignment, of four constructs: environmental events, strategy choice, resource allocation decisions, and firm performance. Simply stated, the co-alignment model suggests three things about firms: they must be able to recognize opportunities and threats in their external operating environments; they must be able to act accordingly to develop appropriate strategies and competitive methods to capitalize on opportunities and minimize threats; and they must be able to allocate consistently and continually stretched resources in support of the chosen strategies in order to achieve firm performance (as measured by things such as market share, profitability, customer satisfaction, etc.). It is, therefore, reasonable to assume that a restaurateur's success is directly dependent upon his or her abilities to manage and control a tricky business in a very dynamic and competitive environment. However, it is also highly correlated to the success of the economy and one's emotional stability. Thus, success cannot be sustained without many factors being in harmony. Figure 1 provides a detailed list of variables that one must carefully consider before launching a new restaurant venture. Although mastering this list alone will not guarantee success, it will undoubtedly help and increase one's odds for success. Table 1 explains the viability of a restaurant operation.

Understanding why some restaurants fail and why others succeed will help entrepreneurs build sound business plans, which could result in favorable financing for restaurant ventures and attracting more potential investors, eventually nurturing the future prosperity of independent restaurants. Besides, understanding factors affecting restaurant viability is beneficial to other stakeholders who are involved with starting new restaurants or operating existing businesses, such as financial institutions, employees,

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Table 1. Critical Success Factors for a Restaurant Business

Strategic Choices	Competitive Factors	Marketing	• Resources and Capabilities	Owner-Manager Traits
• Restaurant location • Business plan • Plan for growth • Concept definition or positioning • Target market • Differentiation strategy • Adaptation to the external environment • Ongoing strategic planning • Firm values	• Restaurant density or competitive intensity • Knowledge of competitive forces • Product relevance	• Marketing abilities • Customer relationship building and loyalty • Community involvement • Public relations • Advertising • Demand generators • Pricing	• Firm size • Financial capital • Financial management and profitability • Internal controls • Economies of scale • Age of business • Financial risk • Organizational culture • Internal relationships • Efficiency • Product quality and consistency • Service levels • Effectiveness of training programs • Competence of employees • Use of technology • Employee relationships • Employee turnover • Business agility and responsiveness to change • Capacity utilization	• Vision • Leadership • Personality • Values • Knowledge/competence • Business acumen • Experience • Attention to the business • Operating philosophy • Focus • Balance of work and family • Attitudes towards risk

Source: Camillo, A. A., Connolly, D. J., and Kim, W. G. (2008). Success and failure in Northern California: Critical success factors for independent restaurants. Cornell Hospitality Quarterly.

food suppliers, and local, state, and federal government policymakers. Aspiring restaurateurs are often energetic, enthusiastic, and goal-oriented with a can-do attitude.

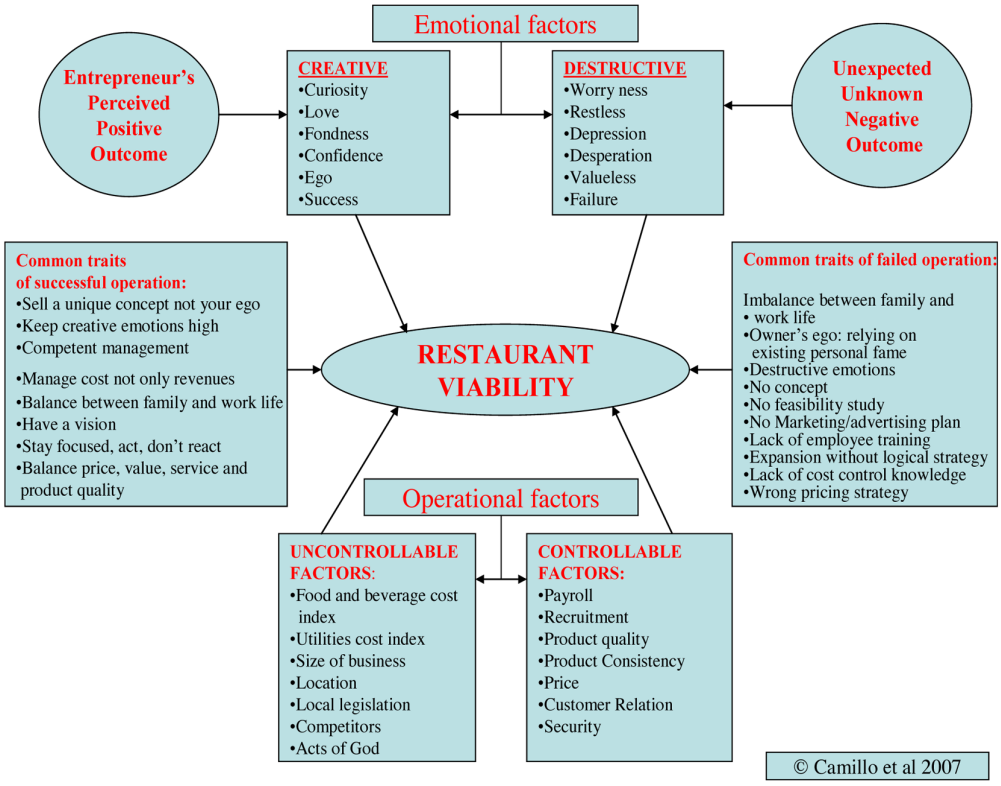
While these attributes are positive and essential traits for any entrepreneur to possess, they need to be kept in check so that they do not cloud one's vision or cause someone to create lofty but unachievable goals to reduce the potential for failure. Without question, entrepreneurs need to dream, but they need to maintain a sense of reality, objectivity, and rational thinking to stay grounded. They must be confident yet keep their egos in check and possess a healthy emotional state without too much emotional baggage.

Restaurant viability is affected by several factors. The popular literature is replete with resources to help interested parties to develop, launch, and run a restaurant operation, but this literature must be carefully studied before making a go/no-go decision to launch a new restaurant business. Aspiring restaurateurs can improve their chances for success when they launch a new restaurant business by creating and articulating a clear, well-crafted, and well-researched vision and business plan. The next stage involves staying focused and allocating resources appropriately and consistently to execute this vision and plan. Given the high rate of restaurant failures, restaurateurs must anticipate what could go wrong and, in response, develop appropriate exit strategies.

Suppose future entrepreneurs venturing into the restaurant business would refer to the published literature and consider potential lenders or investors' advice on why projects do not get funded. In that case, they could develop better plans based upon more rational thinking to increase their likelihood of success. To be successful, new restaurant concepts must be viable and unique to the marketplace, conveniently located in areas with sufficient demand generators, and staffed with competent employees

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Figure 1. The following model explains the complexity of restaurant entrepreneurship and viability
Source: Camillo, A. A., Connolly, D. J., and Kim, W. G. (2008). Success and failure in Northern California: Critical success factors for independent restaurants. Cornell Hospitality Quarterly.



and management. From an operational standpoint, managing and controlling the business continues to serve as critical success factors. Maintaining an appropriate balance between food costs and labor costs, managing employee turnover, and focusing on food/service quality and consistency are fundamental elements of restaurant management and are necessary, but not necessarily, sufficient elements of success.

I. SUSTAINABLE DEVELOPMENT IN THE RESTAURANT INDUSTRY

Today's restaurant operator and food and beverage service manager will have to be concerned about environmental issues than ever before. Food and beverage service operations impact the global environment; from purchasing to storage and processing food and beverage products, every establishment will need to comply with existing sustainable development trends or risk going out of business.

There are many benefits for going green and for contributing to the overall sustainable development: cost saving, the longevity of existing equipment, increase in business volume due to higher demand for green products, and healthier lifestyle for patrons, staff, and management/ownership.

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According to the National Restaurant Association (2020), "Going green" is not only a trend; it is a smart new way of doing business. In addition to being the right thing to do to conserve the planet for future generations, incorporating environmentally friendly practices can benefit restaurant operators, and it can save on utility costs, satisfy consumer demand and increase operational productivity. There is often a perception that 'going green' is expensive and not realistic for everyone, but many of these practices can boost business. "By taking even small steps and reaching for low-hanging fruit, restaurant operators can increase their efforts and, in turn, their bottom lines.

The Green Restaurant Association offers opportunities to learn how to implement environmentally responsible practices to conserve financial resources. These efforts can also help drive customer traffic, as consumers increasingly make purchasing decisions based on "eco-consciousness." Among the many green products and services available on the market today, there is a vast choice of sustainable food and beverage offerings. There are choices for equipment and other products that include green energy management system technologies; packaging, tableware, and cups made of recycled and renewable materials; eco-friendly uniforms; bio-degradable drinking straws; energy-efficient ambient lighting; sustainable seafood products; eco-conscious signage; and much more.

The following is a list of ideas about how managers and operators can get involved in green practices:

- Reduce air pollution
- Use ecological building construction and renovation designs
- Implement energy conservation practices
- Purchase from environmentally and socially responsible companies
- Implement waste reduction practices
- Recycle solid waste
- Implement water conservation and wastewater practices
- Reduce electricity and natural gas by using ultra-efficient materials and systems, along with the latest construction technology, and by installing (PVP) photovoltaic panels to generate their own energy to heat hot water.
- Use natural lighting with large energy-efficient "operable" windows
- Use building materials with recycled content, such as gypsum, concrete, steel, sheetrock, masonry, and carpet.
- Reduce water usage by installing high efficiency plumbing fixtures.
- Improve air quality by circulating large amounts of outside air into the facilities \ by employing "energy recovery" technology where the outside air is tempered by the air being exhausted from the facilities.
- Install Xeriscape landscaping while reducing erosion, planting local, adaptable plant species, and rebuilding the nearby natural flora. Use mulch donated by the city.
- Use regional vendors for materials to reduce transportation and packaging.
- Utilize low-emitting volatile organic compound (VOC) paints, adhesives, carpets, etc., to reduce indoor air contamination.
- Offer bicycle storage and shower facilities for staff members and guests
- Install the elevator, which will generate electricity as the cab descends by using a regenerative drive.
- Use tabletops made of salvaged trees that came down through sickness or storm and room service trays made of Ply-boo (bamboo plywood).

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- Use shelving made of walnut SkyBlend, particleboard made from 100% post-industrial recycled wood pulp with no added formaldehyde.
- Become an "Education Center" for sustainable practices with tours for guests and outreach programs for students of all ages.

By using organic products from local suppliers to processing an ideal quantity of food and beverage products while reducing overproduction and waste, there are many more practices an operator or manager can implement to stay abreast of technological trends and to remain competitive.

J. ORGANIZATION OF THE BOOK

The book is organized into thirteen chapters. A brief description of each of the chapters follows:

Chapter 1, "Introduction to Food and Beverage Service Operations." is about the history of the foodservice industry and its scope over the centuries. It highlights the numerous types of food and beverage operations, their anatomy, style, customers' typologies, the type of menus, business location, size/ capacity, and production.

Chapter 2, "Theory of Organizational Management," is about understanding General Management's concept, based on its history and development, the meaning of management science, management process and function of Management, the definition of ethics in the context of hospitality, and the importance of Corporate Governance, and it identifies ethics' categories and values. Understanding the fundamental theories of organizational Management and organization behavior and applying the best practices is conducive to effective Management in guiding teams to successful accomplishments. Many of these theories were catalysts to the leadership approaches which have shaped organizations over time. Modern organizations, especially hospitality organizations, can benefit from strategies that were formulated from organizational theories. A useful example is the development and application of ethics and ethical leadership within the domain of hospitality. Thus, understanding and applying management theories is crucial in the hyper-competitive hospitality industry.

Chapter 3, "Human Resources Management: Recruiting, Retention, Diversity, Inclusion, and Outsourcing," presents the Human Resources Department's critical role for foodservice operations, which are very labor-intensive by nature. The chapter introduces the reader to what it takes to be successful in Human Resources Management, H. R. Manager's role and its role in the operation and its relationship with other departments. The content includes planning, organizing, staffing, leading, and controlling in the context of H. R. Management. Most importantly, it emphasizes the importance of knowing the Federal Equal Employment Opportunity Legislation and the Employee Occupational Safety & Health Regulations. It makes recommendations for developing training manuals, job descriptions, employee policy manuals, and applications. Besides, it proposes strategies as to how and where to recruit the best-qualified employees and retain them. Lastly, it shows practical examples of proficiency in forecasting Human Resources Demand by using mathematical formulas and directions and makes the reader aware of the challenges and opportunities of the Human Resources Manager.

Chapter 4, "Legal Matters, Risk Management, and Risk Prevention: From Forming a Business to Legal Representation," highlights the importance of risk management and the need for a risk management plan to have in place in case disaster strikes. From opening a foodservice business to operating it with the possibility of expansion, the risks involved are enormous. It discusses the importance of respecting the

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laws when dealing with business and carefully taking all necessary steps to avoid legal pitfalls, leading to severe negative consequences. The chapter provides useful information and references about obtaining proper licenses, dealing with government agencies, and developing and implementing a "Preventive Risk Management" plan. Finally, the chapter highlights the current business laws of the United States and should not be considered applicable internationally. The reader should refer to the governing laws of the country where the business operates.

Chapter 5, "Food and Beverage Operation's Management," describes the "functions of food and beverage management" and operations within a hotel/resort setting, which is the most comprehensive operation to manage due to the many food and beverage sub-departmental operations. It includes the basics of food and beverage management, the people involved, the back of the house and front of the house operations, and the equipment required for the operation and production. The reader will understand what it takes to run a food and beverage operation, will be familiar with all duties and responsibilities of a Food and Beverage Director, understand the stakeholders involved in all aspects of the operation, including guests, and understand the equipment required to run a food and beverage operation.

Chapter 6, "Food and Beverage Product Knowledge," introduces and discusses some of the most common food and beverage products used in commercial foodservice operations. It includes herbs and spices and their application, beverage products, and application. It introduces the basic knowledge necessary about still, sparkling, fortified, and aromatized wines, distilled spirits, liquors/ cordials, cocktails, mineral and natural waters, coffee, tea, and cocoa, within a bar operation. The products include seasonings; flavorings; spices and herbs; oils and fats; produce; meat; fish and seafood; cheese; alcoholic beverages; equipment and utensils; wine; fortified wines; sparkling wines; beer; non-alcoholic beverages; juices; waters; carbonated drinks; coffee; tea; herbal tea; cocoa. The products discussed in chapter 6 are used globally in most full-service restaurants and hotel operations.

Chapter 7 is "Food Safety, Food and Beverage Preparation, Menu and Beverage List Development, Service, and Current and Future Challenges." Safety in culinary preparation and service is the most important factor when serving people. This chapter discusses the importance of safety and sanitation in food preparation and service and the integration into the menu and beverage list development. Specifically, it discusses the current safety and sanitation requirements for foodservice facilities, including the HACCP 7 step process (Hazard Analysis Critical Control Point). It introduces nutrition basics in a foodservice setting and the basics of food and beverage preservation and preparation methods. Consequently, it demonstrates how to develop menus and beverage lists and the various foodservice style and service techniques.

Chapter 8, "Accounting: Managerial Accounting for Non-Accountants in Restaurant Operations," discusses the accounting functions of a foodservice operation. A foodservice manager does not need to know accounting to its fullest extent as he/she would be capable of substituting a financial controller; instead, the manager only needs to have a broad and sound knowledge of what the accounting department produces activities. Therefore, this chapter will prepare the foodservice manager, mainly with the "Managerial Accounting Branch" and less with the others. Accordingly, the chapter is titled *"managerial accounting for non-accountants."* The content includes comprehensive and detailed topics necessary for a business to function financially. The topics are concept and understanding of accounting in general and foodservice specific; the accounting department, its operational activities, and organization; financial responsibilities of the financial controller and the foodservice manager; definition of accounting and its scope in foodservice; branches of accounting; industry-specific accounting functions as they apply to a foodservice business; budgeting; forecasting; capital investment; purchasing; cost control.

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Chapters 9, "Finance," deals with the principles of finance as applied in the foodservice industry. It discusses the concept of revenue management, financial analysis and reporting, financial control, principles of budgeting, and forecasting. Specifically, it discusses finance in general and of the financial system and the meaning and application of Financial Management. It introduces the basics of the advantages and disadvantages of the different types of organizations. The important topics presented are the relationship of finance to other business disciplines, basic financial information in decision-making, understand financial statements and financial ratios. It applies several analysis tools and techniques to learn about the time value of money, interest, and interest rates.

Chapters 10, "Statistics and Analytics Management," introduces the concept of statistical analysis and analytics management in the contest of food and beverage data analysis and business decision modeling. It lays the foundation for a broad understanding of statistical analysis in general, the meaning of analytics, and the advantages of using statistical data analysis. It emphasizes the relationship between a statistical application, analysis, and business relation using basic statistical information in the decision-making process. It shows various formulas, tools, and techniques for self-conducted analysis in small and medium-size foodservice operations.

Chapter 11 is "Restaurant Development Facilities Planning, Design, Equipment Procurement, and Management." In aligning all chapters with the book *Strategic International Restaurant Development: From Concept to Production,* this chapter introduces the final step in developing a concept and starting a restaurant operation. The content discusses the concept of Facilities Planning, Design, Equipment Procurement, and Management within the context of Restaurant Development. It includes the investigation and planning of the location, equipment, long-term investment in capital expenditure, life span, durability, and business longevity and assets, among many other factors. It provides references and guidelines for opening a foodservice facility, specifically a restaurant, the process of the restaurant opening, from concept to operation and the equipment required, from FFEs (Furniture, Fixture, and Equipment) to utensils and other operating tools necessary to run an entire restaurant operation. The topics include The overall concept of restaurant facility design; Designing a restaurant within a hotel facility vs. a free-standing restaurant; The qualifications of a food and beverage designer consultant; The 10-step process of restaurant design; Opportunity assessment plan; Pre-determined design factors; The anatomy of various feasibility studies; The planning stages; Seating capacity and dining area sizing; Requirements checklist to open and operate a restaurant; The opening, operation, and value creation; Equipment requirement; The concept of buying, installing, operating, and maintaining equipment; Understanding various types of energy and it uses; Various strategies for energy cost savings; Cooking methods as they relate to energy requirement and savings; Cooking with new technologies; Purchasing and operating commonly used restaurant equipment; Understanding the need to invest wisely in a heating and cooling system; Other requirements buying guide include understanding cutlery or flatware, chinaware, glass/crystal ware, table linen, and other requirements.

Chapter 12, "Marketing," discusses several topics within the marketing discipline, from preparation and execution of a marketing plan and media plan to sales Strategies for food and beverage products, services, and events. It offers the reader a broad understanding of sales and marketing in general, explains Restaurant Marketing's definition of the Four Ps of marketing, Eight Ps of Restaurant Marketing, emphasizes Marketing strategic activities, and explains the Concept of Restaurant Revenue Management. It discusses a pricing strategy within the scope of a marketing plan development.

Chapter 13, "E-Commerce," outlines the importance of being connected over the Internet and the opportunities the World Wide Web (WWW) offers to the foodservice industry. Restaurants, bars, and

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catering companies can significantly benefit from the exposure a website gives them internationally 24/7/365. Today's business landscape is far more connected worldwide than ever before. Not having a presence on the Internet with a website and or an e-commerce business means being left out without exposure and without the possibility of expanding the business. The questions a foodservice operator should ask are not about the need for the Internet and a website, but rather how much should be invested in it. Millions of businesses like restaurants worldwide have benefited from their website and presence on the WWW. The opportunities to increase revenue and compete against others have never been greater, from online table reservation systems to selling recipe books and merchandise.

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Chapter 1
Introduction to Food and Beverage Service Operations

ABSTRACT

This chapter is about the history of the foodservice industry and its scope over the centuries. It highlights the numerous types of food and beverage operations, their anatomy, style, customers' typologies, the type of menus, business location, size/capacity, and production.

TYPES OF FOOD AND BEVERAGE OPERATIONS AND SERVICE: FROM HOTEL ROOM SERVICE TO OUTSIDE CATERING TO CONCESSION OPERATIONS AND MANAGED CARE

Food and beverage service operations can be independently owned and operated, leased, franchised, or operated under management contracts or part of the hospitality complex such as a hotel. For this context, "wending" has not been included since the early 1990s; food and beverage service facilities are incredibly diverse in typology and food and beverage choices produced and served (Johnson et al., 2005).

One could describe the wide choice as somewhat chaotic to the guest. One factor is that much diverse food served in restaurants today is a part of the continuous inventive process and does not become part of our eating culture. To highlight the status, one must understand that patrons are regularly exposed to new food never tried before.

Moreover, because it cannot easily be reproduced at home, it is not becoming a culture. For example, spaghetti today is an integral part of most households around the world, while the Pizzone is neither originally from Italy nor anyone can reproduce it at home. Dishes served in luxury restaurants such as those prepared with Emu or farm-raised Elk for example, are only available in commercial service facilities and not in regular supermarkets; therefore, not all consumers and potentially restaurant guests are exposed to it. This type of food cannot and will not become a culture. Besides, patrons exposed for the first time to specific foods can only judge their liking with a yes or no.

Contrary to the preceding observation, if a patron orders a steak in a restaurant, he or she can easily judge if it was better or worse than a steak consumed elsewhere or prepared at home; that is because

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a steak is part of our eating culture. What happened to the "simple" restaurant? One could say it does not exist anymore. There are food and beverage service facilities very deeply diverse, with only one common denominator: the production and service of food and beverage. At the beginning of the 21st century, we see more evidence of irreversible differences, whether professional or cultural, economic or dimensional. In general, there is evidence that the consumer has more disposable income, and well over 50% of the meals are now consumed outside the home. From the food and beverage cultural evolution, consumers are learning what the French call "Métier de bouche," translated as "trade of the mouth" and everything related to it. From a "baretto" (small bar in Italian), which serves small plates out of the freezer that pass through the microwave, to the wine bar which serves pre-cooked and reheated meals because it has no kitchen facilities, to the bistro-trattoria which serves everything that has nothing to do with bistro food, to the authentic restaurant whether fine dining, large or small classic or contemporary, patrons are becoming educated with a very large choice. That is to say that among all variables, patrons play a very big role in the viability of any food and beverage service facility whether they eat to nourish themselves while away from home or eat with friends or family or eat just for everyday pleasure; they do have a choice as where to eat and what to eat.

In talking about the dichotomy between the necessity to eat or to eat for just pleasure and therefore defining "pleasure at the table," we can entangle all reflections of the restaurant of the future and on this context, the future of the restaurant of quality regardless of its rank whether luxury or simple a cafeteria. Quality should not be a response to a hungry patron; instead, it should be the most important variable in satisfying all patrons with diverse pleasure and expectations the restaurant can offer. Quality needs to be part of the social encounter between food and palate, between emotional experience and its intimacy to consume food or wine and paring them while discovering unknown flavors, thus looking forward to a new experience.

Flavors and all other expectations are legitimate for the discriminating and well-educated patrons who are growing exponentially, a crucial reason for restaurant business growth. While discriminating and well-educated patrons are growing, we must not break the relationship with the good things of the past. Is it all right to serve zucchini stuffed ravioli on Thanksgiving? The traditional roasted turkey with all its side dishes should not be eliminated from our eating culture. The food and beverage service industry are undergoing a tremendous and rapid transformation in the context of gastronomic evolution with new styles and a tendency to strive for the best flavor using unique ingredients. Nevertheless, we must also preserve the good things just as the "Slow food movement" has done over the last 2 decades; simple, organic, basic, authentic, relaxing, exotic…

Celebrity chefs today are at the forefront of the culinary evolution. They do not differ from professional chefs; they are simply a catalyst to changes and, yes, often intimidating because of the way mass media represents them. However, the "new" discriminating patrons quickly learn if the price matches what celebrity chefs put on the table and immediately decide if a return visit is worthwhile. Basically, the "new" discriminating patrons have the buying power to decide I like it; I do not like it and judge if what was on the plate is "good and healthy"; while reflecting on the quality and freshness of the raw product used, about the techniques and style used, and most importantly "consistency."

Deciding if the food is good and healthy will have serious implications for the future. We are, after all in the worse critical state of health we have ever been obesity is on the rise, and chefs know that they can play an important role pertinent to the health of patrons; thus, producing good and healthy food will be key to any restaurant entrepreneur's success. Chefs also know that an expensive restaurant is not necessarily the best because it charges the highest prices; a simple restaurant can produce excellent

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local fresh food at a much lower cost. While price enables the celebrity chef to find the best resource for unique food such as snail caviar or blowfish, it usually does not mean that the product is tasty or worth the price charged or worth a return visit. In contrast, a celebrity chef sells a 4 oz. Filet Mignon of Kobe beef for over $100.00, a Kobe beef filet is no match to a Harris Ranch steak especially if produced on the premises. In essence, a Kobe beef prepared and served at a luxury restaurant may not be better appreciated than a steak prepared and served at a local steak house where the beef is produced.

While we may accept this gastronomic evolution, we must ask the question: Is this a real trend, or is it a fad just like the Atkins cuisine? It appears as we are at the point of no return; what has been newly created and accepted is here to stay, although we cannot forget the massive failure of the ostrich promotion. The fact remains that the food evolution is unpredictable as it is non-linear and programmable, just the same as the education and evolution of our palate, which does not depend on a timeline or a specific location. Based on the foregoing account, chefs who are open-minded and accept criticism have no limit for improving their know-how, creativity, and sustainability. We find inspired dishes made using products from all over the world: Tuna from Japan, Piemontese beef from Italy, and lamb from New Zealand etc. These dishes can today be found in restaurants almost anywhere in the world. However, we must believe that this evolution does not let us detach from our very own local and good cuisine.

Nevertheless, this evolution compels the innovative and contemporary chef to do what others are doing to stay competitive. We still recognize the value of our "terroir" products and appreciate them always more than any dishes introduced using imported ethnic products. It is like we never forget a grandmother's dish, the simple sandwich. Chefs today are compelled to compete for points or stars from Zagat, AAA, Michelin, Gault Milieu, Egon Ronay… In a way, this is a positive pressure on them to continue their culinary education, create new dishes, discover new flavors, and pair food with drinks. Of course, this effort is a value-added to the product they process to please the discriminating new gourmets. We must caution, however, that not all that shines is gold; some celebrity-star chefs have disappointed many patrons because of their arrogance, the three months waiting list to get a table, being insulted by a sommelier that the wine they selected does not really go with the dishes the chef has created and served them, and the bill for 6 people which included an automatically 20% tips was equivalent to a month's net salary of the host. In sum, we realize that the food and beverage industry is as complex as it can be however, inspiring restaurateurs and chefs especially make it more complicated than it already is; the typical example is molecular gastronomy, which could require the employment of a physicist and a food scientist to blow an egg white the size of 10 cubic gallons. Is this a trend or a fad?

Where do we go from here, and what will the food and beverage service industry's future bring? Industry experts recognize that in this evolution, there is one missing link: the service. We watch food shows on T.V. that represent cooking from every possible aspect, from procuring raw products to processing them, yet no one speaks about service. This textbook attempts to raise awareness and make industry leaders realize that the Maître d'hôtel or restaurant manager's job is not a job people did in the past; it is an important position for every food and beverage service facility. He/she is the marketing person, the public relations manager, the company representative, and much more. Sadly, we only see chefs being promoted, making the Maître d'hôtel or restaurant managers irrelevant. We must strive to make changes and evolve in service just the same as cuisines and chefs have and continue to evolve.

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TYPES OF FOOD AND BEVERAGE OPERATIONS AND SERVICE

A. Food Operations

Restaurant operations may be franchised, independently owned and operated, or managed under a management contract. All three options have challenges with risk and opportunities for success. Extensive research and feasibility study must be done before investing in a food and beverage service operation, even if it may be part of a hospitality complex such as a hotel. The operation must project a brand name, an image of trust regarding the admirable quality of food and service must be attractive and must follow trends just the same as every other business. A food and beverage operation without the latest technology such as online reservations or a sophisticated point of sale system may risk being out of business sometimes in the future when necessary equipment becomes a thing of the past. In this chapter, we will discuss all possible types of food and beverage operations and logistics.

1. Fine Dining

Fine dining food and beverage service operations are full-service restaurants with a specific "haute cuisine" menu, which generally features higher quality ingredients with more elaborate preparation. The menu is usually short, with 15 to 20 items in total if á la carte. Many fine dining operations serve only prix fixe menus or table d'hôte. Orders are individually prepared with attention to detail and presented with artistry. The word "fresh" is rarely used to reflect the high standard of food quality, thus justifying that using the word fresh, patrons may misinterpret other items on the menu as being not fresh or canned or frozen. Besides the fine food served, such operations carry an extensive wine list and employ knowledgeable sommeliers and or a cellar master. Wine inventory in such an operation can easily exceed the million-dollar range.

Fine dining operations usually have a full bar with the separate bar staff. The décor usually reflects the name and the theme of the operation. The material used is of higher quality, which is an integral part of the operator's atmosphere. The décor may include paintings or sculptures or other artworks of a famous artist. This, of course, adds an image of uniqueness and comfort, believing to be in one-of-a-kind places. Food and beverage prices are usually higher than other operations; however, the profits can be lower than the less expensive operations. This is mainly since everything put into the operation is expensive: the décor, china, and silver or goldware, the crystal glasses, and silk tablecloth not excluding the expensive labor. The staff, both back, and front of the house, is highly trained and very knowledgeable. The staff and management hierarchy are well organized, and naturally, everyone is paid higher than other operations. The management's salaries are high because the management is paid for the knowledge, previous experience, reputation, ethics, management style, and most of all, salesmanship.

Fine dining operations can have any type of characteristics, from theme to ethnic to unusual operation such as the Fat Duck which promotes "Molecular Gastronomy" http://www.fatduck.co.uk. These operations are very challenging and are usually owned and managed by well-experienced operators. The turnover is low to none, and the profits come mainly from wines and other beverages sales. The original investment is high, and they usually do not change hands easily even under financial distress; if they are well thought, well planned, and well managed, they are sustainable with great longevity. These operations may have investors' involvement. The demographics of guests patronizing these types of operations usually have a high income; they dine for experience and pleasure, entertain to impress their

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guests, and have high expectations (Frash, DiPietro & Smith, 2014). They may be well- educated about food and wine, can be well-traveled and very familiarly with ethnic or other cuisines, and can be of any age group of adults. If these operations can maintain guests' names confidentially and offer privacy while dining, they can be very attractive to celebrities, well known public figures, and politicians. This does not mean they are favorite patrons; they have less objection to paying for costly amenities such as the personal butler and direct billing fees added to their bill .

2. Theme Restaurants

Theme restaurants include special concept dining: seafood, steak, ethnic, spa, and vegetarian. Theme restaurants are concepts within restaurant concepts (Khan, 1990). The theme concept takes priority over everything else: the food, the service, the wine, and beverage list, the music, and the overall atmosphere of the restaurant. The food, which is key to people patronizing restaurants, becomes secondary to the theme, and these restaurants attract customers solely on the premise of the theme itself. They created a business idea that emphasizes fun, fantasy, impression, a recreation of events, or imaginary places. Once their name becomes an icon, they can be instantly recognized. This is due to their effective promotional slogans, such as Applebee's "neighborhood bar". The name is usually associated with the team: "Tropical Rainforest" represents a cartoonish rainforest. Other theme restaurants which have successfully operated for decades are Ed Debevics' and Johnny Rocket, both 50's diners; Hard rock Café' whose theme is rock music; Jekyl & Hyde whose theme is Victorian English Horror; Bubba Gump Shrimp Company, the first theme restaurant inspired by a movie. Although some of these restaurants have been successful over the years, it appears as this concept has reached its maturity (New York times,1998; Restaurants USA, 2002).

These restaurants usually attract tourists; they can be noisy, cluttered, and overpriced. Some cities like Las Vegas are perfect venues for theme restaurants in which the revenues are not based necessarily on a repeat visit. In Las Vegas, there is The House of Blues, whose theme is music; the All-Star Café' features all sports events; Margaritaville, a tropically themed café/bar and club with features the Caribbean and American cuisines; and ESPN, whose theme is a sport just like All-Star Café. In the 80'a experts thought that theme restaurant was a trend; today, statistics show that it is not the case. The failure of Planet Hollywood must have discouraged many entrepreneurs from rethinking investing in theme restaurants. The main reason was that a guitar signed by an artist should not have been the focus. Suppose the business concept is "a restaurant," then food should be the focus just as service should be the support mechanism to good and healthy food. Another reason is that if it is a "non-repeat" customer-based operation such as tourist-based, it can suffer setbacks if the operation is in a destination where tourism is seasonal, and the local clientele does not support such an operation.

Theme restaurants can attract and retain customers by serving good food that compliments the theme. Themes are limited only to the patron's imagination; a second visit may not make the first impression again if the operation plans its success on the theme only on not on the food, the quality of the food will keep patrons returning. Unless a theme restaurant is in a heavily traveled tourist site, return customers can make or break your restaurant. When planning a theme concept, one should select the theme by studying the price of décor needed, menu items that are appropriate to the theme, the type of beverages offered, and the quality of service. The restaurant should be well decorated inside and have a curb appeal outside. A reception area gives waiting for patrons a place to read the menu in advance, and a bar close to the entrance gives an opportunity to sell a pre-dinner drink. It is crucial to the investor to emphasize that the food must complement the theme and the price. The menu should be updated

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frequently to reflect the seasonality of the food available on the market. Analyze the menu constantly and take corrective actions. Eliminate expensive items that do not sell and slow-moving items that do not appeal to patrons. To help promote the business theme-up with a local baker and a local brewery, patrons may appreciate the local products as unique and genuine. Since theme restaurants are loud in principle, one should select the appropriate music to be played as background while allowing patrons to have a conversation. Competent management and well-trained staff will complement the effort and contribute to the overall success.

3. Casual, Fast Casual, Cafés and Coffee Shops, Diners and Cafeterias

A fast-casual food restaurant, often referred to as a quick-service restaurant or QSR, is a type of restaurant for serving fast food cuisine and by offering little or no table service. From the early days of McDonald today's Fast-Food restaurants are found all over the world. In a way, White Castle and McDonald have changed the way people eat. Food served in fast-food restaurants typically caters to a Western-style diet, which is offered from a limited menu. Also, the food is cooked in bulk in advance and kept hot; it is finished and packaged to order and is usually available ready to take out or to eat on the premises. Fast food restaurant concepts are usually part of a restaurant chain or franchised operation. Ingredients and beverages are standardized; partially prepared foods are supplied to each restaurant through controlled supply channels. Major brands include McDonald, Burger King, Wendy's, Dunkin Donuts, Subway, Quiznos, KFC, and Blimpie.

The Fast-Food segment has been under scrutiny and criticism like no other food and beverage service segment. The socio-economic critique against the fast-food industry document how "fast food" rose from small, family-run businesses like McDonald into large, multinational corporations. Because of efficient economies of scale radically transformed agriculture, meat processing, and labor markets in the late twentieth century. However, the innovations of the fast-food industry gave Americans a wider choice of dining options. Critics nevertheless accuse this segment of destroying the environment, economy, and small-town communities. At the same time, they shield consumers from the real costs of their convenient meal, both in terms of health and the broader impact of large-scale food production and processing on workers, animals, and land. Regardless of criticism, the fast-food industry has been and probably will remain very popular in the United States for years to come. One reason is that this segment will adapt to changes just as other segments are. For example, while McDonald does not serve alcohol in the U.S., it serves local alcoholic beverages all over Europe where the drinking age is lower than in the U.S. C***asual*** food restaurants may include family-style restaurants, cafés or coffee shops, and diners. A ***casual dining restaurant*** is a type of restaurant that serves moderately priced food in a casual atmosphere. Casual dining restaurants typically provide table service. It is a segment between fast food and fine dining restaurants. They usually have a full bar with a wide selection of beer but a limited wine menu. ***Family-style operations*** are considered casual dining restaurants. They may offer a fixed menu and fixed price. They are found in rural communities, or as theme restaurants, or in vacation destinations. There is no menu offered; instead, food is brought out in courses in platters "family style."

Typical themes include crab houses, BBQ restaurants, and hunting lodges. Family-style restaurant brands include chains such as Denny's and IHOP. A ***diner*** is a casual-dining restaurant that emphasizes traditional American food such as hamburgers and sandwiches, French fries, fried eggs, bacon, hot dogs, hash browns, deep-fried chicken and sausages, baked beans, coleslaw, and toast. Most food is grilled, as early diners were based around a grill. Breakfast foods such as eggs, waffles, pancakes, and French toast

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are also very popular. Some diners serve "breakfast foods" all day. Common desserts are pie, particularly apple pie and cherry pie, and they are usually displayed in a transparent showcase. Coffee is a popular beverage, however not always of high quality. Alcoholic drinks are not best sellers; some diners serve beer and inexpensive wine. A ***café*** or ***coffee shop*** is a casual restaurant that offers a wide range of cold and hot meals made-to-order such as sandwiches. It is different from a ***coffee house***, which emphasizes its sales on coffee and less on food; therefore, a coffee house offers a very limited menu. Depending on the structure of the business, a café may be licensed to serve alcohol as well.

In Europe, cafés have been the gathering spot for debates, exchange of ideas, and meetings. Cafés are popular for breakfasts, during which time the patrons read the newspaper, listen to the latest news on radio or T.V. and engage in conversations about the subject most discussed. Howard Schulz was inspired by visiting such a café in Milan Italy and built the **Starbucks** Empire. In France, a café also serves alcoholic beverages. French cafés often serve snacks, pastries and sandwiches. A ***French brasserie*** is an expanded type of café that serves meals in a more relaxed atmosphere than a typical restaurant. American cafés differ a lot from French and Italian cafés in the fact that they may not serve alcoholic beverages, and coffee rather complements the serving of food. ***Cafeterias*** are types of food and beverage service establishments which offer limited or no table service. ***Institutional cafeterias*** are found in sports facilities, schools, industrial and business compounds, in recreational places and parks. Cafeteria located within sports facilities, schools, industrial and business complex, a recreational facility or even a park service can also be referred to as ***canteen*** or ***dining hall***.

Cafeterias are very different from coffeehouses. Since there is no table service, cafeterias have e food-serving counters from which people get their food on a tray by following their turn in a line. In some cafeterias, specific foods are prepared to order from stations. Such foods include hamburgers, steaks or sandwiches; they are very popular as they can be prepared very quickly. Alternatively, patrons are given a number, and the item is brought to their table. Cafeteria customers are either charged a flat rate for what they order or pay at the cashier. Some self-service cafeterias, such as in most schools, charge by the weight of items. Cafeterias are very appealing to patrons because they offer a wide variety of foods, they serve fast, and they can be very inexpensive. One reason is that certain foods can be prepared in large amounts and it requires a smaller number of employees. Many cafeterias cater to executives dining, where the top management of a company is served. The service can range from buffet full table service and the menu can be very varied from table d'hôte to á la carte. There are many companies that manage cafeterias in the U.S. and abroad, and among the most well-known brands are Aramark and Sodexo Marriott and Compass group.

4. Snack Bar

Snack bar can be defined as a lunch counter or small restaurant where light meals are served. A food service establishment sells limited foods, such as pre-packaged foods, simple fast-food foods prepared to order such hot dogs, and other foods ready to eat requiring no further preparation. A place where good-tasting ***grab-n-go food*** is sold. Menu items may include a variety of beverages, breakfast items, pizza, New York Deli, Tacos, soups, and a variety of ready-to-go entrées. Food is usually consumed off-site.

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5. Room Service (Hotel)

Full-service hotels offer ***room service*** 24 hours a day. In luxury hotels, room service is a service people expect because it is convenient; they enjoy dining without leaving the room and do not mind paying the extra charge. Women traveling alone particularly appreciate it. Like other food and beverage services, room service can drive incremental departmental profit, attract higher occupancy, and help support a higher average daily rate for guest rooms. Room service can help make guests feel special for offering personalized food delivery and service. Some hotels offer butler service, especially if guests occupy an expensive suite and entertain their own guests. In some cases, special suites dining rooms are equipped with silver and/or golden cutlery, expensive china, crystal ware and silk tablecloths. The menu is very varied and offers dishes from "all day dining" to breakfast, lunch, and dinner items and daily specials such as T.V. dinners etc.… The menu, however, presents serious challenges if not written with all negative factors in mind. Everything is usually delivered simultaneously, and hot food must be hot and cold food cold; nothing must be forgotten. Taking the order correctly is the first thing the rooms' service manager must emphasize on the training. Professional servers present the food the same as in the fine dining room; takes the covers off to display what is being served, explains the dish, and sets the table in the appointed place so the guest can dine in the comfort of their room. The server informs the guest to call if anything else is needed and when the cart or trays need to be removed. A good server can still up-sell wine and other beverages or a special dessert flambéed in the room. In international hotels, room service staff speaks more than one language; this is especially important when guests place an order for breakfast using a door hanging menu written in several languages or when a guest calls the room service to place an order directly over the phone. Accurate room service should not be confused with pizza delivery. While a pizza delivery offers a value-added service to the room being rented out, true room service produces high revenue. The prices are usually the same as the fine dining restaurant plus a 10-20% surcharge, a delivery charge, and in some cases, tips are also added automatically. It is common that room service staff delivers complimentary bars, sets them up for VIP's and will serve those bars on a complimentary basis. The cost is then charged either to the rooms' division or to the sales department.

6. Banqueting - Catering: in House, Off-Premises

Banqueting or catering differs from a restaurant operation in the fact that everything is preordered in advance and everything is known to all concerned, from sales to the catering manager to the chef to the banquet captains, accounting, and rooms division. For many hotels, not having a catering department would mean that it cannot hold meetings and conferences, and rooms cannot be sold. Besides making substantial profits, the catering department performs a complementary function to the room's division of a hotel. The catering department coordinates and provides patrons with all related services such as audiovisual equipment, entertainment, coordination of attendance at special events such as theatre, concerts, coordination of supporting events such as golf, other sporting events etc... Regarding food and beverage service, there is very little that a catering department cannot provide. It can transform a banquet room into a theme restaurant; it can provide almost any foods demanding patrons expect, such as kosher foods, vegetarian foods, ethnic and exotic foods. Bars can be set-up to reflect any themes, from the roaring twenties to rock and roll to contemporary disco and dance bar. It is safe to say that a conference hotel without a catering department cannot function. The logistics of running a catering department is rather complex and requires staff with experience in all facets of service delivery, menu,

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and beverage list knowledge, expertise in pricing and merchandising, and must be knowledgeable about the latest technological trends, which is crucial to any hotel catering operation.

Catering operates in-house and off-premises. The catering off-premises can generate additional revenues from satellite venues that are part of the hotel; in other words, it is a non-existent service outlet that can generate additional revenues and profits without its own physical location. There are also independent catering companies with no venues and operate off-premises strictly by using either the patron's residence or renting out a hall in a school. Sports facility etc. Independent catering has seen a surge in popularity in recent years. Many culinary arts graduates specialize in event management and own and operate their own independent catering companies. It is considered a highly lucrative business opportunity for many new entrepreneurs. As previously stated, a key advantage of this business is that it can also be operated from home with a minimum amount of investment.

7. Pool Restaurant

A ***pool restaurant*** is common in a hotel or resort setting, and it can be indoor or outdoor. The indoor pool operation presents fewer challenges than the outdoor. The outdoor pool operation can be challenging, from the weather conditions to the rigorous restriction to use non-breakable flatware and glassware. The kitchen is usually far from the pool, and delivery of food can be slow. The type of food offered must be served very hot or very cold due to the outside temperature and food spoilage factors involved. Pool buffets are very popular; however, proper refrigeration, heating system, and fans to ventilate the air to keep bugs away must be provided. Popular food and beverage items in pool restaurants are an assortment of ice creams, sundaes, and drinks made with ice. Snack foods provide patrons with quick bites to eat with their drinks or in-between meals. Pool staff must be well trained, the same as for every other food and beverage service operation.

8. Sports Resort Food and Beverage Service Facilities: Golf Resort, Ski Resort, Water Sports' Resort, Hunting and Fishing Lodge, and Other Sports

Sports facilities can be free-standing such as a golf club or a country club or part of a hospitality complex such as a resort hotel. Sports types may include golfing, mountain skiing and water skiing, other water sports, tennis, cricket, polo, hunting, fishing, and other sports. All sports facilities offer food and beverage services, from a vending machine to luxury restaurants and bars. ***Ski resorts are*** destinations that offer much more than just skiing and dining. They have banquet and conference facilities and many recreational offerings such as hiking, gondolas rides, climbing. Food and beverage services play a big role in catering to guests patronizing these facilities. From a gala dinner to a healthy spa snack to lunch boxes, the choice is very varied. ***Water sports' resorts*** are attractive to guests who like water sports. Such activities include water skiing, sailing, diving, snorkeling, and deep-sea fishing. Like ski resorts, this resort's success depends on the climatic conditions.

Food and beverage services offered are the same as for other resorts except that a watersport resort may emphasize more the sea or river atmosphere by promoting seafood more than other products. **A hunting and fishing lodge** was originally a dwelling erected for a temporary occupational purpose such as woodcutting or masonry or for use during the hunting season. The lodge became a more permanent type of house as the lands around mansions were developed as parks. The lodge was often the cottage of the gamekeeper, caretaker, gatekeeper, or gardener, or it could be a larger building for occupation

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by a higher-ranking person. Today, the lodges are rustic dwelling or inns or resorts in a natural setting, often used seasonally, such as ski or hunting. Lodges offer various food and beverage services, including in-room kitchen, room service, and personalized catch or game of the day cooking by the lodge chef. Lodges can offer the same standard of services as luxury resorts, including fine dining, bars, banquet and conference facilities, spa, sauna, massage service etc.

9. Private Clubs

Club Management is a growing component of the hospitality and tourism industry and constitutes a high source of revenue to the hospitality revenue aggregates. There are about 14000 private clubs in the U.S. and within the club management industry; clubs are predominantly country, golf, athletic, city, and yacht clubs.

A ***private club*** is defined as any club that is not open to the public. *A* ***country/golf club*** is a private club that offers various recreational sports facilities, usually located in the periphery of the city or in rural areas. Country clubs usually provide dining and accommodation facilities to their members and guests and frequently host catered events like weddings to generate additional revenues. Golf clubs offer additional services such as the mobile food and beverage carts from which light snacks and all kinds of beverages are sold on the course. Golf clubs are private, and membership fees can exceed $300,000.00. Some clubs impose a minimum food and beverage consumption charge as a part of the membership contract. Usually, new members are accepted by the club's board after being "sponsored" or recommended by another member. New members pay an initiation fee in addition to monthly membership dues. Within these classifications are sub-sets that may include seasonal operations or cater to a specific culture or ethnicity.

Private clubs are typically directed by board of directors and operated by club managers. Boards have high turnover, one third of the directors are new each year. Members get elected to serve on the board. Private clubs operate in a rather distinctive business environment. They face the challenge of providing their members with optimum quality and service while controlling rising costs. Moreover, they must always react to changes in government regulations, tax laws, technology advancements, and member expectations.

The Dallas-based ClubCorp https://www.clubcorp.com/Club/Scripts/Home/home.asp is the world leader in private clubs. Internationally, ClubCorp's affiliates own or operate nearly 170 golf courses, country clubs, private business and sports clubs, and resorts. They operate four types of private clubs in an ideal location. ***Golf Clubs:*** Located in a variety of settings, golf clubs include semi-private and public golf courses. Many clubs provide facilities found at country clubs, including dining and other amenities. ***Business Clubs:*** Usually located in city business centers or downtown districts, often atop high-rise buildings with surrounding views, business clubs feature main dining rooms, private dining rooms, lounges, and bar areas. Amenities also include high-tech meeting equipment and business-conducive environments. ***Sports Clubs:*** ClubCorp's sports clubs are typically located in business centers or downtown areas and feature state-of-the-art athletic centers, locker rooms, weight rooms, fitness classes, racquetball, and informal dining.

Resorts: Located in a variety of extraordinary settings, our resorts offer championship golf, spa facilities and services, luxury accommodations, and a wide range of recreation activities for the entire family.

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10. Cruise Liners

A ***cruise ship*** or ***cruise liner*** is a passenger ship used for pleasure in which the trip itself and the ship's amenities are part of the experience. Cruising is a major part of the tourism industry, with millions of cruising passengers each year. Cruise ships operate mostly on routes that return passengers to their originating port. In contrast, ocean liners offer line trips that typically transport passengers from one point to another, rather than on round trips. Passengers will fly to a specific port of origin and sometimes to a different port of return. A ***river cruise ship*** instead has similar amenities, with a shorter cruise distance, and it is small than an ocean liner.

Since 1990, the industry has had an average annual passenger growth rate of 7.4% per annum. According to Cruise Lines, International Association's (CLIA) http://www.cruising.org/, the cruise industry shows continued growth and success. In 2007, 9.57 million Americans took a cruise vacation representing 76 percent of the total 12.56 million guests carried on CLIA member cruise lines. The impact on food and beverage service is enormous because every passenger has no choice but to eat and drink on the ship. Dining aboard any cruise liner can be a fine culinary experience, just like in a fine dining room on land. Meals are included; however, beverage consumption is usually not primarily in the bars. Tips are also included in the price of the meals. The menus offered list a variety of options for each course, from appetizers and entrees to elaborated desserts. Some cruise liners offer menus developed by celebrity chefs just as hotels do. When the passengers make their reservations, or upon their arrival on the ship, they will be assigned a dinner table for the duration of the voyage based on the seating preferences and availability. The seating is usually open during breakfast and lunch.

Though every ship offers a main dining room, many ships feature a dining room that spans multiple stories, with an individual name for each one. This is especially true on the larger Voyager-class family of ships. Cruise liners also have sophisticated wine bars, regular bars, pool bars, and nightclub bars. Most liners offer Drink Packages that are economical with a wide selection of drinks from specialty drink menu; a small one-time fee may apply for this package service. Soda, juice, and a wine and dine package, which includes a bottle of wine each evening at dinner, are also offered. Liners usually offer a limited room service menu available 24 hours as well as a variety of specialty menus for those passengers with specific dietary requirements, including Kosher, diabetic, low-fat, and low-carb options. The service offered is five star, and white-gloved service in the main dining rooms may not be an exception but a prerequisite.

11. Military Dining Services, Officers' Club Dining, Camp Cooking, And MRE'S (Ready to Eat Meals)

a. *Military Dining*

Today is a requirement to maintain the soldiers with their daily dietary needs, especially during combat. Military dining existed in the pre-Christ Roman Legions. Roman military commanders frequently held great banquets to honor individuals and units.

A traditional military dining facility id called ***dining hall*** or ***mess.*** Military dining facilities today are much different than they used to be. They have contemporary and attractive décor, friendly service, certified chefs and dining hall managers (officers), the food selection is of high-quality, varied; and staff members are efficient and responsive; they are highly trained in food service preparation, HACCP, and

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first-class service. The nutritional value of the meals is strictly controlled to provide soldiers with the proper diet. These facilities now buy food from commercial distributors, which always fresh. Military facilities also focus on service quality the same as on food quality. To improve the overall effort, facilities compete for excellence, and the "best facility" or "foodservice excellence" awards concentrate on troops is fed and how the overall foodservice is managed. ***Commissioned*** and ***noncommissioned clubs (NCO)*** are organizations established to provide their members' dining and recreational facilities. ***NCOs*** are clubs for noncommissioned officers meaning that these officers are noncombatant and play a different role in the military. Eligible patrons include active and retired servicemen and women, their dependents, and authorized civilians of equivalent grade. Members of other military clubs are generally eligible for club privileges. Members pay dues, which may be a flat rate or pro-rated by rank. The primary club activity and its major source of revenue are providing meals and beverage service for members. Bingo and evening dances, with live entertainment, are popular activities in most clubs. Besides, the club provides facilities for various parties and meetings ranging from wedding receptions to bridge playing. A well-managed and attractive club will play a significant role in maintaining installation morale. The club is the off-duty social center for its members and is the place on the installation, which most approximates the civilian environment. The Army club is an unusual military facility in that it must produce revenue and support itself, in a way like its civilian counterparts, and competes with comparable facilities outside. This competition may not be significant on a remote installation, but for those installations located near major cities, civilian competition has a significant bearing on the club operation. The club facility establishes the character of the club and should appeal not only to the off-duty serviceman but to his wife or date and to civilian guests. A large club must provide a wide variety of atmospheres, from a cheerful informal bar to a dignified formal dining room comparable to the best hotel in town. Location, site planning, and landscaping also play an essential role in reinforcing the attractiveness of the club. The Army club also plays a role in the community beyond the base. The club may be used for community events, meetings of local interest groups, and the like. To the extent this is done, the club improves its earning situation and serves as a community resource; however, the facility and its operation must first respect its membership's needs. To the extent that the club welcomes civilian guests and community activities, it represents the Army to the civilian population and community and can assist significantly in presenting a favorable image.

Officers club Dining in has a different meaning; simply stated, ***the dining-in*** is the assemblage of all the officers of a particular unit for a formal dinner. Dining-in is somewhat complex and often includes a receiving line, cocktail hour, a ceremonial posting of the colors, a punch ceremony, ceremonial toasts, etc.

"*The* ***formal dining-in*** *has several purposes. First, it brings together the unit officers on a social basis. Second, it fosters a spirit of teamwork in the unit as the officers get to know each other better. Finally, each officer has an opportunity to see his place in the unit history (Dining-In – Army, 1983).*

He/she learns that many brave and capable men have gone before him and have left him a legacy to carry on. He/she also learns that the day-to-day activities become a part of the unit's history which encourages higher standards of performance from him/her. Dining-in is compared to an officers' call as far as its purpose and function are concerned. Therefore, when invited officers must consider the attendance as obligatory. Dining-in is very formal and custom dictates the serving of a seven-course meal although the cost is kept extremely low.

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1. A sample of a formal seven-course meal may consist of the following:

    a. First Course: Shrimp cocktail, oysters, or clams.
    b. Second Course: Coup, usually clear.
    c. Third Course: Fish, hot or cold.
    d. Fourth Course: Main course of meat or game and vegetables.
    e. Fifth Course: Salad.
    f. Sixth Course: Dessert.
    g. Seventh Course: Fruit.

This sample of courses reflects the traditional European banquet menu; salad is served after the main course and fruit follows dessert.

b. Camp Cooking and MRE's

Feeding troops in combat situations has always been a challenge. ***Camp cooking*** is cooking with mobile equipment. A camp must be physically set up in the right location; the equipment must be installed so that they can function in synergy with each other. Usually, under a tent, cooking for soldiers in the front line is a real challenge. From power to water supply, the entire logistics must provide a way to feed the troops 3 meals a day and possible snacks in between. The meals must be prepared according to the environmental variables such as hot or cold climate, and the nutritional value must be such to match or exceed the daily energy expenditure. These meals today are so varied with a choice of fancy food, ethnic food, and dietary restriction such as religion. A **field ration**, or **combat ration**, is a canned or pre-packaged meal, easily prepared and eaten, transported by military troops on the battlefield. They are distinguished from ***regular military rations*** by virtue of being designed for minimal preparation in the field, using canned, pre-cooked, or freeze-dried foods, powdered beverage mixes, and concentrated food bars, as well as for extended shelf life. Most armies in the world today serve some form of pre-packaged combat ration, suitably tailored to meet national or ethnic tastes. The ***MRE (meals ready to eat)*** used by the U.S. is possibly the most recognized field ration globally. Each sealed plastic bag contains one entire pre-cooked meal, with several supplements and accessories. The original menu choices have been expanded and offer various ethnic and specialty foods such as Kosher and Halal. Each meal bag contains an 8-oz main course (packaged in a 4-layer plastic & foil laminate retort pouch), 8 hard military crackers, some form of spread (cheese, peanut butter, or jelly), a fruit-based beverage powder, some form of dessert (cake, candy, cookies, or fruit), and an accessory packet containing coffee or tea, creamer, sugar, salt, matches, a plastic spoon, and toilet paper. A chemical heater is packed with every meal to reheat the food.

12. Concession

Foodservice concession contract can be temporary, such as at a fair, carnival, circus, regatta, or similar events, or it can be long-term such as at a stadium, parks, or theatre. Outdoor operations are equipped with self-contained concession units, uniform tents & signage, and the commercial equipment inspected by fire & health officials, and they can operate with or without utilities. Indoor operations today have state-of-the-art facilities and equipment with the latest technology and logistics infrastructure. Indoor

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operations include stadium and convention centers. Concession operators can deliver any number of meals, from the hundreds to several thousand simultaneously. The Las Vegas convention center can serve up to 45,000 meals at any given time. One of the largest meal deliveries by concession operators happens during the Olympic Games. ***A concession services contract*** can be defined as granting a right, franchise, authority, property interest, or an option to a contractor. The acquisition of concession services usually includes the right to franchise, vending services, pouring, service, advertising, and broadcasting to special events such as baseball games.

13. Staff or Institutional Cafeteria

Staff cafeteria operation can be self-managed or contracted out to a catering operator. The standards for staff cafeterias have changed across industries and companies that provide cafeteria services to employees and executives. From a university dining to a high-tech company, the food and beverage served today reflects the eating habits and trends people follow in their private life. Cafeterias today offer healthy menus, a la carte service, vegetarian food, ethnic foods, and foods for people with dietary restrictions. If they are self-operated, the company employs competent staff to provide the best food available. If the cafeteria is contracted out, contractors can offer all-day services, including cafeteria/kitchen operations, catering service, office coffee, and vending. They usually offer standard menu items plus cyclical menus that change weekly or monthly. Their menu planning follows specific guidelines to accommodate the company that contracted them through the diners' satisfaction. Some operating criteria in planning an effective cafeteria foodservice operation are:

- Menus have standardized recipes.
- Diners' preferences are considered when planning menus.
- Recipes used to achieve appropriate levels of fat, sodium, sugar, and fiber.
- Written purchasing practices for foods and beverages cover quality, safety, nutritional value, customer acceptance, and cost.
- Products are inspected for quality and safety assurance upon receipt.
- An accurate inventory system is in place.
- Food and nutrition personnel are trained in food production, service, and safety.
- Standardized procedures for food preparation and handling are implemented and monitored through the HACCP process.
- The dining and serving areas are maintained clean and attractive.
- Food is served in a way that encourages healthy choices.

14. Hospitals and Managed Care Facilities

a. Hospital Food Service

One can assume that every hospital in the world today has a nutrition policy to maintain and/ or improve a patient's care. However, many hospitals, especially in the U.S. today, operate just like a hotel. They usually have at least one cafeteria for staff and the public, a snack bar, room service 24 hours, and fine dining facilities. Fast food has slowly disappeared as it gave patients a reverse effect on their belief

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that while a hospital should make a patient healthier, fast food was not the best choice. Hospitals today employ certified chefs and dietitians who can prepare menus for any patient according to the doctor's prescription. The preparation includes foods for the regular patient, patients under special diets such as for celiac disease, and other preparation to include baby formulas for the newly borne. Hospitals have very specific menu policies to cater to anyone from within or outside the facilities, such as visiting guests.

Today's food served in hospitals is of the highest quality, with a range of contrasting dishes each day. The hospital's food and beverages are supposed to be always safe and hygienic, and all staff involved has HACCP training (Unklesbay et al., 1997).

Menus usually provide a choice of hot and cold dishes and include a children's menu. Patients with ethnic, cultural, or religious dietary requirements are also catered for. Snack menus are also available for patients who may have missed a meal because of treatment or tests or have been admitted and not had the opportunity of a meal. Menus are usually coded to identify dishes suitable for diabetes, weight loss, low fat, vegetarian, and liquidized dietary requirements. Hospital food service is not without challenges. Generally, the management staff is on contract; however, the foodservice employees may be hospital employees. It can be very difficult for a chef and manager to follow the hospital's policies and those of the catering company at the same time. Because the medical staff may work under stressful conditions, they sometimes turn frustrations on the foodservice department. Typical stressful situations that cause staff to complain may change patients' diets without consulting them, patients who forget that they have a different diet or medications that can alter the way foods taste. For chefs, there is little or no creativity when it comes to menu creation. Unless there is catering involved or the hospital has a physician's dining room, the chef must feature a conservative menu. There is an opportunity for some creativity in the fine dining or cafe menu; however, that depends on the type of hospital, whether it is private or institutional, size, and location of the hospital.

b. Managed Care or Health Care Centers, Retirement Centers, and Retirement Communities

Managed care food service is one of many branches of services that follow under managed care umbrella. ***Healthcare Management Services*** comprise servicing the company plant operations and maintenance, energy management, and patient transportation services, ***catering, patient and retail foodservice,*** and environmental services. To streamline delivery, these services are usually coordinated through a centralized call center delivery system. The complete range of comprehensive and customized facility, food, and clinical technology services offered by Healthcare Management Services companies enable healthcare partners and senior living facilities to optimize patient throughput, maximize workforce, asset, and capital resources, ensure superior quality and reliable performance, and enhance the patient experience to create the best environments for patient care. Brand names of companies that specialize and dominate Health Care Management services are Aramark, Sodexo Alliance, Compass Group ***Adult–independent living,*** such as those in the Del Webb communities http://www.delwebb.com offer a wide range of services: recreational service to fine dining, outdoor BBQ, entertainment, and dancing.

15. Railroad Dining

The pioneer of the ***"Luxury Train Travel"*** with dining can be traced back to 1864 when the innovative railway builder, George Mortimer Pullman, created a train in Britain, featuring the ultimate in nineteenth-

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century technology and opulence and was far more advanced than anything that existed in Europe. In the 1870's the first sleeping carriages and parlor cars in Britain went into service, and for the first time, meals were served on board a train. The first all Pullman train in Europe, the Pullman Limited Express, began operating in 1881, and in 1883 the first Orient-Express train service was inaugurated. The initial route ran from Paris to Giurgi (on the Danube in Romania), via Strasbourg, Vienna, Budapest, and Bucharest, and by 1921 the Orient-Express was running from Paris France, an extended Simplon-Orient-Express route to Istanbul Turkey. Today the luxury train is owned and operated by the Orient-Express Hotels, Trains and Cruises: https://www.orient-express.com/**.**

However, records show that a few years earlier, in 1867, George Pullman introduced his first railroad "hotel car," the President, a converted sleeper with limited dining facilities. In 1868, Pullman built his next all-dining car, which he named the Delmonico after the famous New York restaurant. The Delmonico was placed in service on the Chicago & Alton Railroad between Chicago and Springfield, Illinois. Meals were sold for one dollar. Today's anatomy of a **dining car** or **restaurant car,** also called **diner in American English,** is different from what used to be in the late 1800 and much different from other types of railroad food service cars that do not offer the full-service restaurant experience. These cars with less service offer a variety of food, usually cold, from a walk-up counter to be consumed either within the car or elsewhere in the train. ***Grill cars*** instead offer a service for which customers sit on stools at a counter and purchase and consume food cooked on a grill behind the counter.

There are currently many **dining cars** that operate at least part of the year in more than 30 states in the U.S. Most such trains operate in tourist destinations either seasonally or a few days a week; however, some operate daily. In addition to just providing dinner while riding on a scenic route, some ***dinner trains*** offer additional services such as hosting wedding receptions or team buildings during the dinner. To give a detailed definition the ***dining car is a*** passenger train car that serves meals offering fine cuisines with a full-service sit-down restaurant. While dining cars are less common today than they were in the past, they still play a significant role in passenger railroading, especially on medium- and long-distance trains or trains that serve the tourism business, such as the **"Napa Wine Train"** http://winetrain.com/**.** This train has three dining cars: The Lounge Cars, Lounge Car with Wine Tasting Bar, and The Gourmet Express Dining Cars, which offers fine cuisine and fine wines. Today's touristic train offers a kind experience that ranges from fine dining to paring of wine and food to stop at a winery for wine shopping and tasting. Since trains are not as popular as they were in the 1800 and in the early 1900, every train has a history.

The ***Napa Valley Wine Train's history*** is almost if the state of California. The rail line upon which the train travels was built in 1864 by San Francisco's first millionaire, Samuel Brannan, to take visitors to his spa resort of 'Calistoga.' Shortly thereafter, Brannan sold many of his holdings, and the railroad became the property of the California Pacific Railroad. In 1885 the ownership changed hands, and the railroad was purchased by Southern Pacific Railroad. With the birth of the automobile, passenger train service was discontinued in the 1930s. Eventually, Southern Pacific abandoned the right of way north of St. Helena in 1960. In 1984 Southern Pacific put up the railway for sale. In 1987 the Napa Valley Wine Train purchased the rail line from Southern Pacific, restored vintage 1910's era Pullman rail cars, and hired a team of foodservice experts to provide tourists with an unmatched luxury rail experience. The train has been operating for over 20 years and constantly continues to improve its services to the Napa wine Regions' tourists.

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16. In-Flight Catering

In-flight service used to be a dining experience. The first kitchens for serving meals in flight were established by United Airlines in 1936. Jumbo jets serving up to 450 meals three times during a long-range flight was a service based on ideal ergonomics and delivery logistics. To serve that many meals in the air over a 14 flight is still astonishing to many passengers. However, with the problems airlines have experienced over the last decades, service in all classes in the U.S. has significantly deteriorated. Domestic flights are now considered short trips, just as one would board a bus without food or beverage service. International flights still offer adequate service, however far from what they used to be. Some airlines other than the U.S. which service is still subsidized by the government can offer the first-class service in all class categories. Among the best, there are Cathay Pacific, Singapore, Japan, and Korean airlines that offer excellent food and beverage service as it used to be. The flight attendants of these airlines still consider their job a lucrative and prestigious one, while in the U.S. the same jobs are no longer attractive to potential employees. Food to airlines is supplied by expert companies such as LSG Sky Chefs. LSG Sky Chefs is the LSG Lufthansa Service Holding AG brand name, which specializes in airline catering. It is a subsidiary of the German airline Lufthansa AG. Its primary business function is to prepare and deliver meals, beverages, and snacks to aircraft for domestic and international flights. The logistics of preparing and delivering food and beverage to the airlines is rather complex. Everything must be weighted to specification, and the food must be safe to eat. The food usually reflects the culture of the airline of the country of destination the planes are flying to or from. Choice of meals is also offered, including vegetarians, Kosher, Halal and gluten-free. First-class passengers have a better choice than business or economy class passengers.

17. Space Exploration Dining, the Space Shuttle Foodservice System

Universities and other teaching institutions are preparing students for jobs that have yet to be created. Two of those jobs are the Space Food Chef and Space Foodservice Manager. Serving food in space at zero gravity is not a dream but a reality. As space exploration continues to advance, the foodservice industry will play a vital role in the food and beverage supply chain in space. Today the international space center and the space shuttles are the only outlets where space food is served. This experience, however, will set the standard for the future of ***in-space dining***. We do not know at this point what kind of energy may be used in space. One can assume that gas flame will not be used while other energy sources such as microwaves, radiation, and power from photovoltaic cells may be the right energy source. The kinds of foods the Space Shuttle astronauts eat today are not mysterious concoctions, but foods prepared here on Earth, many commercially available on grocery store shelves (Nasa, 2019).

Diets are designed to supply each Shuttle crew member with all the recommended dietary allowance (RDA) of vitamins and minerals necessary to perform in the space environment. Caloric requirements are determined by the National Research Council formula for basal energy expenditure (BEE). For women, BEE = 655 + (9.6 x W) + (1.7 x H) - (4.7 x A), and for men, BEE = 66 + (13.7 x W) + (5 x H) - (6.8 x A), where W = weight in kilograms, H = height in centimeters, and A = age in years. Shuttle astronauts have an astonishing array of food items to choose from. They may eat from a standard menu designed around a typical Shuttle mission of 7 days or may substitute items to accommodate their own tastes. Astronauts may even design their own menus. But those astronaut-designed menus must be checked by a dietitian to ensure the astronauts consume a balanced supply of nutrients. The standard Shuttle menu

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repeats after 7 days. It supplies each crew member with three balanced meals, plus snacks. Each astronaut's food is stored aboard the Shuttle and is identified by a colored dot affixed to each package. ***Food Preparation:*** *on the Space Shuttle, food is prepared at a galley installed on the orbiter's mid-deck. A galley is a modular unit that contains a water dispenser and an oven* (Nasa, 2019).

The water dispenser is used for rehydrating foods, and the galley oven is for warming foods to the proper serving temperature. During a typical meal in space, a meal tray is used to hold the food containers. The tray can be attached to an astronaut's lap by a strap or attached to a wall. The meal tray becomes the astronaut's dinner plate and enables him or her to choose from several foods at once, just like a meal at home. Without the tray, the contents of one container must be completely consumed before opening another. The tray also holds the food packages in place and keeps them from floating away in space's microgravity.

Conventional eating utensils are used in space. Astronauts use knives, fork, and spoons. The only unusual eating utensil is a pair of scissors used for cutting open the packages. Following the meal, food containers are discarded in the trash compartment below the mid-deck floor. Eating utensils and food trays are cleaned at the hygiene station with premoistened towelettes. Crews have reported that the Shuttle food system functions well in space. It consists of familiar, appetizing, well-accepted food items that can be prepared quickly and easily. A full meal for a crew of four can be set up in about 5 minutes. Reconstituting and heating the food takes an additional 20 to 30 minutes about the time it takes to fix a snack at home and far less than it takes to cook a complete meal. ***Pantry:*** a supplementary food supply that provides approximately 2100 Kilocalories per person for two extra days is stowed aboard the Shuttle for each flight. Pantry items are flown in addition to the menu in case the flight is unexpectedly extended because of bad weather at the landing site or some other unforeseen reason. During the flight, this food supply provides extra beverages and snacks. The pantry items can also be exchanged for menu items in flight, but all unused food packages are retained in the pantry to be available if needed later. ***Types of Foods:*** **w**eight and volume have always been primary design factors for every piece of hardware launched into space. The Shuttle is no exception. Weight allowed for food is limited to 3.8 pounds per person per day, including the 1 pound of packaging for each person each day. Foods are individually packaged and stowed for easy handling in the zero-gravity of space. All food is pre-cooked or processed, so it requires no refrigeration and is either ready to eat or prepared simply by adding water or heating. The only exceptions are the fresh fruit and vegetables stowed in the fresh food locker. Without refrigeration, the carrots and celery must be eaten within the first two days of the flight, or they will spoil. ***Rehydratable (R) Food***: rehydratable items include both foods and beverages. One way weight can be conserved during the launch is to remove water in the food system. During the flight, water is added back to the food just before it is eaten. **Thermostabilized food:** thermostabilized foods are heat processed to destroy deleterious microorganisms and enzymes. Individual servings of thermostabilized foods are commercially available in aluminum or bimetallic cans, plastic cups, or in flexible retort pouches. ***Intermediate (I.M.) Moisture Foods:*** intermediate moisture foods are preserved by restricting the amount of water available for microbial growth while retaining sufficient water to give the food a soft texture and let it be eaten without further preparation. ***Natural Form (N.F.) Foods:*** foods such as nuts, granola bars, and cookies are classified as natural form foods. They are ready to eat, packaged in flexible pouches, and require no further processing for consumption in flight. Both natural form and intermediate moisture foods are packaged in clear, flexible pouches that are cut open with scissors. ***Irradiated (I) Meat:*** beef steak is the only irradiated product currently used on Shuttle. Steaks are cooked, packaged in flexible, foil-laminated pouches, and sterilized by exposure to ionizing radiation, so they are stable at ambient

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temperature. **Condiments: c**ondiments include commercially packaged individual pouches of catsup, mustard, mayonnaise, taco sauce, and hot pepper sauce. Polyethylene dropper bottles contain bulk supplies of liquid pepper and liquid salt. The pepper is suspended in oil, and the salt is dissolved in water.

Source: Nasa https://spaceflight.nasa.gov/shuttle/reference/factsheets/food.html (Nasa, 2019)

18. Current Foodservice Trends

The evolution of technologies continues to shape the concept of the global foodservice industry. Although some trends are not exactly trends, they drive the industry because of technological changes. (Grunert et al., 2012).

For example, the concept of serving prepared meals to be consumed elsewhere is not an invention. In fact, food markets and roadside carts selling food were common in ancient Greece and Rome. The old say "every road lead to Rome" reminds us that the Romans invented meat and fish curing with salt, a process which enabled warriors to carry food with them, having a long shelf life. Therefore, what we call today, Take-out, Take-away, To go, Grab - and - go, and Food delivery was an economic activity over 2,000 years ago. What has changed are our eating habits, frequency, mobility, and technological advances that make online food ordering, curbside pick–up, food carts, Street foods, Drive-through possible. The technological evolution gave rise to "Dark Kitchens or Ghost Kitchens, better known as Virtual Kitchens," which sell meals solely through delivery. In other words, food is produced to be consumed only elsewhere, hence, the Greek and Roman concepts. However, what makes these kitchens successful, Are the online-based food ordering platforms. These third-party delivery providers enable foodservice outlets to connect with customers to either deliver meals to their homes or for-pick at the production place

(Haddon & Jargon, 2019; Chen, Hu, & Wang, 2019). Using these platforms, there is no physical encounter; the face-to-face contact between the restaurant/ kitchen and the customer no longer exists. The limitation is the physical distance between the production kitchen and the customer's physical locations.

B. Beverage Service Operations

Bars are among the most profitable service outlets in any setting; hotel, catering, free-standing or mobile such as on golf courses or satellite bars in banquet events. There are many types of bar operations, from a ***full bar*** to a ***juice bar*** to a ***champagne bar***. Each bar operation is proven to make a profit unless the loss is due to specific circumstances. One of the most challenging bar operations to control is ***the hotel minibar***. These bars not only create a massive inventory in guests' rooms which can range from $100 to $500 per bar, but they also are the reason for dispute for many hotel guests who just deny having used the minibar. However, sophisticated computerized systems make it almost impossible for the guest to deny they consumed any beverages from the minibar. Often the dispute is since the company may not reimburse the guest for the beverage expense, or a guest with a specific religious belief may feel embarrassed if the bill contains alcoholic beverage charges.

Regardless of what system of control is in place, minibars always carry a specific percentage of loss in revenues. There has never been a loss in profit because the prices of beverages in mini bars are far higher than the prices in the hotel lobby's main bar. Bars of any style have several challenges before they can be opened and operated. Firstly, the license is costly because the authorities only issue certain number of licenses based on population density. Some agencies have specialized in license hunting, meaning that they will solicit a licensed bar to sell their license to one of their clients. Then bars are

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challenged every moment of the operation, from dispensing alcohol to minors to already intoxicated customers. The liability insurance is high so is the risk of the overall operation. Some bars, such as ***nightclubs,*** are very profitable; however, the operation faces even more challenges. Such bars can be the perfect venue for good and bad customers. The hiring of one or more bouncers is mandatory since popular nightclubs are very attractive for obvious reasons. Other profitable bars are ***Pool bars and spa bars.*** Pool bars usually offer an array of drinks that reflect the local climate. Tropical drinks are usually served with tropical fruits or tropical fruits such as pineapple or fresh coconut. Pool bars can be very profitable as a guest tend to drink more than one drink while using the pool. From a pre-meal cocktail to an after-dinner drink, pool bars can keep busy generating high revenues. Other bar operations include ***Banquet-catering, dispense bars, portable bars***, a' la carte/preordered/cash bar/host bar. These bars are either ***hosted*** by the organizer of the banquet function or are on a ***cash basis***. They operate based on basic bar brands, premium or top-shelf brands. The prices for each inventory vary. They can offer any kind of beverage or mixed drink just the same as any other bar. The food and beverage service manager must pay attention to ***portable banquet bars***; in many States, they require an additional license because they are not operated on a fixed location. The additional license is not expensive; however, having it will avoid being written – up by the liquor licensing authorities. Popular bars also very profitable are Pubs ***and Brewpubs.***

Pubs originated in the U.K. and Ireland and became famous in other countries influenced by British or Irish culture. The name Pub derives from ***"Public House."*** Typically, it was a bar that served simple food fare however concentrated on beverage sales more than food; a typical pub had a large selection of beers and ales on tap. Modern pubs emphasize food sales as well. The so-called ***gastropubs*** are known for their high-quality pub food. The name ***gastropub*** derives from ***pub and gastronomy***. Gastropubs offer a relaxed setting and a focus on specific cuisines just as sophisticated as fine dining. A ***brewpub*** is a pub that brews beer on the premises. Some brewpubs in England in Germany have been brewing on the premises for hundreds of years. In fact, in Germany, beer is so varied since there are small breweries almost in every town. In Germany, the ***braühaus*** or ***brewpub*** was the most common source of beer. However, most of these breweries brew only ales that require no refrigeration; they are mostly top-fermented beers. **Lagers** instead require refrigeration and aging.

Before the commercialization of breweries, beer was brewed on the premises from which it was sold. The trend toward larger brewing companies started to change during the 70s. ***Wine and champagne bars*** were very popular in Europe since the late '70s. It appears as these bars are now trendy in the U.S. as well. Since wine is now produced in all Stares in the Union, the public is becoming more educated about wine and wine products. And although beer is still the number one beverage consumed per capita in the U.S., wine consumption is increasing every year. Wine tastings and wine pairing educational classes are offered by most restaurants, wine and liquor shops, and even supermarkets. Wineries also offer several wine educational programs, including cooking classes with wine and food pairing. Also, popular but less profitable are espresso and juice bars. There are not as profitable because most customers consume only one drink, while a customer in a full bar may consume more than one drink per visit. Therefore, the average spent in an espresso or juice bar is much lower than the one in a full bar. Whichever the bar operation may be, food and beverage service managers know that the beverage profits make up for the losses in food in many restaurants. A restaurant without a bar may risk landing into financial constraints especially if the volume of food sold is not sufficient to break even.

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Chapter 2
Theory of Organizational Management

ABSTRACT

This chapter is about understanding general management's concept, based on its history and development; the meaning of management science, management process, and function of management; the definition of ethics in the context of hospitality; and the importance of corporate governance, and it identifies ethics' categories and values. Understanding the fundamental theories of organizational management and organization behavior and applying the best practices is conducive to effective management in guiding teams to successful accomplishments. Many of these theories were catalysts to the leadership approaches, which have shaped organizations over time. Modern organizations, especially hospitality organizations, can benefit from strategies that were formulated from organizational theories. A useful example is the development and application of ethics and ethical leadership within the domain of hospitality. Thus, understanding and applying management theories is crucial in the hyper-competitive hospitality industry.

A. MEANING OF MANAGEMENT

There are countless definitions of Management. Within this context, Management can be defined as "the process of getting work done through people." It is the Management's responsibility to achieve and maintain a business organization's effectiveness. Management of firms' operations, and especially hospitality operations, but specifically restaurants, has engaged scholars for decades. Copies textbooks have been published, and some have established themselves as the leading text for restaurant management education (Ninemeier, & Hayes, 2006).

The verb "manage" derives from the American business language and has been adopted in business disciplines all over the world. Management means "to organize, to lead, to accomplish or to supervise." It involves planning, making fundamental decisions, leading the organization's entire management structure, developing strategies and visions, and setting directions while effectively communicating and motivating employees, setting goals, feedback, and controlling. Since 1970 many American English business terms like Manager and Manage have been adopted by global business enterprises. However, many words derive

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from Latin. In the 19th century, the meaning of the term "managers" initially replaced the Italian term "impresario" with meant "director, director of a stage." Specifically, the English verb to manage goes back to the Italian verb *maneggiare* (handle, use, steer) with your hand in Italian "mano." Hence this explains the Latin origin, namely "manus." From 1900 onwards, the term "manager" has been used to describe the duty of "director" or leader of a business or economic unit within a company or department.

The literature is replete with management theories and approaches. The topic of Management has engaged scholars from across disciplines and industries. Management, in general, is subject to continuous changes, adaptation, and total transformation. The main factors that cause these changes are technology and the digitalization of management functions and processes. From a historical perspective, there have been two main approaches, *the Industrial Organization Approach and the Sociological Approach.*

However, the Industrial Organization Approach is based on economic theory, which deals with issues like competitive rivalry, resource allocation, economies of scale (Porter,1980). This approach to Management assumes rationality, self-interested behavior, profit maximization. *The Sociological Approach* involves interactions among managers and employees. In many countries, especially in Europe, the management structure is based mainly on the top-down approach. In the U.S. Management is ever-changing and is evolutionary. By applying the top-down management approach, managers are responsible for making decisions, and employees are direct to follow them (DuBrin, 2009.)

However, if we reverse it and apply the bottom-up approach, employees are encouraged to submit proposals to their managers, who will summarize and synthesize the best ideas and direct the best ideas further up the organization. The bottom-up approach is not appliable in simple structure organizations, like family-owned businesses.

B. THE IMPORTANCE OF MANAGEMENT SCIENCE

Why introduce ***management science*** to food and beverage service managers? The answer is quite simple. In the early 1990s, hotel operations had no conceptual idea about revenue management and analytics management. In a figurative sense, the hospitality industry is not only very much like other industries; it is more complicated to manage than many other industries. It has a sophisticated accounting system that needs to be compatible internationally; it deals with foreign currencies and foreign transactions more than any other industry. For as long as people will travel, the hospitality industry will play a vital role. Therefore, it cannot be stranger to modern theories and applications of Management, including management science (Heinze, 1982).

Today, hospitality leaders understand more than ever before complex statistical models understand yield management and have knowledge beyond what is known to keep a competitive advantage in the ever-competitive global landscape (Porter & Kramer, 2006). Can we apply management science to the food and beverage service industry? The answer is yes. Who else uses management science? Applications of Management Science are abundant in industry and government. Airlines and overnight mail systems use mathematical models to create efficient, dependable flight schedules. Manufacturing companies use quantitative techniques in virtually all strategic and operational areas, such as choosing a new plant location, controlling production, or implementing statistical quality control. Many service-based organizations and investment firms rely on Management Science to ensure their operations combine customer satisfaction with a high degree of efficiency. For example, even the government's military branches depend on computer-based quantitative models for logistical planning and mobilization.

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Hence, management science, according to literature, can be defined as: "… *an interdisciplinary field that applies mathematics, statistics, computer science and economics to problems and issues of Management in both the private and public sectors and across all business functions, from operations to finance and from marketing to Strategy. As a body of knowledge, management science focuses on quantifiable variables; key concepts include change, uncertainty, optimality, and efficiency."*

Today, the term "management" has become a collective-generic term, which is also used for many executives' definitions or used synonymously. However, this causes confusion and misunderstanding because managers are assigned specialized tasks that require special skills. From a narrow point of view, the manager represents the interests of the associates vis-à-vis the ownership.

C. HISTORY OF MANAGEMENT AND THEORIES

For us to understand what theory we can apply today, we must know what has been done in the past, what we should capitalize on, and what we should not repeat. The history of Management leads us to understand the complexity of the topic and the challenges contemporary leaders face today. Modern Management will not be applicable if previous management theories are not studied.

Management theories include: The Classical School, Bureaucratic Management, Frederick Taylor and introduction of Scientific Management; Time and Motion Studies Frank (1868-1924) and Lillian (1878-1972) Gilbreth; the Gant Charts for scheduling overlapping tasks introduced by Henry Gantt (1861-1919); the Administrative Management which focuses on managers and their work functions was introduced by Henri Fayol (1841--1925) who has been named the Father of Modern Management; the management concepts of the universal goal and principle, with the Law of the Situation by Mary Parker Follett; the Human Relations School which developed around 1920. T.N. Whitehead, Elton Mayo conducted the Hawthorne Studies, and George Homans were led by Fritz Roethlisberger, researchers at Harvard University. The study focused on the effect or the predisposition that occurs when people know they are being observed.

The results demonstrated that worker productivity is affected by the human factor. Chester Barnard (1886-1961) published his book "Functions of the Executive." It outlined the authority of the supervisor's directives and the extent to which subordinates accepted them. He established the theories of strategic planning and the acceptance theory of authority. During WWII and thereafter, several theories had been developed and applied, starting with the system theory in the 1940s, the Human Resources School in the early 1950s, followed by the Integration of the Management Theories. In the mid-1960s, a new theory had emerged, the contingency view of Management or situational approach.

As we know it today, emerging Management emphasizes achieving customer satisfaction through a multiplicity of methods to deliver high-quality products and services to customers. Hence, management theories continue to emerge, especially in the era of the high–tech evolution. Studies are being conducted on the future of work and the work of the future to determine to what extent robots will replace humans. Therefore, the classic view of the management process of the function of management "***Planning - Organizing - Staffing - Directing - Controlling*** "has been forever changed, so much so that it is challenging to stay updated with the changes. Modern leaders today need to stay ahead of changes to stay competitive, including new and efficient management styles.

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D. MANAGEMENT AND ETHICS

1. Definition of Ethics

Within this context, I define ***"Ethics"*** as: …the set of moral values that govern the persons or group behavior which, when applied, must be acceptable by all and be beneficial to all. An ethical manager, when in doubt, should consider the following basic behavioral questions in the decision-making process:

1. Is my behavior/decision legal?
2. Will it benefit the individual and or everyone?
3. Is it the right thing to do?
4. Can I do it differently- do I have a choice to do that?
5. Will anyone be at risk, personally, physically, financially, etc.…?
6. Could the company be negatively affected?
7. Could I be negatively affected?
8. What or who else could be negatively affected; employees, business associates, etc.…?
9. Does it comply with our ethics policy, which we stand for?
10. What would be the consequences if I behave this way? Would it lead to a negative outcome?

Ethics can be divided into four parts: ***general***, ***theoretical ethics***, ***special,*** or ***applied ethics***. General ethics expounds and verifies the general principles and concepts of the moral order; special ethics apply these general principles to the various relations of people and determines their duties.

2. Applied Hospitality Ethics

Applied ethics is the branch of philosophical ethics that places normative rules in a practical context. It is distinguished from normative ethics, which concerns what people should believe to be right and wrong, and from meta-ethics, which concerns moral statements' nature (Cathrein, 1909; ERC, 2020).

Hospitality ethics refers to the norms and standards that are unique to the hospitality industry, professions, and vocations (Jaszay & Dunk, 2006). How do guests and hosts act towards one another in a hospitality setting? How should they act? How far should a server go towards satisfying the customer? What is the appropriate behavior on the part of hotel guests or the hospitality managers? What is the appropriate behavior of the hospitality manager toward the staff or business associates? How should guests act in host countries? These are the kinds of questions hospitality managers need to remind themselves, always.

There is no end to the study of ethics. Human behavior is like our diet; although our body function and body anatomy have not changed for millennia for years, our eating habits have continuously changed; therefore, the body adapts to new diets and environmental changes. Ethics is just the same. In hospitality, we experience new events every day. We must continuously change and adapt ourselves to new guests, new situations and learn from what is happening daily. For example, a guest would never expect to find a steel wire piece from the asparagus box mixed with the vegetable on his/her plate.

What can the foodservice manager do? This kind of unfortunate experience involves many people: the chef, the preparation cook, the line cook, the server, the manager, the general manager, and in case of a severe accident, a lawyer. What is the ethical responsibility in such a case? Did someone not do his/

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her job correctly? Did the chef not supervise his/her employees correctly? Did the server not inspect the plate before serving the guests? Who is to blame after all? How to deal with the guest? What are the final consequences if the manager does not act ethically?

Finally, none of the actions will lead to a positive outcome if the company does not have an ethics policy in place and if staff and managers are not adequately trained and retrained continuously. The Management in the foodservice industry should be concerned about the importance of ethics in the workplace. It is about all concerned and not only about the service encounter with the guests. Particularly the Management needs to be concerned with managing diversity, employee safety on the job, food safety, and purchasing. The foodservice industry faces many challenges in day-to-day operation. Managers are constantly approached by unethical purveyors who offer kickbacks in the hope of getting the account. Servers are tempted to violate any ethics rules daily, from using a duplicated check to bill two different guests, taking food off the line for personal consumption, and coming to work with improper attire. Bartenders may bring their liquor for sale and pocket the money; they may sell bar brands as premium brands; they may invite friends to be entertained for free. The following are examples of what an ethical foodservice manager needs to deal with daily. Not an easy task? Psychologists worldwide battle with a simple question for which they cannot find the answer: "what makes people do what they do'? If we can find the answer, many ethical dilemmas would not exist; actually, they could be prevented.

3. Categories of Ethics

Ethics is a branch of philosophy. For this textbook, I subdivided ethics into three categories.

1. Moral Philosophy: ***Applied Ethics***, Business Ethics
2. Moral Philosophy: ***Normative Ethics***, Ethics of Hospitality
3. Political Philosophy: ***Organizational Ethics***, Policies

In moral philosophy and political philosophy, hospitality ethics takes on a much more abstract and hypothetical meaning. Here, an ethic of hospitality—the moral relationship between a guest and a host—may be clarified as a particular kind of ethical standard, then applied to issues to determine what should be done in a particular situation. The guest-host relationship takes place at many levels; it can happen between persons and entities (groups, organizations, states, countries).

Researchers document how guests and hosts act concerning one another; they describe the case in hospitality relationships and standards; throughout time and in different cultures. Ethicists, both moral and political philosophers investigate how guests and hosts should act; they prescribe what should be the case in guest-host relationships and hospitality settings. They investigate what sorts of standards and values hospitality practitioners should uphold in hospitality settings—be they commercial or non-commercial, private or public.

Additional information can be found at The Institute for Business, Technology, and Ethics (IBTE). The Center for Integrity in Business https://www.ethix.org/ publishes a bi-monthly publication at the Center for Integrity in Business (IBTE, (2020). ***Ethics*** provides illustrations of business ethics challenges through positive examples of best practices and exemplary leadership. In their consulting portfolio, ***Ethix*** includes the ***"Ten Principles of Highly Ethical Business Leaders."*** These principles apply to any business across industries and, of course, to hospitality.

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1. Treat all employees as unique, valuable individuals.
2. Support employees' freedom, growth, and development.
3. Communicate to employees by name with respect.
4. Encourage a balanced lifestyle of good work and rest.
5. Honor and respect employee families.
6. Protect employees' life, safety, and health.
7. Establish a working environment free of sexual harassment.
8. Be fair and just in financial matters.
9. Communicate honestly and truthfully.
10. Cultivate a positive attitude toward others and their accomplishments.

4. Ethical Values

Individuals and organizations have values; these values may be linked to culture, traditions, and customs. Regardless of how one selects his/her values, it is also important to draft a definition for each; employees need to know how the Management views these values, just as they need to know what ideals the Management considers to be necessary.

5. Corporate Governance and Code of Ethics

Is a code of conduct necessary, or is a company committed to implementing it because everyone else has corporate governance in place? Following the corporate scandals during this decade, one could argue if corporate governance and ethics should be regulated and hypothesized to be entirely successful or comprehensive. Therefore, it is said that while the law is about obedience to the enforceable, ethics is about obedience to the unenforceable.

Although there is no law stating that a corporate governance policy that would include the code of conduct is mandatory, developing an ethical approach with includes rules for mutual respect, fairness in relationships, honoring commitments, maintaining a standard of quality, compliance with laws and regulations, honesty and openness, fair rewards, responsive contribution to the community and taking responsibility for one's actions everything that hospitality professionals are taught they should aspire for, is extremely critical and beneficial to the company.

A code of ethics becomes very crucial and can make a difference in any company. Therefore, developing an ethical approach includes mutual respect, fairness in relationships, honoring commitments, maintaining a standard of quality, compliance with laws and regulations, honesty and openness, fair rewards, responsive contribution to the community, and taking responsibility for one's actions everything that hospitality professionals are taught they should aspire for. Putting a code of ethics policy in place is a rigorous process that can take months to complete. The Management and the board (in the case of a publicly-traded company) should follow these steps in developing their code of ethics policy.

1. Develop a uniform code of ethics.
2. Assign persons to ensure compliance, the "practitioner."
3. Delegate with care, and not everything can be delegated.
4. Enforce discipline consistently.
5. Create a transparent atmosphere.

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6. Provide scope to rectify embarrassing problems.
7. Prevent recurrence of offenses.
8. Communicate, train and retrain constantly.
9. Get feedback from guests, employees, and the industry to continuously better yourself.
10. Carefully plan the process so that the system, despite the sincerity, does not fail.
11. Involve all stakeholders so that all feel valued and can make their contribution towards a common goal.
12. Assign tasks and evaluate results fairly (use rotation, shifts, and time management)
13. Conduct clear goal-oriented training and incorporate features like gender-appropriate behavior, respect, and tolerance for people's places of worship and religious beliefs, proper workplace behavior etc.
14. Emphasize the importance of diversity management with all concerned.
15. Encourage camaraderie but also make people feel safe enough to disclose things about colleagues who are not in line with the prescribed ethical practices.
16. Create an accurate, improvement-oriented feedback method or put a system in place to monitor feedback regularly.
17. 17. Revise the policy as needed to adapt to unforeseen changes.

Ethics within the hospitality industry goes beyond its basic definition. In this sense, it would mean a duty towards customers/guests, towards stakeholders, towards the organization, towards society, and most of all, towards maintaining high standards and upholding a common set of values.

6. Writing the Code of Ethics; What Should it Contain?

a. Basic Elements
    1. A very distinctive title
    2. A letter of introduction by the leadership
    3. Outline of contents
    4. A well-formulated introduction
    5. List of the core values of the company
    6. What the code of ethics should consist of and practical matters
    7. Where to obtain information and resources
b. Sample Topics that can be Included in a Code of Ethics Policy
    1. Why the code of ethics?
    2. Describe the ethics policy and its scope.
    3. Is it in compliance with applicable laws, rules, and regulations?
    4. Are there any conflicts of interest?
    5. Transparency with financial records and periodic reporting
    6. Ensure financial compliance.
    7. Ensure protection and proper use of company assets.
    8. Maintain the highest level of confidentiality.
    9. Procedure for reporting any illegal or unethical behavior.
    10. Who and how to enforce the code of ethics?
    11. Should there be a waiver of the code of ethics?

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12. It must be fair dealing.
13. It must offer corporate opportunities.

E. STRATEGIC MANAGEMENT AND APPLICATION OF ORGANIZATION BEHAVIOR

Organizational behavior plays an important role within the task of strategic Management and deals with the application of knowledge about how people, individuals, and groups interact in organizations. Academically, is a study that investigates the impact that individuals, groups, and structure have on behavior with organizations to apply such knowledge toward improving an organization's effectiveness? (Miner, 2002)

As you will find out in reading this section of the organization behavior, within the task of strategic Management, is a very complex field of study of the social science discipline, like cultural anthropology, economics, political science, psychology, and sociology (Nag, Hambrick, & Chen, 2007). That means that it uses the scientific method to determine the truth and to test and validate its theories. This discipline was started and taught business schools.

Furthermore, it is a new discipline relative to the other social sciences, having its origins in the middle of the twentieth century. *Organizational behavior* is a social science that is concerned with the behavior and nature of the people within organizations and, second, with the behavior and nature of organizations within their environments.

The discipline of organizational behavior includes a wide range of topics, such as human behavior, Management, ethics, leadership, team strategy (Hatch, 2006). Of particular interest to scholars, today is educational leadership (Chance & Chance 2002).

One topic that stands out in organizational research, the quality of work-life. This topic concerns not only the employees but the employers as well. The IT industry has been one of the catalysts to improve the work-life balance. Through participative leadership and applied organizational behavior and change, the industry has inspired many others to follow. Organization behavior has many models; in this context, I introduce four basic models that can be applied across industries:

- ***Autocratic*** – management power with authority, employees are subject to obedience and dependence on the boss. The performance produces low productivity.
- ***Custodial*** – the Management uses economic resources with an emphasis on money; employees look for job security, benefits, and dependence on the organization. The performance produces little cooperation.
- ***Supportive*** – a quasi-participative model of leadership, the Management seeks employee support. Employees work toward productive job performance and participation.
- ***Collegial*** – the Management seeks to build teamwork, a kind of collaborative partnership. The employees work towards responsible behavior and self-discipline.

The discipline uses four different models; however, most organizations apply more than one. There will usually be a predominant one, with one or more areas over-lapping in the other models. There is no single model for any given company that may work. Some practitioners prefer or are compelled to use one over the other. Its application depends on the structure of the firm, the country in which it operates, the philosophy and beliefs of the firm's ownership, and finally, it depends on the structure of its human

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capital. In a global landscape today, almost every industrialized country has a diverse workforce. Whether the diversity is in Management, such as "expatriates," or in the rank-and-file employees, organizational behavior can be applied successfully to organize the firm and its employees.

1. What is Strategic Organizational Behavior Within the Field of Management?

A ***Strategy*** consists of sets of actions and decisions designed to achieve specific goals, most often to achieve an advantage over competitors. ***Tactics*** are short-term actions and not long-term strategies to deal with an imminent concern and, by nature, is premeditated and often practically rehearsed. Tactics are used to make the imminent problem easier to understand and solve. The word ***Strategy*** derives from the Greek word *stratēgos*, which in turn derives from two words: *Stratos* (army) and *ago* (ancient Greek for leading). *Stratēgos* referred to a 'military commander' or general during the age of Athenian Democracy. ***Strategic Organizational Behavior*** focuses on individual, group, and organizational effectiveness.

Strategic Management is based on several approaches, one being resource-based. In the context of this topic, I will focus on human resources or human capital. Organizational behavior is the study that investigates the impact that individuals, groups, and structures have on behavior with organizations to apply such knowledge toward improving an organization's effectiveness. This is no easy task for the strategic leader who applies all resources available to lead a company and to achieve sustainable competitive advantage.

2. Management Challenges in Organizational Changes

In contemporary times, managers worldwide face many challenges and opportunities, the external factors in Management. The most critical and challenging tasks involve dealing with environmental changes due to globalization, information technology evolution, total quality and diversity, and ethics. Organizational Behavior models help managers in the process when they face managerial challenges that require appropriate actions. Hence, the study of supervision has been a popular discipline in academia for decades, and its applicability in any business is a function of the business model, which faces known and unpredictable challenges (Cunningham & Eberle, 1990.)

F. INVENTORY FOR MANAGEMENT EFFICIENCY IN ORGANIZATIONS

1. Managerial Opportunities

- Personal satisfaction in managing people.
- High rewards in career growth and financially
- Applying a variety of skills and gain valuable experiences.
- Opportunity to make decisions and achieve desired outcomes.
- Opportunity acquires new knowledge

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2. Managerial Challenges

- Long working hours
- Working tasks are a fragment, brief and stressful.
- Interruptions, crises, and problems are always there.
- Complicate communication: it always requires obtaining, interpreting, and giving information
- Constantly juggling the needs of the organization and the needs of employees
- The democratic development of employees and labor unions

3. Basic Skills, Characteristics, Criteria, and Job Function of an Organized Manager

A manager requires having, among others, the following necessary attributes:

- Innovative and creative
- Future and trend-oriented
- Self-improvement and self-renewal
- Always learning something and implementing what was learned.

4. The Managerial Functions

Managers are people who perform in the middle and top Management, and therefore, they need to be flexible to communicate in the right language of both higher and lower levels.

Managers typically require specific skills to perform their tasks:

- ***Conceptual skills:*** The aptitude to gather, understand and transfer data.
- ***Human relations skills:*** It is all about people, whom they work with
- ***Administrative skills:*** The ability to plan, organize, and direct activities.
- ***Technical skills:*** The capability to perform and comprehend actual tasks.
- ***Political skills:*** Extramural and informal relationships with government and city officials
- ***Technical competence:*** The ability to do something successfully, or efficiently, or effectively.

Management can be defined as is the process of getting things done with people and through people. Tasks are being achieved by guiding and motivating people's efforts toward common objectives.

Managerial Functions are the same in most managerial positions, and they are:

- ***Planning:*** setting goals, objectives, policies, procedures.
- ***Organizing:*** arranging and distributing work tasks
- ***Staffing:*** recruiting, selecting, orienting, and training
- ***Leading:*** guiding, teaching, directing and motivating employees
- ***Controlling:*** the monitoring off all tasks to ensure optimal performance and to take correcting actions when required.

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Chapter 3
Human Resources Management:
Recruiting, Retention, Diversity, Inclusion, and Outsourcing

ABSTRACT

This chapter presents the human resources department's critical role for foodservice operations, which are very labor-intensive by nature. The chapter introduces the reader to what it takes to be successful in human resources management, H. R. manager's role, and its role in the operation and its relationship with other departments. The content includes planning, organizing, staffing, leading, and controlling in the context of H.R. management. Most importantly, it emphasizes the importance of knowing the federal equal employment opportunity legislation and the employee occupational safety and health regulations. It makes recommendations for developing training manuals, job descriptions, employee policy manuals, and applications. In addition, it proposes strategies as to how and where to recruit the best-qualified employees and retain them. Lastly, it shows practical examples of proficiency in forecasting human resources demand by using mathematical formulas and directions and makes the reader aware of the challenges and opportunities of the human resources manager.

A. INTRODUCTION TO FOOD AND BEVERAGE HUMAN RESOURCES

In any organization, there is someone responsible for the welfare and performance of the people who are a part of the operation. When a person or a team of individuals engage in setting and managing policies that impact everyone associated with the company, they are engaging in *personnel management*, typically referred to as (H.R.) *human resources management*.

A personnel manager's function is multitasking; however, the primary responsibilities involve the recruiting, retention, and management of the firm's personnel. One aspect of a company is an organization that unquestionably requires the input of effective personnel management is the drafting of the "Employee Handbook." Also, establishing operation policies and procedures, requirements for employ-

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ment, recommendations for employees' advancement, disciplinary procedures, guidelines for dismissals and promotions, and ensuring compliance with the state and federal employment laws. Depending on the organization's size, it may be possible for one person to handle the personnel management functions. In a larger organization, there is a more structured personnel management team.

Is there a difference between Human Resources Manager and Personnel Manager? According to experts in the field, there is no difference between the two. The terms are more than often used interchangeably. Personnel management is considered more administrative, dealing with payroll, complying with employment law, handling related tasks, and tactical focus. Personnel management typically seeks to motivate employees with perks such as compensation, bonuses, rewards, and the simplification of work responsibilities.

Human resources management (HRM) is considered more strategic and involves more managing a workforce as one of the primary resources that contribute to an organization's success. HRM incorporates and develops personnel management tasks while seeking to create and develop workers for the organization's benefit. The goal of human resources is to enable employees to work to a maximum level of efficiency. Human resource management holds that improved performance leads to employee satisfaction.

The responsibilities in human resources management encompass several people-oriented functions, including but not limited to:

- Human *Capital* Management
- Job Design
- Recruitment
- Selection
- Orientation
- Retention
- Appointment and Induction
- Performance Management
- Training
- Retraining
- Cross-training
- Management Development
- Job Evaluation
- Administration of Wages and Salaries
- Incentives
- Fringe Benefits
- Labor Turnover and Termination of Employment
- Employee Relations
- Union contract negotiation
- Union representative's relationship
- Labor relation
- Human Resource Planning, Records and Statistics
- Labor Costs and Productivity
- Organizing Human Resources

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- Managing People
- Managing in an International Context
- Customer Care and Quality
- Managing the health care program and employee benefits
- Business Ethics
- Health and safety programs
- Employee communication
- Career management

H.R.'s traditional foundation is work analysis and its product, the job description, and job specification. However, trends in H.R. show that leading organizations are moving away from the traditional foundation, basing H.R. instead of competencies to garner the possible differences in productivity between exemplary and average performers in every job level and category. In H.R., human resources management broadens its orientation and addresses all issues about people and Human Resources Development (HRD), which focuses on increasing individual and collective productivity through learning. HRM emphasizes the utilization of existing people in their current job. HRD instead emphasizes the preparation of existing people for new roles, new jobs, and their development in their current roles to unleash human beings' creative potential (Rothwell & Sullivan, 2005), which is defined as Human Capital.

B. WHAT IS THE MEANING OF HUMAN CAPITAL?

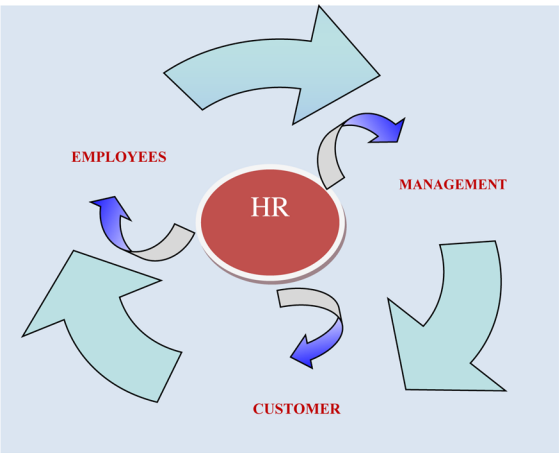
Human Capital is commonly described as *"The set of skills that an employee acquires on the job through training and experience, increasing the employee's value in the marketplace."* Adam Smith defined four types of (fixed) capital, which were: 1) useful machines, instruments of the trade, 2) buildings as the means of procuring revenue, 3) improvements of land, and 4) *human capital.* Adam Smith saw human capital as skills, dexterity (physical, intellectual, psychological, etc.), and judgment (Spengler & Smith, 1977.)

"Human capital" in economic terms is defined by Gary Becker of the "Chicago School" of economics. Becker's book entitled *Human Capital*, published in 1964, became a standard reference for many years. In his view, human capital is like "physical means of production," e.g., factories and machines: one can invest in human capital (via education, training, medical treatment), and one's outputs depend partly on the rate of return on the human capital one owns. Thus, human capital is a means of production, into which additional investment yields additional output. Human capital is substitutable but not transferable like land, labor, or fixed capital (Becker, 1993.)

In hospitality, Human Capital is often connected to the "War for Talent Retention" associated with training and perks, hoping to reduce turnover and increase employment longevity. I see Hospitality Human Capital the same way as Adam Smith did: skills, dexterity (physical, intellectual, and psychological). The hospitality industry, especially the Foodservice Industry, is replete with talented employees that enhance its value. Although many food and beverage service companies contribute huge investment dollars in training and development, the turnover rate is still high. It is partly because the industry continues to expand as it has done over the last decades; therefore, finding staff is generally a challenge, and finding well-qualified Human Capital is, at times, impossible. This challenge is often dependent upon the establishment's geographic location and the city's size and infrastructure in which the establishment operates.

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Figure 1. The Role of Human Resource



H.R. plays center stage regarding the firm's performance and customer satisfaction. To a certain extent, H. R. is responsible for hiring, training, developing, and retaining qualified employees. The management is responsible for their performance and for assuring the highest level of production and service delivery. In the hospitality industry, human resources management's role is much different from that of a firm that provides goods or services five days a week, eight hours a day. Hospitality establishments, especially foodservice outlets, which are an integral part of a lodging operation, offer 24-hour service, which employees must provide. They perform shifts work the same as a hospital, a police station, or a fire department. These establishments are part of a complex organization that requires accuracy in planning and delivering service and products to meet the stakeholders' expectations.

1. The Human Resources Manager' Function (Hypothetical Scenario)

The H.R. Manager is the person in charge of the Human Resources Department and its administrative staff. The typical career path starts after completing a college degree in hospitality, human resources, and sometimes in psychology. In large operations, the H.R. department is very structured with necessary support staff; however, in small establishments, the job is sometimes shared with the financial controller, the general manager, or the owner. Recent trends show that the H.R. department in a large hotel and foodservice operation is centralized and coordinated by the corporate or regional H.R. office. Many companies recruit exclusively online; therefore, the entire Workforce is monitored at all levels: locally, regionally, and nationally and with some companies internationally. They share a database accessible to all units, which is more cost-effective than individually managed. In a single and small unit operation, the recruitment still happens primarily with on-premises applications, immediate face-to-face interviews, and hiring. A typical job description for hiring an H.R. Director/Manager of a free-standing foodservice operation or the one integrated into a hotel setting may have the following components, depending on the geographic location, the size of the company, and if it has an organized labor force

A minimum of 5 years at H. R. Director level and at least two years' experience in a union environment

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2. Scope of This Position Calls for the Following

1. Bilingual for USA based position preferred, multilingual for international positions
2. The position will be responsible for supervising/managing/overseeing the entire Human Resources Department
3. Requires a minimum of 3 years of supervisory experience
4. Requires a minimum of 5 years of the overall experience
5. Training and experience in other departments is desirable
6. This position reports to the General Manager with a dotted line to the Corporate V.P. of H.R.
7. Must have experience at properties of similar size and quality: 4 Diamonds and 500 employees

The ideal candidate must meet the following criteria:

1. Must be a citizen of this country or possess a valid work permit
2. **Must meet the following technical requirements:**
    a. Develops H.R. strategies and administer H.R. policies and procedures.
    b. Strong background in employment, employee relations, benefits, wage and salary, employee training, accident prevention, and government regulations and policies as they impact H.R.
    c. For the USA: Solid background in EEO (Equal Employment Opportunity), OSHA (Occupational Safety & Health Administration), ADA (Americans with Disabilities Act) anti-discrimination laws, COBRA (Consolidated Omnibus Budget Reconciliation Act), immigration requirements, etc.
    d. Conducts needs analysis, develop, implement, and monitor training programs and materials.
    e. Quantitatively evaluates the goals and objectives of the H.R. Department.
    f. Successfully defends unemployment claims, Workers' Compensation claims, etc.
    g. Conducts wage and salary surveys.
    h. Provides employee counseling, as necessary.
    i. Plans and coordinates employee functions, suggestion programs, etc.
    j. Takes an active role in professional H.R. organizations.
    k. Administers a drug-testing program.
    l. Works closely with Corporate/Regional/Franchise H.R. functions.
3. **Managerial Requirements:**
    a. Explicit, concise, written, and verbal communication skills.
    b. Experience in making presentations in front of groups.
    c. Ability to clearly and concisely present technical subjects.
    d. Maintains a good working relationship with guests, groups, and personnel from other departments.
    e. Demonstrates the ability to lead by example.
    f. Builds morale and spirit.
    g. Uses a "hands-on" approach to the management.
    h. Experience in communicating, training, and managing multilingual staff.
    i. Experience in training and cross-training employees.
    j. Instills a guest service attitude in all employees.
    k. Instills a "can-do" attitude in employees.

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l. Coaches employees how to resolve and de-escalate conflicts.
m. Instills a calm, organized approach in all situations.

4. **Business Skills:**
   a. Strong technical skills.
   b. Excellent time management skills.
   c. Strong organizational skills.
   d. Good knowledge of computer applications.
   e. Strong customer service orientation and skills.
   f. Excellent listening skills.
   g. Excellent problem-solving skills.
   h. Assume responsibility/accountability.
   i. Thorough understanding of H.R. requirements and regulatory agency requirements.
   j. Ability to create, develop, and make formal presentations using audio/visual aids.
   k. Conflict resolution skills.
   l. Ability to quickly evaluate alternatives and decide on a plan of action.
   m. Ability to think creatively.
   n. Experience and ability to negotiate union collective agreements
5. **Educational Requirements:**
   a. BA/BS 4-5-year degree or foreign equivalency, Master's degree preferred.

3. The Relationship Between the H.R. Department and the Food and Beverage Service Operation

The H.R. department is a non-profit center and has a supporting role in other departments' operations, including food and beverage (F/B). The F/B department is uniquely integrated into a hotel setting is usually the department with the largest number of employees, the highest payroll, the highest staff turnover, and the least profitable compared to the rooms division and other departments in case of a resort hotel. To maintain the highest level of service, the lowest turnover, the ideal labor cost, the desired profit, and the highest customer satisfaction, the cooperation between the H.R. department and the food and beverage department must be optimal.

From planning to recruiting, training, developing, and promoting food and beverage employees, the H.R. manager, the H.R. staff, and the Food and Beverage Manager will deploy all their expertise, including their innovative ideas, to maintain the required level of staff capable of delivering to expectation. Thus, managing the Food and Beverage Human Capital will lead to a sustainable level of competencies and create a competitive advantage for talent acquisition development and retention.

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C. ACTIVITIES OF THE H.R. DEPARTMENT

1. Relevant Activities and Responsibilities of the H.R. Department

The most important activities are:

- ***Planning:*** setting goals, objectives, policies, procedures
- ***Organizing:*** arranging and distributing work tasks
- ***Staffing:*** recruiting, selecting, orienting and training
- ***Leading:*** guiding, teaching, directing and motivating employees
- ***Controlling:*** ensuring performance and correcting actions

To actively participate in the H.R. management process of the daily function in the food and beverage operation, the H.R. manager must exploit all expertise he/she has and employ all tools available to play the essential supporting role needed continuously to assist staff and management with their daily tasks. Ideally, an experienced H.R. manager should have gained experience in at least one new establishment opening. This experience would have exposed him/her to every possible activity involved in the "Planning, Staffing, Organizing and Training of the new staff and management, from the pre-opening to the soft opening and grand opening phases of a new facility. With this knowledge on hand, the H.R. Manager will fully assist the food and beverage management in every possible situation and circumstance. Additional activities are discussed in the job description of an H.R. manager.

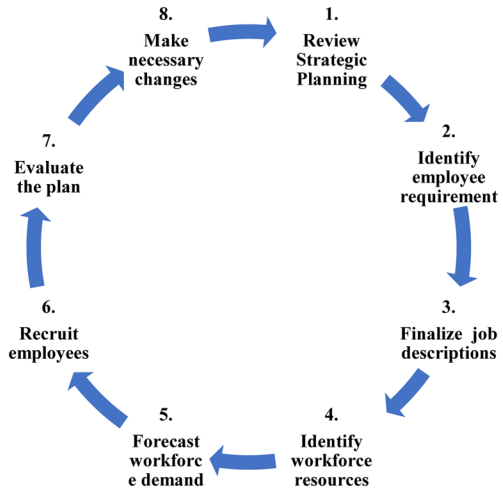
D. WORKFORCE PLANNING, RECRUITING AND RETENTION STRATEGIES

There are many definitions of "Workforce Planning," however, one of the most common definitions available in the literature is: "Having the right number of people with the right skills, experiences, and competencies, in the right jobs, at the right time." Workforce planning requires the H.R. manager and departmental managers to base human resource decisions on a long-term strategic plan; the decision to plan and fill a position tactically can have destructive consequences. During the planning process, the organization should systematically address the issues driving workforce change. The first step is to develop a "workforce panning model suitable for the company to meet its requirements. No model is ever perfect unless it has been implemented, evaluated, and changed to correct errors. A sample workforce planning model follows:

1. Review Strategic planning and analyze the geographic location and demographics of the available Workforce. Review the department's strategic plan mission, vision, and measurable goals and objectives and timeframes for accomplishing them. Many operations are planned wrongly from the beginning. For example, it is not easy to find restaurant staff in an adult golf course community where the population is made up of retired people.
2. Identify the number of employees required for each job. Identify the staffing, both in the number of personnel and its competencies required to accomplish the work functions. Project an attrition rate and compute a potential turnover rate according to industry historical data if available. **(see formulas in figures 3 and 4 below)

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Figure 2. Workforce planning model



3. Identify the work functions that must be performed to accomplish the strategic plan and create and finalize a job description for each job required.
4. Identify workforce resources available in the geographic location of the company, look at the best places where to hire good employees.
5. Forecast workforce demand. Project the Workforce, including numbers of staff and competencies, considering attrition, and assuming no management actions taken to replace staff lost through attrition.
6. Compare the staffing requirements in step 2 with the projected workforce supply in step 4 and determine the gap. Prepare recruiting strategies and recruit employees.
7. Evaluate the plan, analyze workforce gaps, constraints & opportunities, develop priorities and solutions.
8. Make the necessary change to the plan. Assess what is working and what is not; adjust as needed and address new Workforce and organizational issues.

Hypothetical Scenario 1

**Example attrition rate calculation:

$$\frac{Number\ of\ attritions\ 16}{Number\ of\ employees\ 250} \times 100 = 6.4\%$$

Where:

- Restaurant XYZ total number of employees on the payroll: 250
- Annual employee movement data: 4 retirements, 3 dismissals, 3 resignations, 4 transfers, 2 deaths
- Number of employees constituting the attrition: 16
- Attrition rate: 6.4%

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Hypothetical Scenario 2

**Example employee turnover rate calculation for fiscal year X:

$$\frac{\text{Number of employees at the beginning of the year} + \text{New hires} - \text{Number of resignations and dismissals for the year}}{\text{(Average number of employees for the year)} = \text{Number of employees at the beginning of the year} + \text{number of employees at the end of year: 2}} \times 100 =$$

A realistic approach to calculating the number of employees on the payroll at the end of the period is to count the number of W-2s (Wage and Tax Statement) that must be issued to every employee at the end of the tax year according to the Internal Revenue Service's Law.

E. FORECASTING EMPLOYEE DEMAND

Projecting the number of staff needed is not an easy task for both the food and beverage manager and the human resources manager. The following scenario concerns hourly paid employees and not managers or exempt employees. The reason is that a manager does not work in production or service and therefore does not need to be replaced during his/her absence, such as days off or vacation time.

An hourly paid employee is someone whose job depends on him/her. For example, if the bartender is off on a specific day, then the bar depends on that bartender to be operated, in which case someone else must replace the bartender during his/her time off. There are many variables to consider; the first step is to go back to the original concept of the operation and the strategic plan and analyze the vision of the restaurant food and beverage operation: what service category (luxury, midscale, casual, quick service) and what menu and beverage list to determine the productivity of each employee in each job. For example, one must determine how many dishwashers the restaurant requires for two-meal periods a day for 100-seat operations open 365 days a year. There are several variables to consider when using this scenario.

Whatever the category is, the F/B Manager, the Bar Manager, Sommelier, and the Executive chef must define the service standard and presentation of the food and beverage; this standard will determine the place setting for each guest dining in the restaurant. Once the place setting has been determined, then the productivity of a dishwasher can be computed, and the management can accurately forecast how many employees are required to cover each shift and how many need to be hired for the sanitation department.

For example, a total of 45 pieces of china, silver, and crystal ware combined may be used in a luxury restaurant for each patron having dinner consisting of a 3-course meal, a cocktail, and wine/s. *(It is worthwhile to mention that this analysis will also determine the par stock of china, crystal ware, and other tabletop utensils to be purchased.)* If a 100-seat restaurant performs at 80% average capacity for each meal period, then the total number of tabletop utensils used by dining room guests would be (45x80 = 3600); this is without taking into consideration all kitchen utensil, tools, and equipment. Hypothetically a double rack automatic dishwasher running a 5-minute wash cycle to wash 50 pieces of utensils would require 6 hours of continuous cycles to wash all dishes.

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Hypothetical Scenario 3

Sample dishwasher productivity computation

(3600: 50) = 72 x 5: 60=6

Where:

- 3600 is the number of restaurant utensils to be washed for a meal period
- 50 is the number of utensils washed per cycle
- 5 is the running time of each wash cycle
- 60 is how many minutes are in an hour

Since the sanitation department also washes kitchen utensils, tools, and equipment, a second dishwasher would be required. Thus, to forecast the number of dishwashers required, we would use the number of wash cycles at a capacity of 50 pieces of tableware for each wash cycle as a factor. In the above scenario, we can assume that the restaurant needs two dishwashers for each shift for an estimated 8 hours per shift. A shift may consist of 2-hour work before the meal period, 3-4 hours during the serving period, and 2 hours after the meal period. Once the number of employees required for a specific job for each shift has been determined, the management needs to compute how many days per year these hourly paid employees work. In this scenario, we need 2 dishwashers for each shift/meal period or 4 for each day.

The variables to consider are as follows:

- The number of operating days
- The meal periods for each day
- The number of employees required to cover each shift
- The number of days off for each employee

To compute the number of total days each hourly paid employee ***does not*** work, one must consider the following:

1. According to the legislation of the State in which the property is located and according to the employer compensation policy, the average number of paid statutory holidays per year is determined. In the U. S., the average is about 6 days; in some states are more: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day.
2. The number of days off each week time 52 weeks a year, on average 104
3. The number of vacation days/weeks. **Note:** if the employer offers **"week/s"** paid vacation a year, he/she must specify in the letter of employment to the employee if the vacation week/s is/are work week or calendar week. A workweek consists of 5 days' work and 2 days off; a calendar week is a straight 7-day week. This means that if an employee is awarded a workweek vacation in the contract, that employee is entitled to 5 days' vacation, 2 days off, and then 2 more days' vacation for a total of 9 days off.

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4. Number of days the employee may call in sick or not report to work for other reasons, in this scenario, we will use 7; (nationwide can range from 5 to 25 days a year), that is why most employers in the U. S. now offer Paid Time Off (PTO), Paid Sick Days (PSD) and other incentives to reduce absenteeism.

In this scenario, we will use the following data to compute the total number of days each hourly paid employee ***does not*** work in a year:

Hypothetical Scenario 4

Table 1. Computing number of days employees do not work

	Days employees *do not work* **in a year**	**Number of Days**
I	statutory holidays	6
II	days off a year	104
III	workdays vacation	5
IV	days sick leave	7
	Total days	122
	Total days employees are available for work	243

Computing the number of employees to be hired for the 4 dish washing positions available

$$\frac{4}{243} \times 365 = 6$$

Where:

- 4 is the number of dishwashers needed to cover 2 meal periods each day
- 243 is the number of days each employee is available to work
- 365 is the number of operating days of the restaurant
- 6 is the number of employees to be hired**

**Note: the 2 extra dishwashers will replace the 4 dishwashers need during all their time off.

Hypothetical Scenario 5

Full-Time Equivalent (FTE)

There have been many research studies conducted on FTE. The term FTE means “full-time equivalent”; it is a statistical technique for calculating labor measurement. It is applied to distinguish between full-time employees and part-time or (full-time equivalents). The number of FTEs is related to a threshold

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in the number of worked hours per week/year. An employee working more than the threshold number of hours is counted still as one FTE. Persons working less than the threshold are accounted for as a proportionate percentage of an FTE. The technique may focus primarily on the time-based approach and not the income-based approach. Therefore, assessing the level of income per employed person or FTE may only be considered a complementary analytical indicator. Simply explained: If the restaurant employs 50 full time (working 40 hours a week) and 16 part-time associates (working 20 hours a week), the formula to calculate the total full-time employees on the payroll, including the FTE's is as follows:

50 + (16x20)/40 = 58

Computing FTE for Salary and Annual Leave

The establishment must define or follow the Law as to what a "full-time" employee is, meaning how many hours he/she works and what the benefits entitlements are. If an employee is considered full-time when working 37 hours a week, the part-time employee would, by definition, work less than 37 hours. Hence, for an employee working 18.5 hours a week, per week for 52 weeks, the FTE would be calculated as follows:

$\frac{18.5}{37} = 0.5FTE$

$0.5 \times$ Full time salary $=$ Pro-rated salary

$0.5 \times$ Annual leave entitlement $=$ Pro-rated annual leave

Note: pro-rated annual leave may be calculated in days or hours, depending on the company's standard operating procedures and per the labor law, e.g., whether meal and rest breaks need to be considered (Please refer to the Federal and State Labor Standard https://www.dol.gov/).

The hospitality industry and especially the foodservice industry have been growing for the past decades creating more human resources demand with more constraints for every growth period.

Before launching a new venture in a specific geographic area, a thorough workforce feasibility study should be conducted. Each State Department of Labor (DOL) offers valuable statistical data that can be used in the employee planning process; log on to the U.S. DOL website for more information https://www.dol.gov/, https://www.dol.gov/dol/stats.htm, https://www.bls.gov/data/. For all business resources including U.S. Census Data go to: http://business.gov/. Additional information about labor law by State and steps to hiring new employees, can be found here: http://business.gov/guides/employment/managing/first-employee.html

F. STRATEGIES FOR RECRUITING AND RETAINING QUALIFIED EMPLOYEES

Recruitment and selection strategies should focus on hiring the best staff that possesses the competencies required to achieve the restaurant's strategic plan, and in the department, the current Workforce may be deficient. When considering strategies for retaining employees, managers/employers often limit themselves, thinking only in monetary rewards such as bonuses, end of service benefits, …etc. However,

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one reason employees remain at a company is the opportunity for growth given to them and the available professional development opportunities.

Many Restaurant Chefs and Managers still have no formal education; however, they had been allowed to grow in their career and professional and personal life. In many surveys, fair pay and monetary benefits do not rank as priority concerns. Employee internal growth is possible through an effective succession plan and knowledge transfer.

Whenever an employee leaves a department, that department experiences a loss of knowledge. Whether the employee is a restaurant manager or the assistant server, or the preparation cook, some knowledge of what to do and how to do it is lost. An effective succession plan must be in place to avoid potential disaster. It is also essential that both the human resources manager and the foodservice manager do not allow any employee to monopolize his/her job. Succession planning is an essential subset of workforce planning. Its goal is the same, but its focus is specifically on having the right leadership in place at every restaurant organization level. It is important to differentiate that succession planning mirrors workforce planning but concentrates on leadership and other critical positions.

Competing for Workforce in an industry that has had a proven growth for decades, the recruiting managers must understand the status – quo of the labor market trends, emerging technologies, workforce demographics, and most of all the competition, because competing for talent in the 21srt century has become the core concentration to establishing a foodservice operation's competitive advantage. Identifying recruitment markets and specific targets is of utmost importance.

A primary recruiting market can be established at universities and colleges that offer hospitality programs but also within the general labor market. Establishing a genuine working relationship with teaching institutions is not easy because of the low number of graduates they release every graduating year. Schools cannot promise a specific number of top graduating students and connect every student with the ideal job. The recruiting manager should also focus on other recruiting strategies such as newspaper ads, campus activities, professional organizations, web-based advertising, community-based advertising, and partnerships with other recruiting agencies.

A potential strategy is to build a recruiting model internally, such as designing effective methods for internal employee professional development, promotability, and intercompany transferability where possible. The identification of possible future roadblocks is also essential therefore implementing positions for which employees can be cross-trained and easily be shifted across the departments, just as the "Chef Tournant" does, the chef who is almost ready to move up to the next position who has been cross-trained and can work in all positions of the kitchen operation.

1. Manager's Tools for Effective Recruiting

1. Create a Job Description
2. Develop a Vacancy Announcement to be posted internally and in media outlets
3. Perform Diversity Analysis and assess how best to address the opportunity
4. Recruit:
    a. At career fairs
    b. At universities/colleges
    c. By partnering with other foodservice professional and related organizations
    d. At community-based organizations
    e. At open houses

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f. At multi-cultural or diversity events
g. Over the internet
h. By word- of- mouth from employees to their families and friends
i. Internally

5. Work in synergy with the HRM and the Departmental Manager, especially before deciding to make an offer to a new employee
6. Continually Evaluate the Process, eliminate what does not work, and capitalize on what does
7. Assess the recruiting success and prepare a pre-and post-recruiting critique

2. The Challenges and Opportunities of the Human Resources Department

The H.R. department faces many challenges across industries. The foodservice industry is not immune to problems; on the contrary, it faces more challenges than any other industry. The Workforce is required to work, in many cases, a day, a night shift, weekend, and holidays, and accept lower than other industries' compensation. The same can be experienced in the police and military field, in hospitals, and in airports. One must ask the question, "why would anyone work in such an industry"?

There is no simple answer; it could be the need for a full-time or part-time job, the passion for a specific job a person prefers to do of a transitional job while pursuing a degree. Since societies strive for better living standards and prosperity, people work towards continuous improvement for better working conditions, respect for one another, fair compensation, elimination of discrimination, and assimilation of diversity and less fortunate into the Workforce, minority integration into management and training programs with opportunity for career growth. In the foodservice industry, we find a more diverse and more complex Workforce of any other industry. All employees require the involvement of the H.R. department for one reason or another, whether it is personal or work-related. In response to the anomalies identified at workplaces for which employees have either joined organized labor unions or have taken legal action against their employer, the government has passed laws to protect both employees and employers from maintaining a useful and mutually beneficial working relationship.

Accordingly, the H.R. manager must be familiar with such labor laws and ensure that all of them are respected and complied with at the workplace. In the foodservice industry, especially in the service sector in which the minimum wage is the lowest of any wages paid across industries and service employees rely on tips by patrons, it becomes imperative that the H.R. manager ensures that all governing laws of employee rights are put in place and complied with. The U.S. Department of Labor, through the Employment Standards Administration, is committed to providing employers, employees, job seekers, and retirees with clear and easy-to-access information on how to comply with federal employment laws. Such information and guidance are known as "compliance assistance." Detailed information is available at the Department of Labor website: https://www.dol.gov/esa/regs/compliance/, (Boone, 2015; Civil Rights Law, 2020).

Major Federal Equal Employment Opportunity Legislation (*available and accessed at the time this book went into print, please search for updates to these laws and executive orders*)

Civil Rights Act of 1866 and 1871 - "early" civil rights laws enacted after the Civil War to protect the employment rights of racial minorities. Often used in conjunction with

lawsuits alleging violations of Title VII. Enforced by the federal judicial court system.

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Equal Pay Act of 1963 - prohibits an employer from paying persons of one sex at a different rate than persons of the other sex for jobs requiring substantially equal skill, effort, and responsibility. Back pay awards can be doubled if the employer's violation is determined to be "willful." Enforced by the U.S. Equal Employment Opportunity Commission

Civil Rights Act of 1964 (Title VII) - the principal federal Law prohibits employment discrimination. Title VII, one of the most complex collections of regulations and guidelines issued by the federal government. Prohibits discrimination based on race, sex, color, religion or national origin. Title VII covers all areas of the employee-employer relationship, from advertising open positions through termination or retirement. Enforced by the U.S. Equal Employment Opportunity Commission

Executive Order 11246, as amended by Executive Order 11375 - requires organizations accepting federal funds to take affirmative action to increase employment opportunities for minorities and women. Organizations with an aggregate of $50,000 in federal contracts for twelve months must have a written affirmative action plan, including goals and timetables, for achieving full utilization of women and minorities. Enforced by the Office of Federal Contract Compliance Programs, U.S Department of Labor.

Rehabilitation Act of 1973 (503 and 504) - prohibits discrimination against the disabled and requires institutions to take affirmative action to hire and promote qualified disabled persons and to make academic programs accessible to disabled persons. Institutions are not required to set goals or to perform utilization analyses but must recruit and consider disabled persons for vacant positions. Institutions must also make "reasonable accommodation" to the physical or mental limitations of otherwise qualified disabled employees, such as providing special equipment or modifying the job. The major impact of 503 and 504 has been on structural changes required to make programs accessible for disabled students. Compliance with both 503 and 504 is a responsibility of institutions with federal contracts exceeding $2,500 annually. Enforced by the Office of Federal Contract Compliance Programs and the Office for Civil Rights, U.S. Department of Education

Vietnam Era Veterans Readjustment Act of 1974 - prohibits discrimination in employment against disabled veterans and veterans of the Vietnam era by institutions holding federal contracts exceeding $10,000 annually. Requires employers to list all suitable employment.

openings with the state employment service. Enforced by the Office of Federal Contract Compliance Programs

Age Discrimination in Employment Act of 1974 (ADEA) - prohibits employers from arbitrarily discriminating against persons over age 40 concerning hiring, discharge, pay, promotions, fringe benefits, and other employment decisions. The Law is designed to promote the employment of older persons based on ability rather than age to help employers and workers find ways to meet problems arising from the impact of age on employment. Enforced by the U.S. Equal Employment Opportunity Commission

Civil Rights Restoration Act of 1987 - repealed Grove vs. U.S Department of Education and restored rights previously granted by Title VI, Title IX, the Rehabilitation Act, and the ADEA to students and employees of institutions receiving federal monies. Enforced by the U.S. Equal Employment Opportunity Commission and the Office for Civil Rights, U.S. Department of Education

The Americans With Disabilities Act (ADA) - prohibits employers from discriminating against "otherwise qualified disabled individuals" in hiring, advancement, discharge, compensation, training, and other terms, conditions, and privileges of employment (such as job assignment, return from layoff, leaves of absence, selection for professional meetings or conferences, and participation in employer-sponsored social or recreational programs). Enforced by the U.S. Department of Justice, the Office for Civil Rights, U.S. Department of Education, and the U.S. Equal Employment Opportunity Commission

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The Civil Rights Act of 1991 - This omnibus legislation overturned or modified more than 25 Supreme Court decisions and provides for additional protection, including punitive and compensatory damages (up to $300,000) and jury trials for victims of intentional employment discrimination. The Law redefined the burden of proof in disparate impact cases, provides for remedies in "mixed-motive" cases of discrimination, extended the period to file age discrimination complaints, encourages alternative means of dispute resolution, and established the "Glass Ceiling Commission."

3. Additional Challenges and Opportunities of the H.R. Department

The H.R. manager often acts as the peacekeeper, psychologist, parent, brother or sister, counselor, or the person who must tell an employee: "sorry you have been laid off." Accidentally there have been very few instances in which restaurant operations had to lay off employees except for going out of business for obvious reasons; however, since foodservice employees are in such high demand, the opportunity to find a new job has always been there. The foodservice industry is very vulnerable because it is very regulated by many agencies such as the department of labor, the health department, the Environmental Protection Agency (EPA), the fire department, and many others. Therefore, the H.R. department must have all tools available to train employees and comply with its policies and procedures according to the company's strategic vision. Therefore, the H.R. department must develop and implement job descriptions, employee policy manuals, employee training manuals, promotional and developmental manuals, and maintain an active and updated file of labor relations laws that may change from time to time. This is not an easy task for the H.R. department. Usually, all department managers' input is sought to ensure that all concerned are familiar with the H.R. policies and procedures. Besides the compliance procedure, the H.R. department is a catalyst for motivating employees, developing and implementing reward programs, special event celebrations, special achievement award parties, and the organization of many more activities.

4. Manuals, Forms, and Records

The H.R. department is responsible for drafting and developing all job descriptions, company policies and procedures manual, employee training manual, other manuals, and H.R. forms, in cooperation with each department manager, general manager, and where applicable in cooperation with the regional, divisional or corporate H.R. department. All material will be kept active and updated frequently and as needed. H.R. is also responsible for maintaining all employees' records, including confidential information that cannot be released to 3rd parties. The H.R. department will ensure that for the company to conduct business in accordance with the highest ethical standards, it will develop a code of ethics all associates will promise to respect. In the case of a corporate foodservice establishment, a code of ethics will also be developed for the corporate staff and management, usually in the form of a supplemental Code of Ethics for the Company's Chief Executive Officer (CEO), and the Company's Chief Financial Officer (CFO), principal accounting officer, controller and persons performing similar functions ("Senior Financial Officers").

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5. Employee Occupational Safety AMD Health Administration and Regulations

Excerpt from the Public Law 91-596 -- 84 STAT. 1590--91st Congress, S.2193--December 29, 1970, as amended through January 1, 2004. It was passed to assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health; and for other purposes. The Senate enacted it, and the House of Representatives of the United States of America in Congress assembled that this Act may be cited as the "Occupational Safety and Health Act of 1970."

Because the labor laws constantly change in any country, timely updates must be obtained. In the U.S., up-to-date information can be accessed at https://www.dol.gov/agencies/ofccp/executive-order-11246/as-amended (OFCCP (2020).[1]

The H.R. Manager must ensure that both owners and managers understand the importance of OSHA compliance. The HRM must conduct training regularly, post all necessary information material for employees, and keep management informed about any danger that may be prevented to keep the restaurant safe from accidents. The HRM should create a "Health and Safety Hazard Prevention Committee" with representatives from all areas of the operation to have total participation for the overall protection of the company. A safe workplace can reduce the cost incurred because of work-related injuries and prevent a Workmen's Compensation premium increase. The most common injuries in the foodservice industry are (not in particular order) cuts, burns, and falls. To obtain a copy of the entire document and other up-to-date information, follow the link: https://www.osha.gov/index.html. (BLS, 2020)

For general information about employment and labor laws, follow this link: http://business.gov/guides/employment/

DISCLAIMER

The content in this chapter does not represent any country's labor laws. Instead, the content represents hypothetical scenarios for the reader to highlight and explain the complexity and severity of labor relations and the daunting job of a Human Resources Manager or any company's representative. The content is strictly a reference for Food and Beverage Managers and Human Resources Managers involved in managing people in the day-to-day foodservice operations. For actual labor laws applications, the reader must seek legal representation as applicable in the business' country of residence. The author and the publisher are not responsible for adopting any references contained herein and any subsequent liabilities thereafter.

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ENDNOTE

[1] See Historical notes at the end of the full document available on the OSHA website for changes and amendments affecting the OSH Act since its passage in 1970 through January 1, 2004.

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Chapter 4
Legal Matters, Risk Management, and Risk Prevention:
From Forming a Business to Legal Representation

ABSTRACT

This chapter highlights the importance of risk management and the need for a risk management plan to have in place in case disaster strikes. From opening a foodservice business to operating it with the possibility of expansion, the risks involved are enormous. It discusses the importance of respecting the laws when dealing with business and carefully taking all necessary steps to avoid legal pitfalls, leading to severe negative consequences. The chapter provides useful information and references about obtaining proper licenses, dealing with government agencies, and developing and implementing a "preventive risk management" plan. Finally, the chapter highlights the current business laws of the United States and should not be considered applicable internationally. The reader should refer to the governing laws of the country where the business operates.

A. INTRODUCTION TO THE LEGAL ASPECTS OF A FOODSERVICE OPERATION

This chapter will discuss many possible legal considerations foodservice establishments need to consider before opening a business, during the company's going concern, and even after the dissolution of a business entity. The main topic the chapter covers is Preventive Legal Management, commonly known as *Preventive Risk Management.* It is imperative to state that the content included in this chapter shall not be construed as legal advice; therefore, the assistance of a legal counselor needs to be sought for any matters concerning the legal responsibilities and the legal rights of a foodservice operation and all stakeholders.

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There must be someone responsible for customers' safety and welfare in any foodservice operation who patronize the facilities and employees who are a part of the operation. When a person or a team of individuals engage in setting and managing policies that impact the safety and welfare of everyone associated with the business, they are involved in the process of delivering it. They are responsible for the proper execution and compliance of the policies in place.

Foodservice establishments are very vulnerable to risk and probably more than any other segment of the hospitality industry. In many cases, foodservice operations operate 24 hours, 7 days a week; the risk too is present during the same time. Is it recommended but rather mandatory that foodservice operations have a preventive risk management plan in place, not to deal with potential risks, but to minimize and eliminate them?

Risk management's objective is to reduce or eliminate the risk of injury and loss of life to staff and customers. The secondary objective is to protect assets and property in the best legal, possible way. It is essential to realize that risk management's ultimate responsibility rests with the business's ownership; whether individually owned or owned by a corporation and shareholders, everyone will be potentially liable should a disaster happen. The responsibility for the execution of risk management should be delegated to the management at all levels and to the employees who are directly exposed to potential risks, including the liability to customers.

These responsibilities include, but are not limited to, fire prevention, compliance with hygiene, health, and safety, maintenance of all hazardous equipment including electrical and manual ones, hazardous material handling, first aid, and CPR, and lifeguarding customers exposed to risk. Not to exclude, places that are likely to be affected by natural disasters, also referred to as "Acts of God" such as the spread of viruses, earthquake, fire, floods, and tornados should have a risk management plan dealing with such possible disastrous events that can harm people, environment and economies.

The hospitality industry, especially the foodservice segment, is very vulnerable to disaster and crisis, including acts of terror. The industry invests heavily in customer relations management to promote loyalty. When the unexpected happens, everything changes in seconds if employees, patrons, and business associates are not given the expected protection in times of need. In any disaster, whichever the degree, the ownership, and management must be ready to protect customers and employees and have a plan to execute, communicate and restore regular operation within a reasonable recovery time to minimize losses that can lead to insolvency.

A proper preventive risk management plan will include all components that deal with pre-crisis, during the crises, and post crises when they occur. By taking proactive safeguards rather than reactive measures, the hospitality industry can minimize risk efficiently and cost-effectively. The critical point is not to wait until a major crisis occurs. The time to assess risks and build security and crisis management systems are before-not after-a crisis.

New and even experienced operators ask themselves the question: 'Do I need a lawyer?" The answer is YES! From the development stage to the opening and operating a business, the foodservice operator is probably not an expert in a business operation's legal aspects (Sellnow, & Sarabakhsh, 1999; Steingold, 2017). Therefore, investors use consultants who can connect them with people having the right expertise in the many areas that need to be dealt with. The operator may have basic knowledge and experience about many aspects of a business; however, the ultimate advice comes from the field expert. Hypothetically if an expert chef wishes to open a restaurant of his own and build it from scratch, he/she needs to hire a lawyer, an architect, a general contractor, and more experts who can provide professional advice

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and prevent failure. In general, and correctly independently owned and operated restaurants, foodservice operations have a very high failure rate during the first year of inception.

B. UNDERSTANDING THE RULE OF LAW AND LEGAL RESPONSIBILITIES OF A FOODSERVICE OPERATION

The job assignment of a foodservice director or food and beverage director is described as multitasking. Usually, the job is performed by an individual who has worked or at least been exposed to all aspects of a foodservice operation in both the front and back of the house. However, regardless of the level of knowledge, he/she may not have the knowledge and expertise of a legal representative. Even among the rank of JD's lawyers specialize in the field they like best: labor, litigation, defense, corporate, patent, etc. (Jeffries, 2001). Therefore, a foodservice operation should be represented by a professional who studied law, who perhaps works in a firm that specializes in a field that can serve the foodservice operation, such as corporate law and labor law. The legal responsibilities of a foodservice operation are enormous. As explained earlier, such operations are vulnerable to be affected by legal actions 24/7. And because the law is so complex and can only be interpreted by legal experts, stakeholders must seriously consider retaining a law firm for whatever the situation, often unprecedented and unpredictable. Foodservice directors make legal decisions daily, from dismissing an employee to signing a catering contract to refusing to serve a patron. The stakes are high, and the decisions can have serious legal implications if not executed according to the rule of law.

Prevent Costly Legal Fees and Unavoidable Negative Consequences of Lawsuits

Consider the Following

Imagine a guest who arrived at the restaurant and asked to store the insulin in the fridge because he needs to take it an hour late and be kept cold. The restaurant manager stores it in the fridge but failed to tell the kitchen staff. One of the chefs sees the syringe on the fridge shelf and thinks it does not belong there and throws it away. An hour later, the guest asks for the insulin; however, the restaurant manager discovers that it had been discarded. Was this an innocent mistake? Could it have been prevented? Who was responsible? Did they put the guest in danger? What corrective action did they take, and was it the right one considering the legal consequences? Can the restaurant manager or the chef be held personally responsible for their action? Does the guest have a legitimate claim? As a result, what did the manager do? Was a risk management plan in place? Was there a logbook, a form, any kind of record that can help the legal responsibility of the operation? "What would you do if someone falls in your restaurant and breaks a leg?" "How should you respond if a customer complains to you a day later after eating in your restaurant saying he/she has food poisoning?" "Can you be held responsible if your bartender serves alcohol to a minor? What will your cashier do if he/she is robbed at gunpoint? What would you do if a customer claims his/her designer leather coat is missing from the wardrobe? Can you be held liable if a customer's handbag was stolen while dining in your restaurant? Consider what would happen if Homeland Security just raided your restaurant because of an allegation that you may have employed illegal immigrants?

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Being liable is the most severe headache that any restaurant or foodservice manager can face. Whatever the size of the operation, whether it is a franchise, a private chain, or a single independently owned restaurant, preparedness, and preventive risk management are key to avoiding costly-legal pitfalls. Imagine if you are notified or "served" that your restaurant is being sued during the busiest lunch you have ever experienced: what should you do? Or what would you do if a guest is choking in your restaurant and the people dining with him/her start panicking? Would you be prepared to deal with this situation? Are you compelled to help personally? If you do and the person dies, will you be held accountable? Consider if a guest's car was broken into in your parking lot, the customer claims you had no security, and the insurance sues your restaurant for damages. Consequently, the press gets notified, and your restaurant receives negative press reviews three consecutive times. What should you do?

These problems are not easy to deal with; however, every time an incident happens, it sets a precedent for the company or even for the industry, which should serve as a lesson for the future. A risk management plan in place may not prevent all pitfalls; however, it may help reduce or eliminate many of them. Retaining a lawyer is the best advice; if the legal fees are in the hundreds just for an hour of consultation, just imagine a tort settlement in the millions.

There is no easy answer to a situation such as those mentioned above; however, if the management and staff are trained about risk management and a risk prevention plan is in place, many incidents can be prevented. A lawyer will prepare owners and managers to comply with the law and avoid or limit liability in most situations, from hiring and managing and terminating employees to dealing with customer complaints, suppliers, and third-party business associates, including government agencies. A lawyer will ensure that the operation complies with safety and security, obeys regulatory requirements, and much more. The most valuable document a lawyer can prepare is a checklist to help avoid liability before any incident occurs.

Understanding the Law

Origin of Common Law

According to the Open Access Legal Information Institute at Cornel University https://www.law.cornell.edu/, "*Common law is a law that is derived from judicial decisions instead of from statutes. American courts originally fashioned common law rules based on English common law until the American legal system was sufficiently mature to create common law rules either from direct precedent or by analogy to comparable areas of decided law".* (Common Law, 2000).

The United States Law

The United States is a republic that operates under a federalist system. These laws may be enacted at the federal, state, and local levels. The national government has specific, enumerated powers, and the fifty sovereign states retain substantial autonomy and authority over their respective citizens and residents. Both the national government and each state government are divided into executive, legislative, and judicial branches. Both Federal and State form a system of separated powers, checks, and balances among the branches.

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Managing to Respect the Ethics of Law

As a manager, before deciding, he/she must immediately reflect on whether that decision is appropriate. Each action will cause a reaction, and both will have legal consequences. Moreover, before taking that action, one must determine whether that decision was necessary? Who has been affected negatively or positively? Would it have been better if that decision had not been taken? What if the manager were wrong, could there be personal consequences against him? Managers are always faced with such choices. However, if the decision has been made without prejudice, to the best of his/her knowledge, and whether it was intentionally or unintentionally, the outcome will persevere, and, in the court of law, judges or juries will determine whether the action was appropriate or not. Ethical behavior is represented by a set of norms widely accepted by most of the players. Codes of ethics are now an integral part of the employment agreement between employers and all employees. The codes of ethics in hospitality usually cover business conduct, company assets, fraternization with guests, disciplinary actions, discrimination, harassment, and other items of particular importance to the specific employer.

C. AGENCIES THAT REGULATE AND IMPACT THE FOODSERVICE INDUSTRY

Definition: Regulatory Agencies are independent government commissions charged by the legislature to set and enforce standards for specific industries in the private sector. The U. S. Government has hundreds of agencies. This concept was created in the U. S. by the government in 1887. Each agency is charged with specific duties and responsibilities to ensure that specific areas are protected, that people and businesses act responsibly, and that they are followed. Laws are enforced by all agencies that have executive, legislative, and judiciary functions. Within the food and beverage industry, the regulatory agencies include the FDA (Food and Drug Administration), OSHA (Occupational Safety and Health Administration), the FCC (Federal Communications Commission), and the SEC (Securities and Exchange Commission.)

Agencies Operating Local Level

1. Health Department
2. Building and Zoning
3. Tax assessor-Collector
4. Fire Department
5. Court
6. Garnishment
7. Child Protection Services
8. Law Enforcement Office
9. Business permits

Agencies Operating State Level

1. State Department of Transportation
2. Attorney General
3. Alcohol and Beverage Commission (ABC)

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4. Treasury Department – State Controller
5. Public Health Department
6. Department of Energy (DOE)
7. State Workers Compensation (SWC)

Agencies Operating at Federal Level

1. Americans with Disability Act (ADA),
2. Age Discrimination in Employment Act (ADEA)
3. Equal Employment Opportunity Commission (EEOC)
4. Workforce Investment Act (WIA)
5. Department of Labor (DOL)
6. Department of Defense (DOD),
7. Department of Transportation (DOT)
8. Environmental Protection Agency (EPA)
9. Employee Retirement Income Security Act (ERISA)
10. Federal Trade Commission (FTC)
11. Internal Revenue Service (IRS)
12. Security and Exchange Commission (SEC)
13. Occupational Safety and Health Administration (OSHA)
14. Food and Drug Administration (FDA)
15. Alcohol, Tobacco Tax and Trade Bureau (TTB) (Formerly "Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)"
16. Department of Justice (DOJ)
17. Copyright and Patent Office
18. Immigration and Naturalization Services (INS)

The following section highlights the complexity of opening a restaurant business. For this chapter, an example is given by using the California system of obtaining all necessary permits and licenses to operate a restaurant business. It is worthwhile noting that although the list appears to be comprehensive, it is far from complete and certainly not exhaustive.

D. EXAMPLE OF BASIC REQUIREMENTS WHEN STARTING A RESTAURANT IN CALIFORNIA

Note: please consider that laws change over time; therefore, it is recommended that before considering any business opening, all agencies must be contacted for possible updates.

Starting a business involves making critical financial decisions and completing a series of legal activities. This basic guideline highlights important essential information regarding the planning, preparation, and management of a restaurant business.

Source: http://www.business.gov/start/start-a-business.html

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10 Steps to Starting a Restaurant Business in California

1. Research and Plan Your Business
2. Get Business Assistance and Training
3. Choose a Business Location
4. Finance Your Business
5. Determine the Legal Structure of Your Business
6. Register a Business Name ("Doing Business As")
7. Get a Tax Identification Number
8. Register for State and Local Taxes
9. Obtain Business Licenses and Permits
10. Learn about Employer Responsibilities (refer to the regulatory agencies)

The Following is a List of Business Licenses, Permits, and Registrations for a Restaurant in the State of California

1. Tax Permits and Registration

Refer to the SBA (Small Business Administration) website https://www.sba.gov/business-guide/ for a guide on Federal and State Tax ID Numbers.

a. Federal resources:
b. Application for Employer Identification Number
c. Tax ID for corporations and partnership, form SS-4
d. IRS main page for forms and applications
e. IRS Contact for Business-related information

Note:

Businesses that operate within California are required to register for one or more tax-specific identification numbers, licenses or permits, including income tax withholding, sales and use tax (seller's permit), and unemployment insurance tax. Contact the following agency for more information about business registration and your tax obligations:

2. State Licenses and Permits

a. Business Licenses and Permits
b. Restaurant Operations Permits
c. Liquor License

To sell and serve alcohol in a restaurant, a state liquor license is required. Additionally, a permit from the city or town government may also be required. Check with the local government for specific licensing requirements.

Note: some permits, such as Liquor License, will require insurance and bonds. Information about all types of insurances required for a business can be obtained from an insurance agent. Commercial insurance

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companies provide all necessary information about insurance coverage, the amount of liability coverage needed, and the risk associated with not having proper insurance coverage. Businesses with employees are required by law to pay for certain insurance types: workers' compensation insurance, unemployment insurance, and, depending on where the business is located, disability insurance. Additional information can be found at https://www.sba.gov/business-guide/

3. Local Licenses and Permits

Permits and licenses from the local government may also be required. Every State in the Union has different requirements. The following are common types of local permits and licenses.

a. Business Licenses / Permits, Tax Permits - from the city or county clerk or revenue department. Many jurisdictions require a trader's license or tax certificate to operate.
b. Building Permit - from the city or county building and planning department. This permit is generally required for constructing or modifying the place of business.
c. Health Permit - from the city or county health department.
d. Occupational Permit - from the city or county building and planning development department. This permit is required for home-based businesses in some jurisdictions.
e. Signage Permit - from the city or county building and planning department. Some jurisdictions require a permit before one can erect a sign for the business.
f. Alarm Permit - from the city or county police or fire department. Installation of a burglar or fire alarm will likely need an alarm permit.
g. Zoning Permit - from the city or county building and planning department. This permit is generally required for land development intended for specific commercial use.
h. Depending on the business's nature, other types of licenses specific to the business may be required. Further information can be obtained from the local government agencies.

4. Business Entity Filing

If the business is a corporation, a non-profit, a limited liability company or a partnership (limited, or limited liability) one must register with the following state agency. If the business is a sole proprietorship, there is no need to register the business with the state. However, many States require a sole proprietor to use their name for the business name unless they formally file another name as a trade name or fictitious name.

5. Business Entity

Note: *for U. S. business entity registration, please consult the Internal Revenue Service Website at* https://www.irs.gov/businesses/small-businesses-self-employed/business-structures

Business Incorporation *(according to the latest information obtained when this book went to print)*

Business structure guidelines are available on the SBA website at ***Choose a business structure*** or directly from the **IRS** (Internal Revenue Services) website.

When beginning a business, one must decide what form of business entity to establish. The form of business determines the amount of regulatory paperwork needed to be filed, the personal liability

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regarding investments into the business, and the amount of taxes to be paid. The most common business structures include: ***Sole Proprietorship, Partnership, Corporation, Subchapter S Corporation, Limited Liability Company (LLC), Non-Profit.*** Detailed information is available from the Government website at

https://www.irs.gov/businesses/small-businesses-self-employed/business-structures

Note:

The best form of business to be incorporated will have to be determined according to its long–term strategy, continuity, and other investment considerations. One of the first decisions that need to be made as a business owner is how the company should be structured. This decision will have long-term implications, so consulting with an accountant and attorney to help select the ideal form of ownership is very important and necessary. The following may facilitate the decision-making process:

1. The vision regarding the size and nature of the business.
2. The level of control the investors wish to have.
3. The level of structure one is willing to deal with.
4. The business' vulnerability to lawsuits.
5. Tax implications of the different ownership structures.
6. Expected profit (or loss) of the business.
7. Whether or not one needs to reinvest earnings into the business.
8. Whether or not one needs access to cash out of business for self-use.

Additional information about regulations specific to the restaurant industry can be found at the following web site: http://www.business.gov/industries/food/

For additional Federal, State, and City regulatory resources and requirements, please refer to the Appendix section at the end of this chapter.

1. **Restaurants and Foodservice Businesses**

The Guide to Federal Regulations provides an overview of federal regulations that affect restaurants and other foodservice businesses, includes links to guidance that help business owners stay in compliance with federal regulations.

2. **Tax Guide for Restaurants**
3. The Internal Revenue Service provides information on tax tips, trends, and statistics for the restaurant industry.

6. Fictitious Name Filing (Doing Business As)

As a practical example, the following is part of an actual application in the city of San Francisco, California. **Source:** www.sfgov.org/countyclerk

Search our index (available at our office or online at www.sfgov.org/countyclerk) for the fictitious business name(s) (FBN) you plan to file. It is your responsibility to check other sources to ensure you are not infringing on other businesses' trademark or common law rights. Other suggested sites are the Secretary of State's Corporate Division at http://www.ss.ca.gov/business/corp/corporate.htm, the U.S. Patents and

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Trademark Office at_https://www.uspto.gov/_or the S.F. Public Main Library. You must *register your business with the S.F. Tax Collector located at City Hall, Room 140, (415) 554-4400, www.sfgov.org/tax_prior to submitting FBN statement. If filing in person, the person* must *present valid legal photo identification (CA B&P Code Sec. 17916, eff. 01/01/2014) or mail completed FBN statement along with the filing fee (stated at the top of the form), proof of registration with the S.F. Tax Collector and* include a self-addressed stamped envelope. New *accounts require receipt issued by the S.F. Tax Collector. Accounts* not *showing* status *on Tax Collector's records require Temporary Verification of Registration (TVR) form issued by the S.F. Tax Collector's Office.*

*The fictitious business name statement shall be filed with the county clerk of the county in which the registrant has his or her principal place of business in this state or, if the registrant has no place of business in this state, with the Clerk of Sacramento County. Nothing in this chapter shall preclude a person from filing a fictitious business name statement in a county other than that where the principal place of business is located if this subdivision's requirements are also met. (B&P Code Sec. 17915) * Additional information can be obtained on the City and County of San Francisco's web site on the office of the County Clerk webpage at https://sfgov.org/countyclerk/forms-fictitious-business-name

7. Employer Requirements

The operator should understand that the labor law, at the Federal level, also called the Federal labor standard, is very complex and often hard to interpret; therefore, it is important to emphasize that legal advice should always be considered before it may be too late to undo, unnecessary damage to the company and to the employees. This is true, especially when dealing with organized labor. These resources will help understand federal and state labor laws, which ones apply to the kind of operation, and how to comply. If the business is a new employer, refer to the "Ten Steps to Hiring the First Employee" available at: https://www.sba.gov/business-guide/manage-your business/hire-manage-employees.

a. **Withholding Income Taxes**

The IRS states that you must keep records of employment taxes for at least four years. Also, keep good records for your business to help you monitor your business progress, prepare your financial statements, identify the source of receipts, keep track of deductible expenses, prepare your tax returns, and support items reported on tax returns.

b. **Federal Income Tax Withholding (Form W-4)**

Every employee must provide an employer with a signed withholding exemption certificate (Form W-4) on or before the date of employment. The employer must then submit Form W-4 to the IRS to ensure. For specific information on employer responsibilities regarding withholding of federal taxes, read the IRS' Employer's Tax Guide.

c. **Federal Wage and Tax Statement (Form W-2)**

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On an annual basis, employers must report to the federal government wages paid and taxes withheld for each employee. This report is filed using Form W-2, Wage, and Tax Statement. Employers must complete a Form W-2 for each employee to whom they pay a salary, wage, or other compensation. Employers must send Copy A of Forms W-2 (Wage and Tax Statement) to the Social Security Administration (SSA) by the last day of February (or last day of March if you file electronically) to report the wages and taxes of your employees for the previous calendar year. In addition, employers should send copies of Form W-2 to their employees by January 31 of the year following the reporting period. Visit the Social Security Administration's Employer W-2 Filing Instructions and Information for further guidance and assistance.

d. **State Taxes**

Depending on the state where the employees are located, the employer may be required to withhold state income taxes. Visit the state tax agency for further information.

e. **Employee Eligibility Verification (I-9 Form)**

Employees hired after November 6, 1986, must provide proof of eligibility to work in the United States. Federal law requires employers to verify an employee's eligibility to work in the United States. Within three days of hire, employers must complete an Employment Eligibility Verification Form, commonly referred to as an I-9 form. The (Employment Eligibility Verification), also know as I-9, can be downloaded from the government web site:

f. https://www.sba.gov/business-guide/manage-your-business/hire-manage-employees

All U.S. employers are responsible for the completion and retention of Form I-9 for everyone they hire for employment in the United States, including citizens and non-citizens.

g. **Small Business Guide to Immigration Regulations**

Provides a summary of immigration laws most relevant to small business owners, including information about completing the I-9 form.

h. **New Hire Reporting**

All employers are required to report newly, and re-hired employees to their state's Directory of New Hires within 20 days of their hire or re-hire date.

i. **Disability Insurance**

Temporary disability insurance provides benefit payments to insured workers for time off work due to a non-work-related illness or injury. Employers are responsible for deducting disability insurance tax from employees' wages and reporting these taxes to the state.

j. **Unemployment Insurance Tax**

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Businesses with employees are required to pay unemployment insurance taxes under certain conditions. If your business is required to pay these taxes, you must register your business with your state's workforce agency:

k. **Workers' Compensation Insurance**

Businesses with employees are required to carry Workers' Compensation Insurance coverage through a commercial carrier, on a self-insured basis, or through the state Workers' Compensation Insurance program.

8. H.R.3590 - Patient Protection and Affordable Care Act

The Act became Public Law No: 111-148 on (03/23/2010). Due to the complexity of the employer's compliance with this law, we propose that the management seeks legal advice before starting or taking over a business. Important information is available at https://www.healthcare.gov/where-can-i-read-the-affordable-care-act/ and https://www.congress.gov/bill/111th-congress/house-bill/3590

For guidance on obtaining general business and liability insurance, visit SBA's Guide to Business Insurance. Detailed and updated information can be found at the Government Business web site at: http://www.business.gov/

9. Managing Finance and Tax Liabilities

Managing business finances and tax liabilities is probably one the most difficult task when owning or running a business. Due to the complexity involved in foodservice revenues, a professional accountant should be hired and again retaining a law firm with expertise in the hospitality business, but especially in restaurant operations, it may be an important consideration. From managing and reporting employees' tips and gratuities to remitting State sales taxes to collecting debts, credit card revenues, and even investing, the owner-operator and manager of a foodservice establishment must have a true understanding of dealing with the amalgam of legal obligations and possible implications. The Internal Revenue Service (IRS) provides detailed information and useful guidelines for business owners. Additional information about starting, operating, or closing a business can be found at https://www.irs.gov/site-index-search?search=starting+a+business&field_pup_historical_1=1&field_pup_historical=1

10. Preparing a Strategic Plan, Business Plan, and Marketing Plan

Until this point, we discussed the complexities of compliance to open a foodservice establishment; the most important topic, the actual business operating, including selling what a restaurant needs to do to make money, has not even been considered. Although this topic requires a lot of work and attention to detail, it is probably the most exciting part of opening a business because this is what the entrepreneur set out to do: open a restaurant, sell food and drinks, make customers happy, and hopefully make a profit. To accomplish all the above, the owner-operator requires a well-formulated plan that will be well executed to minimize risks and maximizes profit. We will discuss this in detail in chapter 10-Food and Beverage Entrepreneurship.

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11. Growing the Business

Following the stressful effort of opening and developing a successful restaurant, an opportunity for expanding the business could present itself. When the time is right, an expansion plan must be strategically formulated and executed. Consider the success and failure many restaurant businesses have experienced; one must ask if it is worth pursuing the expansion. What would be the risk involved? Could the business eventually be franchised? Is there a need to raise capital and maybe convert the private business entity to a public entity considering an IPO? Although the idea crosses many restaurant operators' minds, the majority shays away from it because there are too high risks involved. In any case, professional help need to be sought before such an idea can become a successful reality.

E. PREVENTIVE RISK MANAGEMENT IN PRACTICE

Risk Management

It is a pre-emptive rather than reactive measure to safeguard lives and property. "This approach is based on the philosophy that it is irresponsible and wasteful to wait for an accident to happen, then determining how to prevent it from happening again. Nevertheless, in business, there is a say that without risk, there is no gain. Risk is present whenever we modify the way we do things to achieve greater success while reducing the chances of failure, injury, or loss. It is a common-sense approach to balancing the risks against the benefits to be gained in a situation and then choosing the most effective course of action. There are risk management programs that have been developed over the years; in a way, they all have similarities in design and implementation depending on the business and industry to which they are applied to. In general, they include the following procedural steps:

- Identifying the hazards
- Assessing the risks
- Analyzing risk
- Measures the risk
- Control the risk
- Making decisions for change
- Implementing risk controls
- Implementing reduction and elimination procedure
- Monitoring, continuously reviewing, and making change for further prevention

Crisis

A simple definition is any event or situation that presents a 'discontinuity' in conducting business. Anything that disrupts a business can be a crisis. A crisis can have many definitions. It is a critical point or situation in the course of anything, a turning point. It is a moment or brief period of danger or suspense, a decisive moment, a crucial time, or a situation that has reached a critical phase. Though crises of one kind or another are inevitable, the outcome is not certain. "Crisis Management is the art of reducing or eliminating much of the risk, and uncertainty allows us to achieve more control over the future of the

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business. Crisis management proactively prepares the business for the worst-case scenario. The process involves careful research to identify potential crisis determinants and how they minimize the company's going concerned and how they can produce minimum disruption and zero destruction. Crises can be grouped into several categories.

Natural Crises

Natural crises involve physical threats during disasters and emergencies. They can include floods and flash floods, hurricanes, tornadoes, earthquakes, volcanoes, severe winter storms, and heatwaves. They also include influenza, influenza pandemics, and other communicable diseases.

Manmade Crises

These are crises that threaten physical safety and security. They consist of terrorism or threats, including Nuclear, Biological, and Chemical warfare (NBC). Fires, hazardous spills, violence in the workplace, workplace accidents, strike or work stoppages, protests, sexual harassment allegations, extortion threats, security leaks, lawsuits, discrimination allegations, employee threats, employee death or injuries, computer breaches, security leaks, employee scandals, illegal employee behavior, equipment malfunctions, loss of key executives, OSHA violations, rumors that will damage company reputation and whistleblowing (see public relations).

Public Relations

Negative publicity is generated about the business. Whether true or not, negative publicity can be very damaging to business and can have a long-term effect with no possibility of recovery.

Strategic Planning

Includes but not limited to, new technology, products or competitors. Effective Strategic Crisis Management depends on sound decision-making and cannot happen without proper pre-planning. The strategic corporate response to a crisis must be coordinated and effective; the strategic crisis management team must be pre-identified and well trained.

Financial

A financial crisis happens when short-term liquidity or cash flow is reduced, to the point that a business becomes insolvent, especially if the fixed assets need to be disposed of. A financial crisis does not just happen; it happens in different stages. The pre-state is in the form of symptoms, then real "warning" or "pre-crisis," followed by the "growing" stage, then "acute stage," and lastly, the "chronic" stage. "The solution phase or post-mortem stage can linger indefinitely, sometimes for many years, unless the company files for bankruptcy protection. Crisis management plans, however, can have a positive effect on the company's financial future.

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Identifying Risks AND Risk Analysis

How does a manager know if the business is at risk of having a crisis? How vulnerable is the business to crises, whether they are minor or catastrophic? How likely is a crisis to happen? What is the probability? What will be the impact? What is the severity of the foreseeable hazards? How much damage could the crisis cause? What is the cost of responding? How will the response be perceived by those working inside the company, stockholders and other owners, and the public? Based on these questions' answers, one can determine how and to what degree management needs to respond. The approach to determining answers to all these questions is known as "Preventive Risk Management." More and more companies incorporate risk management into their operating procedures to minimize the detrimental effect crises can have on the business and employees.

Risk Analysis Process and Recovery Planning

The risk analysis process is the building block for preventing, reducing, eliminating risks and recovery planning effort. Risk analysis, risk assessment, and risk impact are applied across industries, and although the terminology may vary, its scope remains the same. The most common definitions are:

- **A risk analysis** identifies the most significant threats to a vulnerable part of the entire organization
- **A risk assessment** attempts to evaluate the physical and environmental security and controls and determines whether they are vulnerable to potential threats.
- **A business impact analysis** evaluates and determines the impact each threat may have on human lives, business, property, and the environment.

Most foodservice businesses depend heavily on technology. Even temporary disruption can cause severe financial loss to the daily business operation. For example, restaurants that rely heavily on reservation systems such as "Open Table" (2020) may suffer a considerable loss if the system is hacked or attacked by a serious virus causing severe downtime. Therefore, an organization's continued operations depend on management's preparedness to prevent potential disasters, their training to develop a risk prevention and recovery plan, and the ability to apply them efficiently to minimize disruptions of the preparation and service operation the capability to recover rapidly and effectively. The risk analysis process is key for the entire recovery planning effort. In the case of a technology disaster, business recovery planning's primary objective is to protect all data and data back-up if all or part of its operations and/ point of sale terminals become unusable.

Potential Exposures to Threats and Disasters may be Classified as Natural, Technical, or Human Examples Include

- **Natural Threats:** earthquake, flooding, fire, high winds, snowstorms, tsunami, volcanic eruption, tornado, hurricane, virus pandemic, building collapse
- **Technical Threats:** power failure, heating, ventilation, or air conditioning failure (HAVC), gas leaks, communications failure, nuclear fallout.

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- **Human Threats:** sabotage, tempering with alcohol, robbery, embezzlement, extortion, burglary, vandalism, terrorism, voluntary or non-explosion, acts of war, biological and physical contamination, hazardous waste, strike by organized labor, computer network crime.

Each department of the foodservice operation should be used in the risk analysis. To measure the risk and impact of a crisis, a rating system should be implemented to identify and determine the probability and the weight of each threat occurring. A symbol system of reversed color pyramid such as green, yellow, red can also be used. The risk analysis should also determine the impact of each potential threat on various functions or departments within the organization. The functions or departments will vary by type of organization, large restaurant facility, basement operation, two-story operation, rooftop operation, free-standing, historical building, etc.

Management Checklist for Analyzing Risks in a Restaurant May Include (not Exhaustive)

1. Investigating the frequency of each type of incidence: fridge malfunction (often versus seldom)
2. To what degree is a disaster predictable? (flood in the basement)
3. Analyzing the speed of onset of the crisis: salmonella food poisoning incubation time,
4. Determining the amount of forewarning one can estimate to give about a crisis
5. Estimating the duration of the crisis
6. What are the consequences in case of disaster?
    a. Personnel availability
    b. Personal injuries
    c. Loss of operating capability
    d. Loss of assets
    e. Facility damage
7. Determining the damage to the IT infrastructure including;
    a. Hardware
    b. Information
    c. Communication
    d. Personnel
    e. Services
8. Estimating potential dollar loss and prepare all documentation for the insurance if applicable and in doing so consider:
    a. Increased operating costs
    b. Loss of business opportunities
    c. Loss of financial management capability
    d. Loss of assets
    e. Negative media coverage
    f. Loss of stockholder confidence
    g. Loss of goodwill
    h. Loss of income
    i. Loss of competitive edge
    j. Legal actions

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9. Estimating potential financial losses because of a crisis
10. Determining the cost of contingency planning

Conduct a "Risk Analysis" or "Vulnerability Analysis" (RA) or (VA)

Identifying the hazards, assessing the risks, and analyzing risk control measures, or, in other words, evaluate the probability and potential impact of each crisis, are frequently determined by conducting a "vulnerability analysis." A "VA" identifies the steps in risk management. The Vulnerability *Analysis Chart* in Table 1. is an example analysis applicable to a foodservice operation.

Table 1. Example vulnerability analysis for a foodservice operation

Type of emergency	Probability of incidence	Human impact	Property impact	Business impact	Intrinsic factor	Extrinsic factor	Total Score 60
1. Icy parking lot in March	6	10	0	8	8	8	40
2. Slippery Kitchen floor	7	9	1	2	9	0	28
3. Salmonella cross- contamination	10	10	0	10	10	10	70
4. False advertising	5	4	4	10	10	10	43
5. Sexual harassment/Discrimination	5	10	0	10	10	10	45
6. Serving alcohol to a minor	3	10	0	10	10	10	43
7. Armed robbery	5	10	10	10	10	10	55
8. Labor strike	1	10	10	10	10	10	51
9. Uncollectable debts	4	4	0	6	5	10	29
10. IT-network failure	2	4	10	10	10	10	45
11. Acts of terrorism / human made disaster	2	10	10	10	10	10	52
12. Act of sabotage by employees, e.g., cutting the computer mainframe cables	2	10	10	10	10	10	52

Vulnerability Analysis Ratings and Interpretation

- Rating Scale 1:10
- Individual significance: ≤ 1= low impact or nonexistent; 10= high impact or extremely high risk
- Aggregate Significance: 25% = low; 26 to 50% = moderate; 51 to 75% = elevated; 76 to 90% = high; 100% = critical
- Sample weight computation: potential impact x highest rating. E.g., Human impact weight on risk # 1 in Table 2. would be 100 (10x10), which means the threat is 100% very serious or critical.
- Sample weight computation on probability: potential human impact x probability rating. E.g., the Probability of Human Impact weight on risk #1 in Table 2. would be 60 or 60% (10x6), which means that the threat is "Elevated."

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Once the vulnerability analysis is completed, one must analyze the factors or symptoms to see if anything the management can do to reduce the risks of total prevent it from happening. The intrinsic factors are from within the operation, and the extrinsic are from outside the operation.

Case Scenario

In this case scenario, we show a sample of risk analysis, a risk assessment, and a risk impact. For this example, we used emergency threat #1 from the "Vulnerability Analysis Chart" above (see table 2.) The risk of being sued because someone suffered a fall injury because of an icy parking lot can be prevented if the management (Intrinsic factor) pays attention to the weather forecast and sprays salt before the snow/water freezes. The extrinsic factor is caused by "Acts of God" and is uncontrollable; therefore, there is nothing the management can do to stop the freezing weather conditions. The probability that such an incident could happen can range between zero to over 50% during the winter months. There would be no impact on the property; however, the implications for humans would be highest. The business could suffer as well because of a lawsuit and negative publicity by the media. What should the management do in such a case?

1. monitor the weather forecast and be prepared to spray salt before the parking becomes icy
2. higher a snow removal company which would assume partial liability if the service is not performed
3. warn incoming guests with a flashing sign to be cautious when stepping out of the car
4. warn outgoing guests before they leave the restaurant about the icy conditions of the parking lot
5. if the organization is large, then a parking lot attendant can assist guests coming in to and leaving from the restaurant to reduce the overall risks. In this case, an additional effort has been made to reduce the risks totally. In case of a la suit, the judge or jury may consider those actions before deciding on the case.
6. Following these steps, many successful actions with positive results have been taken:
    a. The liability insurance will welcome Preventive Risk Management Plan
    b. The risk for a lawsuit has been reduced
    c. Costly legal fees have been probably eliminated
    d. No injury was caused to any guest
    e. No business disruption and business continuity was reassured
    f. No bad publicity was reported by the media
    g. Employee morale is high
    h. No employee was threatened with job loss
    i. Increased word-mouth-mouth reputation by guests who feel safe visiting the restaurant during the winter months
    j. A risk management plan was used as a competitive advantage against competitors
    k. As a result, everybody wins

This is a typical example of how a Preventive Risk Management Plan has been successfully formulated and executed.

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Disaster Prevention

No one can ever predict, and much more so, no one will ever accept that disaster does happen. And although prediction of what may happen in the future may be impossible to estimate, a carefully planned preventive measure will assist the management in the prevention of specific threats that are evident. One can refer to disasters that have happened in the past, one can simulate a disaster and learn how to prepare to deal with it in case it does occur, and one can prevent a disaster by avoiding doing what may cause an accident, installing or using specific equipment that may cause fire, injuries, and business disruption. The primary goal of risk prevention and business recovery planning is to ensure personnel and assets' safety during and following a disaster.

Disaster prevention processes may be grouped into two categories: procedural prevention and physical prevention.

1. **Procedural prevention** relates to activities performed on a day-to-day, month-to-month, or annual basis, relating to security and recovery.
2. **Physical prevention** and preparedness for disaster begins when a site is constructed, or in case of a conversion when an old building has undergone restoration to meet the design of a restaurant to be included in that building.

Security, Control, and Insurance Coverage

Security and controls need to be put in place to protect all human lives, assets, company records, employee records, and guests' records. This should continuously be monitored by an effective internal control system that will never be affected if a disaster happens. There is an increasing concern about IT infrastructure vulnerability in today's business and communication environment because computer systems are increasingly complex; however, even hackers and other computer criminals are increasingly smarter trained. Modern technology provides computer thieves with powerful new electronic safecracking tools. Because security is never sufficient, especially if criminals consistently invent new ways to pursue their cause, adequate insurance coverage is crucial when developing a business recovery plan and performing a risk analysis. Thus, having a disaster plan may not lower insurance rates in all circumstances.

Nevertheless, a good plan can reduce risks and address many concerns of the underwriter and affect the insurance's cost or availability. Most insurance agencies nowadays specialize in business interruption coverage. Most business interruption coverages include lost revenues following a disaster.

CONCLUSION

Implementing a Preventive Risk and Recovery Management Plan (PRRMP), including the risk analysis process, is essential but vital for a restaurant operation to keep business continuity when and prevent a crisis from happening. The Disaster Recovery Plan Template website offers valuable information about business disruption recovery and business planning and disaster prevention. Hence, they explain, "*the probability of a disaster occurring in an organization is highly unpredictable*." Foodservice organizations should also develop written, comprehensive business recovery plans that address all the business's critical operations and functions, not necessarily in the so-called front and back of the house. It should include

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the landscape's perimeter, the traffic surrounding the establishment, the transportation of employees and management, and the safe access of suppliers, guests, and other business associates. Whether standardized or tailored to the business, any plan in place should include documented and tested procedures, which, if followed, will ensure the ongoing availability of critical resources and continuity of operations. A business recovery plan should be a vital part of a strategic plan and be the primary resource for liability insurance. It provides a certain comfort level in knowing that if a major catastrophe occurs, it will not result in a financial disaster for the organization. Fire often occurs in many foodservice operations, and the losses are unbearable; many fires can be prevented; a proper fire prevention plan is in place. Insurance, by itself, does not provide the means to ensure continuity of the organization's operations and may not compensate for the incalculable loss of business during the interruption or the business that never returns. Additional information can be found at

https://www.disasterrecoveryplantemplate.org/

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APPENDIX

Sample Check List for Licenses and Permits to Open and Operate a Restaurant in the U. S., Obtained From Various Sources.

Every new business needs licenses and permits—and businesses that sell food need more of them than most. Here are the typical licenses and permits you will need to open a restaurant.

Link about alcohol licensing information by STATE, including Canada:
https://www.ttb.gov/wine/alcohol-beverage-control-boards

Link about Food Code by STATE: https://www.fda.gov/food/fda-food-code/state-retail-and-food-service-codes-and-regulations-state

1. **Employer Identification Number (EIN):** While not technically a license or permit, this federal tax https://www.irs.gov/businesses/small-businesses-self-employed/business-taxes identification number is required if your business has employees—and you'll need it to apply for licenses and permits. Apply for an EIN at the IRS website.
2. **Business License:** A business license gives your business permission to operate in its locality. Depending on your location, you may need both a state and a city business license. Visit your State and City Government websites to learn more and apply.
3. **Building Permit:** If you are making changes to your restaurant that affect its structural integrity or its water, sewer, electrical, or other mechanical systems, you will need a building permit before starting the work. Contact your city government for more information.
4. **Certificate of Occupancy:** This certifies that your restaurant has been inspected by the city's zoning or building department and is safe for occupancy. The certification may also involve a fire permit issued by the local fire marshal.
5. **Sign Permit:** Each city has its own outdoor signage regulations, including permissible size, materials, location, and lighting of the sign. Contact your city government for details.
6. **Food Service License:** Both state and local health departments must inspect businesses that store, prepare and serve food (as opposed to simply selling prepackaged food) to ensure they are following food safety regulations. Contact your state and city health departments for information.
7. **Food Handler's Permit:** Each of your employees must take a food safety course and be issued their own food handler's permit. Get more information from your state and city health departments.
8. **Resale Permit:** Sometimes called a resale license, resale certificate, or wholesale certificate, this allows you to buy products wholesale without paying sales tax if you plan to resell them or use them to make something you will sell. For example, you could use a resale permit to buy tortilla chips wholesale without paying sales tax and resell them at your restaurant. Apply for a resale permit with your state tax authority.
9. **Seller's Permit:** If your state and/or city requires you to collect and remit sales tax, a seller's permit (sometimes called a sales tax permit) identifies your business as authorized to collect sales tax. Apply for a seller's permit with your state tax authority.
10. **Liquor License:** If you want to serve alcohol in your restaurant, you will need to get a liquor license from the local Alcohol Beverage Control Board. A full liquor license allows you to sell beer, wine and hard liquor; some states also offer a license to sell beer and wine only, which is less expensive

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and easier to get. Getting a liquor license approved can take quite a while; if you know you want one, start the process as soon as possible so it does not delay your opening.

11. **Music License:** If you plan to play music in your restaurant, whether live, recorded or from a streaming service, you need a Public Performance License (PPL) from a Performers Rights Organization (PRO). Fines for playing unlicensed music are high and can quickly add up. If you plan to have live performers who will play cover songs, you will need to get a separate license from each of the PROs (ASCAP, BMI, SESAC, and GMR) to play their artists' music. If you just want to play recorded music, sign up with a music streaming service designed for businesses that include the license for all four PROs in the monthly cost.
12. **Live Entertainment License:** If you want to hold live events (such as live music, karaoke, singing, or patrons dancing) in your restaurant, your city will need to issue an entertainment license. Contact your city government for information.
13. **Valet Parking Permit:** If you want to provide valet parking for your customers, your state or city may require a valet parking permit.
14. **Placement Permit:** If you want to put a dumpster outside your kitchen for trash disposal, your state or city may require a permit specifying where you can place it. Different cities, counties, and municipalities have their own unique license and permitting requirements for restaurants. For example, you may need a permit to dispose of grease from your cooking process to allow outdoor seating on the sidewalk or to install a fire alarm. Check with both state and local authorities to ensure you are aware of all license and permit requirements for your restaurant. Once you get your licenses and permits, display them as required. Make copies and keep them in a safe place. Some licenses and permits expire annually, while others last for a few years. Develop a system to keep track of when your permits expire so you can start the renewal process well in advance. You do not want to face a fine or must shutter your restaurant temporarily because an essential license or permit has expired.

Legal Internet Resources:

1. https://www.findlaw.com/
2. https://www.freeadvice.com/
3. https://www.law.com/
4. http://www.hospitalitylawyer.com/listings.php
5. http://www.business.gov/business-law/employment/
6. https://www.usa.gov/Business/Business_Gateway.shtml
7. http://www.business.gov/start/start-a-business.html
8. https://www.usa.gov/Agencies/Federal/All_Agencies/index.shtml

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Chapter 5
Food and Beverage Operation Management

ABSTRACT

This chapter will describe the "functions of food and beverage management" and operations within a hotel/resort setting, which is the most comprehensive operation to manage due to the many food and beverage sub-departmental operations. It includes the basics of food and beverage management, the people involved, the back of the house and front of the house operations, and the equipment required for the operation and production. The reader will understand what it takes to run a food and beverage operation, will be familiar with all duties and responsibilities of a food and beverage director, understand the stakeholders involved in all aspects of the operation, including guests, and understand the equipment required to run a food and beverage operation.

INTRODUCTION

Food and Beverage Service operations are very complex and challenging to manage. It involves the interaction of the personnel, management, owners, and people from outside the operation.

A typical food and beverage operation in a large hotel setting can consist of up to twenty sub-operations and even more, including profit centers and support centers operated by hundreds of staff members. Table 1. shows an example of the various departments/ outlets of a large hotel operation.

In principle, food and beverage management is very comparable to any other business management, except that it is a complicated and challenging business. It is extensive and not discipline-specific because it does not involve the supervision of one small department or a single operation; instead, it consists of managing several sub-departments and operations. It is also complicated because it operates 24/7/365 around the clock for many segments of the industry. When we think of a resort hotel, a hospital operation, a military food service, the business runs 24 hours a day to support and meet the demand of the people who depend on such a service (Angelo, & Vladimir, 2001; Ninemeier, 2015; Pantelidis, Lockwood, & Alcott, 2018).

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Table 1. Example of departments in a typical large hotel operation

	Profit Centers		Support centers
1	Fine dining restaurant	18	Sales office – PR Office
2	Ethnic restaurant	19	Reservations office
3	Coffee shop	20	Room service office
4	Lobby espresso bar	21	Cost control
5	Pool restaurant	22	Purchasing
6	Piano bar	23	Receiving
7	Snack bar	24	Storeroom
8	SPA bar	25	Security
9	VIP floors private bars	26	Training office
10	In-room mini-bar	27	Maintenance
11	Room service	28	Outside contractors
12	Golf/tennis bar and snack service	29	I.C.T. Personnel
13	Breakfast room	30	Housekeeping
14	Banquet rooms	31	Stewarding
15	Banquet bars, including mobile bars	32	Florist - landscaper
16	Outside catering	33	Music – entertainment
17	Fast food restaurant	34	Drivers and parking

The effective Foodservice Manager must be well trained in all aspects of the operation, from receiving to production, service, sales, and human resources management. Ideally, he/she must have years of industry experience and must be a visionary leader. Because we live in an era where people continuously strive for a better and more comfortable and healthier lifestyle, there is a constant demand for change, especially socio-cultural and technological changes. Therefore, an influential and visionary leader must base his/her leadership on the knowledge gained from multiple sources: from the educational institution and the practical experience gained through past events in the industry. Thus, envisioning a better working environment conducive to better results; higher satisfaction for all stakeholders through higher profits and greater prosperity. Hence, to be an effective Foodservice Manager or Director of Food and Beverage in any operation, whether in a luxury resort hotel or a hospital, one must have a comprehensive knowledge of all aspects of the food and beverage services operation, often referred to as "Front and Back of-the-House" expertise and experience. The manager also needs the necessary skills to manage the entire administration.

Specific topics about essential knowledge, such as human resources management, accounting, finance, IT-MIS management, facility planning, and design, and entrepreneurship, are presented separately in their chapters. This chapter will present and discuss specific topics about the required knowledge necessary to run a food and beverage operation. To simplify inferences and avoid repetition in this chapter, we will refer to all food and beverage management positions as "Food and Beverage Director" or (FBD).

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The Food and Beverage Director's Philosophy

Indeed, this chapter provides comprehensive coverage of all essential components of foodservice management and its philosophy. A food and beverage operation is a place where you will find some of the most dedicated hospitality employees. Moreover, despite the many negative factors the foodservice industry has, such as working on weekends, low pay, and family-work-life balance, food and beverage professionals continue to work diligently, providing food and beverages and service to patrons around the world. Although food has been available to men since its creation, its nutritional value and purpose of supporting life have not changed. What has changed is our eating habits.

Foodservice professionals are partly responsible for this evolution. Eating places are not just feeding places; they have many other meanings. They are places where people conduct business, where people entertain each other, celebrate an event, or just where people come to enjoy a great meal or cocktail to step away from their traditional habits. Whatever the reason, food and beverage service professionals cook, serve, and provide patrons with memorable experiences worth repeating.

Food and beverage professionals must be prepared to manage those places and events and manage the relationship with other business associates such as the purveyors, entertainers, and technicians like electricians and plumbers. The tasks can be overwhelming at times; however, with a professional and educational background, supported with the knowledge, years of experiences, and the vision for continuous improvement, these tasks become easily manageable. There are many types of foodservice operations, all of which purchase, store, process, assemble, and serve food and beverages to patrons in any situation, whether they are away from home or receive food delivered to their homes (Angelo, & Vladimir, 2001; Ninemeier, 2015; Pantelidis, Lockwood, & Alcott, 2018). Many of these operations can be for profit or not for profit.

1. Types of foodservice operations
    a. Fine dining
    b. Theme restaurants
    c. Casual, fast-casual, cafés, coffee shops, diners, and cafeterias
    d. Snack bar
    e. Room service (hotel)
    f. Banqueting - Catering: in house, off-premises
    g. Pool restaurant
    h. Sports resort food and beverage service facilities: golf resort, ski resort, water sports resort, hunting and fishing lodge, and other sports.
    i. Private clubs
    j. Cruise liners
    k. Military dining services, officers' club dining, camp cooking, and MRE's (ready to eat meals)
    l. Concession
    m. Staff or institutional cafeteria
    n. Hospitals and managed care facilities
    o. Railroad dining
    p. In-flight catering
    q. Space exploration dining, the Space Shuttle foodservice system

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   r. Other types of dining operations, such as for dignitaries in Presidential or Royal Palaces, Religious such as the Vatican, Embassies, Consular.

2. Types of beverage service operations
   a. Full bar
   b. Juice bar
   c. Wine and champagne bar
   d. Hotel mini bar
   e. Night club bar
   f. The pool bar and spa bar
   g. Banquet-catering: dispense bar, portable bar, hosted bar, cash bar, complimentary bar
   h. Brewpubs bars
   i. Gastropub
   j. Other types of bar operations such as private bars or winery tasting bars

The above operations are explained in detail in **Chapter 1, *"Introduction to Food and Beverage Operations and Service."***

1. BASICS OF FOOD AND BEVERAGE MANAGEMENT

The type and style of food and beverage management have undergone significant changes over the last decades, mainly due to the dynamic technological evolution. Therefore, today's DFB must have a much different carrier background and preparation together with constant retraining than a DFB in the 80s when technology was emerging. For example, in Europe, a DFB had to know foreign languages to translate menus and beverage lists and assist with the preparation of promotional materials with the sales and marketing department. Today foodservice operations have all of that already translated on their website, which I.T. experts maintain. Therefore, the emphasis on carrier preparation has shifted; for example, from doing everything to being able to manage everything? Today's DFB responsibilities and know-how are aligned with the business model of each operation and its strategic planning.

Responsibilities are also aligned with the standard of the operation, sales volume, brand building, expansion, and growth strategies, etc. Hence, the DFB will play an important part in the company's strategic vision, such as expansion, E.g., through customized simplification of the operation, profit maximization through cost reduction, and, where applicable, through the economy of scale and more. For example, luxury hotels can no longer support the number of employees in service and preparation the same as four or five decades ago; therefore, "haute cuisine" and "silver service" have been replaced by other innovative concepts, including fast-casual. Tableside cooking has disappeared, and today's "maître d'hôtel" is no longer what it used to be, and regrettably, no one wants to report to an executive chef because of his/her fame as a soloist in the kitchen and not as part of a greater team in the foodservice operation. Thus, today's food and beverage operations present significant challenges to the traditional philosophy of foodservice management. Nevertheless, the responsibilities of an FBD are more vital than ever before, and therefore an excellent educational background and work experience are key to an FBD's success. Some of the responsibilities include:

1. The formulation and implementation of the Strategic Plan, Marketing Plan, Budget, and Goals

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2. Development and implementation of standard operating procedures (SOP) manuals
3. Providing the highest level of guest satisfaction
4. Managing the functions of all food and beverage personnel
5. Monitoring present and future trends while
6. Implementation of competitive programs
7. Conducting regular physical inspections of the facilities
8. Implementation of preventative maintenance programs
9. Assisting and directing all personnel functions: from recruiting to hiring, orientation, coaching and counseling, training wage and salary administration, labor relations, performance appraisal, and succession planning.
10. Monitoring applicable laws and regulations to ensures compliance.
11. Establishing and maintaining adequate internal communications
12. Establishing and maintaining a prominent level of visibility and involvement in the property and in business, social and governmental communities
13. Establishing and maintaining effective employee relations
14. Monitoring cash management programs, including inventories and receivables
15. Contributing to the development of advertising and promotional campaigns to increase awareness, patronage, and market share
16. Implements an energy conservation program to minimize energy and utility consumption
17. Monitoring purchasing practices
18. Demonstrating leadership in representing the company
19. The ability to be transferred not excluding the possibility of becoming an expatriate in the company operates internationally
20. Effectively working with superiors, peers, and subordinates for optimum performance
21. Effectively working with business associates outside the company nor excluding local government officials and members of other regional and federal agencies

Based on the preceding, one can realize that the job of an FBD is indeed challenging and can be overwhelming. It takes passion for the profession, dedication to the job, and loyalty to the company to perform such a responsible position effectively, yet there are thousands of them around the globe who enjoy doing what they do as Food and Beverage Directors.

2. THE PEOPLE WE WORK WITH AND FOR, A PROFESSIONAL'S OWN NARRATIVE

The hospitality industry has always been a global industry with a very diverse workforce and a global clientele. Diversity has been known in hospitality long before scholars researched and published about it. Several factors contributed to the global diversity in hospitality. After the Second World War, international commerce and trade increased export and import business, and business executives had to travel to conduct business. At the same time, tourism began to flourish, and in response, local hotels and restaurants in host countries began hiring staff that had international experience and spoke foreign languages.

While businesses and economies were prospering, educational institutions began opening programs to train future hospitality and tourism staff to cater to an international clientele. This boosted old hospital-

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ity management schools and new ones leading the industry where it is today. The hospitality industry is the largest private employer in the world, second only to governments. Hence the people we work with are dedicated to the profession with so many negative factors such as low wages, 24-hour operation, odd days off, etc.

Nevertheless, it is a rewarding industry with the possibility for endless career growth, high earning potential in an international landscape. Understanding the passion and dedication of the food and beverage service profession is crucial. Accordingly, there is no better example than to describe how a Food and Beverage Director feels about his/her operation, people, product, and service is available to valuable patrons.

Food and Beverage Director's Philosophy in his/her Own Words

The Food and Beverage Operation usually represents a substantial contribution to the total revenues of a hospitality complex. Food and beverage profit potentials, however, are such that there is little margin for error. To be successful, we must strive for a high degree of guest satisfaction, and to assure repeat business; we must operate in a manner conducive to the maximization of profits. Our success depends on our continual concern and actions to improve the way we manage our product and people.

Success is all About the "People", the Human Factor

Our success or failure in achieving our objectives is to a great degree dependant on the attitudes our employees bring to bear on their job responsibilities. We have a deep concern about the work environment of our people. We are concerned with their needs as human beings, from the necessities of life to the fulfillment of purpose and dignity. We think of our foodservice employees as valuable resources and assets, which we call "Human Capital." We try hard to create a climate that will enhance the achievement of everyone's maximum potential. However, our people must have a thorough understanding of their job responsibilities, a "voice" in how the work is to be accomplished.

Additionally, they must be mare of how their job is an integral part of the entire operation. Their attitudes and behavior hold the keys to success in our Food & Beverage Operation. Our people can only be updated with product knowledge and new technologies through extensive training programs, and we strive to provide that regularly and on a need basis, either individually or collectively.

Success is About the "Product"

A successful food and beverage product requires great "expertise" in all details, from the room atmosphere to proper plating. It starts with unfailing attention and control of the basics of purchasing, receiving, storing, and issuing. Without sufficient notice to these basics, even the best of any other efforts toward an excellent product will be futile. With the basics adequately controlled, we then must ensure proper and consistent preparation. For, here again, failure will render all subsequent efforts ineffective.

Moreover, finally, our service must always exhibit a high degree of attentiveness and warmth toward the guest and be technically correct. Any lack of attentiveness, friendliness, and proficiency in our service will negate the value of all previous steps toward an excellent product. A keyword then in our quest for product excellence is "consistency." For consistency, our operations must be organized with high standards that are thoroughly organized and documented in operating manuals.

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Millions of dollars were invested into a business operation that is designed to make every guest feel he/she is welcome in the best place with the best product and service, all of which are delivered by highly educated and trained professionals. Besides, outstanding decor, furniture, and the best procurable equipment have been provided, and thousands of dollars are spent each month on advertising to make all this happen successfully.

However, all of this is only secondary if one only sings his/her praises. Good service makes any food and beverage operation desirable, and if they are beneficial, they will generate lots of business and, eventually, much profit for the owners. Consequently, lots of business translates into additional job creation and job security for all of us. Most importantly, one must understand that management is only as good as the employees, and employees perform only as good as the management's competency to make them excel. Employees provide service, and employees are management partners because success depends upon the employees and those they work with. When employees prosper, everyone will thrive. Therefore, management, owners, and investors, including the tax collectors (Camillo, 2020).

Success is all About "Service"

So how can one describe what "Service" really means? Food and Beverage Professionals in the field believe that service is an attitude, common sense, and a desire to perform a good job. It is about being conscious of the fact that the guest is not a necessary evil. He/she is the one who spends his/her money with us and pays our wages and salaries. The guest is also the one who gives tips, and their size is determined by the quality of service he/she receives, not only in a restaurant but in all foodservice operations.

Service is a cheerful smile and proper grooming. No one likes grumpy and unhappy service people, and no one feels good in their presence; they are depressing. Service makes people feel good; it is a cheerful "Yes," not a "No." Service is cooperation and a willingness to help fellow employees do their job and allow them to help others in management do theirs. For example, a restaurant can only succeed and survive if it has gained an "outstanding reputation," which can only be achieved with great employees who prepare excellent food and beverage products delivered with pride. With such an attitude, the restaurant will have a reputation for outstanding service. Thus, giving excellent service is no more complicated than demonstrating a desire to be a pleasant, polite, and considerate human being, and it is rewarding for all (Camillo, 2020).

3. THE BACK OF THE HOUSE AND FRONT OF THE HOUSE

Before we discuss the various aspects of "**back of the house and front of the house operation,"** it is essential to remember that in the food and beverage department, everything revolves around the production and service of food and beverage, but most importantly, where all these events take place. They take place in food and beverage service outlets such as restaurants, banquet, bar, pool, etc. However, when we refer to anything that has to do with food and beverage production and service, we mention "kitchen (back of the house) and restaurant (front of the house)." Logistically each outlet has a supporting mechanism that makes the production and delivery of the product and service possible. Hence, we call it "back and front of the house operations." To fully understand what is behind a restaurant's scenes, one must be familiar with its meaning and scope.

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A restaurant is a commercial establishment that sells food and beverages and related products and services to patrons using the facilities for various reasons: when entertaining, while traveling, a simple night out, to try new food, special occasions, etc.

Therefore, a restaurant may appropriately adapt itself to patrons' needs to generate business and encourage repeat patronage. A restaurant that sells alcohol must be licensed or can hold a license as a part of a hotel operation that may keep a license umbrella covering all foodservice operations. If a restaurant operation is within a hotel complex, it contributes to the hotel operation and aggregate revenues. Although the profits are lower than those of the lodging operation, the restaurant operation does play a substantial and complementary role.

A large hotel complex could not operate without food and beverage operations and related services such as banquets, conferences, etc.; in other words, it would be a "Bed and Breakfast" operation. In short, the scope of the restaurant is to provide food and beverage products, tables, chairs, utensils, and service to patrons in exchange for money. Therefore, a restaurant must be equipped with china, glassware, cutlery, and linen, which are determined by its décor, independent bar, entertainment facilities, and above all, the quality of service". This must be coordinated and managed by a team of professionals under the management direction in the various back - and - front-of-the-house operations (Camillo, 2020).

The Back of the House Operations

The back-of-house operation consists of sub-departments that are directly under the responsibility of the food and beverage director, and others are not, such as housekeeping, engineering, storerooms, purchasing. IT-Department, etc. They are:

Kitchen and Supporting Sections

The kitchen is the location where food is prepared. While larger kitchens may have distinctly different sections to deal with various aspects of food preparation, smaller kitchens may have different functions done by a single person. Many large hotel operations may have multiple kitchens located on different floors or in various facilities. For example, in a large hotel setting, a fine dining restaurant may have its own kitchen. Other kitchens may be small and less equipped because they may requisition basic needs from the main kitchen, which may have a sophisticated preparation system such as cook-chill which, for example, would make all basic sauces for all outlets, E.g., demi-glace, stocks, soups, cold sauces, all types of dressings, etc. This system allows for reduced labor costs due to the economy of scale and assures consistency of the product throughout all operations. Other types of the kitchen are described as "dispense kitchens," meaning that nothing is prepared there, food is only dispatched or dished out, and satellite kitchens where food is finished to cook before service such as soups, roasts, etc. For these types of kitchens, the equipment used is on wheels, including gas and electrical equipment, which can be connected to power outlets in all dispense or satellite kitchens. This system requires less investment, thus generating a high return on assets. The main kitchen is divided into specific sections; however, preparation kitchen such as cook-chill are stand-alone kitchen as they require significant space for cooking processes and ample refrigeration space.

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1. The main Sections of a Large Kitchen Operation Are

a. Butcher Shop
This is the section where raw meats are cut from wholesale cuts and carcasses into smaller portions of the given weight so that they are ready for processing. The butcher shop may also smoke meats and even fish in the gourmet kitchen and may age meats according to the menu specification, such as 21 days.

b. Garde Manager (Cold Food Section)
This is the section where all cold dishes (not sweets) such as hors d'oeuvres, cold meat platters, salads, galantines, and pâtés are prepared. In case there is no butcher shop, this section also prepares smoked meats and fish as well as in-house cured meats and fish such as sausages, salami, and graved lax, and in some instances even cheeses.

c. Hot Range (Hot Food Section)
This is where the primary cooking range is located where all hot dishes are prepared, such as sauté, fried, steamed, etc.

d. Grill (Broiler Section)
The grill is an essential section because it prepares foods that are very attractive to guests. Therefore, an expert chef needs to be manned that understands the anatomy of meats, grilling grade (rare, medium), and works closely with the butcher shop. All grilled or broiled items like steaks, fish, chops, etc. are prepared in this section

e. Entremetier (Vegetable Preparation Section)
Here all raw vegetables are cut into smaller presentable portions.

f. Saucier Section
In this section, all sauces are prepared according to the menu requirement. In some restaurants, warm hors d'oeuvres, complete meat dishes, as well as fish dishes, and sautéed items are also prepared in this section. The chef working in this section holds one of the most respected positions of the entire kitchen brigade, usually ranking just below the Executive chef and chef the cuisines or Executive Sous-chef

g. Baking and pastry
The section Prepares bread, rolls, croissants, brioches, cakes, pastries, muffins, cookies, ice creams, etc.

h. Pantry Room or "Still Room"
Traditionally, this area is used to be the preparation area for tea and coffee. A "still" referred to a chamber in which water is continuously boiling. However, today's kitchen uses the pantry for many different purposes, including storage, glassware washing, etc.

2. Stewarding Department

This department is the backbone of any food and beverage operation. It primarily controls the storage and issue of cutlery, china, hollowware, glassware to all preparation and service outlets. This department is responsible for washing all soiled dishes, glasses, and cutlery, and subsequently furnishing clean items. Most importantly, this department is responsible for maintaining an ideal inventory level (par stock) of

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all utensils and small equipment. In luxury operations where silver and copper are used, this department oversees maintaining its brilliance (their radiant look) and must have employees with the expertise to do this job. Besides, this sub-department is also responsible for the sanitation and hygiene of all kitchens and preparation areas.

1. Dispense Bar

The bar dispenses wines, liquor, spirits, juices, soda waters, cigars, and cigarettes (where applicable) and it is typically located in the back of the house, where dining guests do not see it.

2. Housekeeping

The housekeeping department is responsible for cleaning, maintaining, and for caring of the aesthetic standards of a hotel, including the food and beverage department. This department is also in charge of the laundry, all linen, staff uniforms, and in many instances, is also in charge of the plants, flowers, lobby seating areas, carpets, etc. Like the stewarding department, this is a critical backbone of the food and beverage operation.

3. Engineering

This department is responsible for the smooth functioning and supplying of air-conditioning or heating, lighting, mechanical, and electrical functioning of any service equipment in the restaurant. They also coordinate services that need to be outsourced from outside vendors, such as calibrating ovens or refill of gases such as Freon, which requires an exclusive license to buy and install it.

4. I.C.T. Information and Communication Technologies

Over the last decades, this department has created this department to deal with the technology necessary to support all operations, including the food and beverage operations. The department supports all I.T. infrastructures, including point of sales systems, internet communication, data storage and retrieval, email traffic, etc. It plays an essential role in future I.T. investments and in the preparation of budgets, especially when specific equipment must be integrated with other equipment.

5. Purchasing and Storerooms

Purchasing is the source from which the food and beverage operation gets all supplies, which are then stored in the storerooms. Although all back-of-the-house sub-departments are important, purchasing, storerooms, and stewarding rank top. Without supplies and without tools to work with, there would not be anything to produce and sell. While small operations may not even have a separate purchasing operation, large hotels do have separate General stores, Food stores, Beverage stores, and Perishable stores.

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6. Food and Beverage Cost Controller and Inventory Clerk

These two sub-sections of the accounting department work almost exclusively for the food and beverage department. The cost controller produces monthly food cost reports and daily flash food costs, takes inventory of all items, and prepares a monthly reconciliation report highlighting the comparisons of consumptions v/s sales and keeping the food and beverage directors informed of any discrepancies. The food and beverage inventory clerk is responsible for entering all deliveries into the inventory, assuring that everything on the invoices has been accounted for. As the cashier, both these positions report operationally to the food and beverage director and administratively to the accounting department.

7. Human Resources Department

This department is responsible for the recruiting and dismissal of employees and for the retention, training, motivation, promotion, transfers, etc. The H.R. department plays an essential role in promoting and maintaining seniority, which is key to building an excellent reputation for consistency in production and service. Food and beverage operations have the propensity for high staff turnover, and the role of the H.R. department is to reduce it to a minimum level by doing what has been mentioned above.

4. The front of the House Operations

All food and beverage outlets, from restaurants to coffee shops, snack bar, banquet, room service, and pool bar, etc., are considered front-of-the-house operations. Other departments that support the food and beverage operation are the front office, sales, and catering, cashier, security (can also be back of the house).

a. Front Office

This is the central point in a hotel operation where all checks or bills of hotel residents are collected and then recorded in their overall bill. It is also the center where all revenues are being consolidated regarding all food and beverage consumption debited to each guest or group folio. When a guest signs a bill in the bar, he/she gets charged automatically to his/her. Although the front office staff in charge is not part of the food and beverage department, it does perform many duties that have to do with guests' charges.

b. Sales and Catering

This department is key to generating new business and supporting existing repeat business. The staff is of vital support to the survival of the food and beverage operation. On the other hand, the food and beverage operation works very closely with them, especially when creating special menus or when preparing food tastings for special guests.

c. Cashier

The cashier is a sub-section of the accounting department and is usually located outside and is responsible for receiving cash and credit payments transactions made for food and beverage sales in a restaurant or

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bar, banquet, or other departments. The person working in this position may have two reporting roles. Operationally, reports to the director of food and beverage; administratively reports to the accounting department.

d. The Equipment

The equipment required in a massive operation is enormous, and a fully equipped food and beverage department can be very costly. The equipment needed will depend on the standard of service aligned with the standard of the overall operation. A Five Diamond Resort operation usually offers luxury service in most service outlets and hotel guests' rooms. Therefore, the Furniture, Fixture, and Equipment (FFE) needed must be in concordance with such a standard; E. g.: bone china, silver, and gold cutlery and utensils, real crystal ware, cotton or silk linen, mahogany bar countertops, Persian carpets, etc.

However, the management needs to understand that, especially in luxury operations, Millions of Dollars are invested in FFEs, and therefore they must be well-maintained, and inventory is taken regularly. Usually, all utensils are inventoried four times a year to determine the negative inventory variances due to items lost, theft, breakage, and items taken out of the inventory due to lack of durability.

Therefore, buying a great product, such as buying silver plated cutlery with only 10 μ (microns) instead of the usual standard of 30 μ, (microns), will force the management to replace the silver more often to its limited life span. Of course, these negative variances affect the budget and, if not replaced, affect the efficiency of the service's production and effectiveness. For a Food and Beverage Director to coordinate the purchase and maintenance of the equipment needed, especially for the opening of new facilities, he/she must be part of the planning process, must know the themes of the facilities and the types of foodservice operations, including layouts, locations, and capacity. A large hotel operation may include the following types of foodservice outlets but not limited to:

e. Coffee Shop

A concept developed in the U.S. well-known by its quick service that delivers above-average profits. Food is served pre-plated in the kitchen, and the atmosphere informal. The table cover layout is less elaborate with basic utensils and service. In luxury hotels and resorts, this is usually the place where children can eat with their parents.

f. Specialty Restaurant

The atmosphere is more sophisticated and caters to people who can eat at leisure. The emphasis is on food that reflects the theme and elaborate service. Specifically, the entire atmosphere and décor are geared to a particular type of food or themed restaurants. Thus restaurants, which offer Italian, French, Chinese, Japanese, Indian cuisine, etc. would be termed "specialty restaurant." The service is based on the country's style from which the cuisine originates, and often, they are managed by staff of the country being represented.

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g. Grill Room / Steak house

Various meat cuts are grilled or roasted in the Grill room. Typically, a grillroom has a glass partition between the restaurant and the kitchen so that the guest can choose his/her meat and or fish cut and see the actual preparation.

h. The Fine Dining Room

Found in luxury hotels and resorts in which there is a need to diversify their dining facilities, especially long-staying hotel guests or guests who need expensive entertainment. The dining room is usually patronized by the residents of the hotel but may be open to non-residents also.

i. Café/Milk/Juice/Soda Bar

Here the restaurant is informal, and the service quick. This bar may have a counter for self-service and specializes in snacks, soda fountain specialties, ice cream, etc. the décor is relatively inexpensive. A snack bar is usually located in a large lobby, pool area, or sports facilities.

j. Grab and Go Concepts

This concept is usually part of a hotel marketplace, a small area next to the front desk where guests find anything small, anything they have missed while packing the suitcase, and most importantly, anything snack. The market may include made-to-order espresso and fresh and tasty food to go, hence "Grab and Go" bags.

k. Discotheque

Usually, part of a food and beverage operation with a restaurant, which is primarily used for dancing to record music. The management may also promote live band music. An important component of a discotheque is the bar, while the food offering consists mainly of snacks, but it does not complete with a snack bar.

l. Night Club

It is usually open at night for dinner, dance and cabarets. A dispensing bar is always provided. Décor is lavish and is usually upgraded every three to five years to reduce the guests' monotony. The service is elaborate. A live band is essential to the theme. Most luxury operations insist on formal wear to enhance the atmosphere.

m. Banquet and Conference Facilities

These are outlets that cater to large groups of people attending conferences, meetings, or city-wide conventions. The service styles and menus can be easily adapted to guests' needs and the event's theme: international buffet, vegetarian meals, wedding in the tent, etc.

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n. In - Room Service

This is a dining area that does not exist. It is created "to order" accordingly to when and what the guest may order from the menu and according to the meal type, breakfast, lunch, dinner, afternoon tea, etc... The equipment used and service offered range from basic to very luxurious. Many resorts also have large suites with fully equipped kitchens and butler service.

This kind of in-room service is very private and very costly since one or two or more staff members are assigned solely to that operation. Many in-room services operations offer 24-hour service; however, the menu offered may differ for each meal period, although it may include a section called "all-day dining." Based on the preceding, the DFB must ensure that all outlets are equipped with the necessary needs to be fully functional.

o. Outside Catering

Although outside catering is usually not an operation of interest in certain countries, in many others, it is, especially in emerging markets where there the potential for increasing revenues through this kind of service. However, this kind of operation means the addition of another banquet operation that has no physical presence, but it is created outside their usual place of business. While the potential to generate additional revenues exists, there is tremendous logistics involved, especially when complying with the health law. The operation requires transportation that has refrigerated or heated capability or both. It needs drivers, extra insurance, and more. Therefore, not too many hotel operations include this kind of service in their product offering because it is logistically complicated and may not yield the desired profits if not sufficient sales volume is generated.

Industry Trends

Trends happen across all industry sectors, in food preparation, in equipment manufacturing, in food and beverage service, in technology, and in delivery – not location bound.

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Chapter 6
Food and Beverage Product Knowledge

ABSTRACT

This chapter introduces and discusses some of the most common food and beverage products used in commercial foodservice operations. It includes herbs and spices and their application, beverage products, and application. It introduces the basic knowledge necessary about still, sparkling, fortified, and aromatized wines, distilled spirits, and liquors/cordials, cocktails, mineral and natural waters, coffee, tea, and cocoa within a bar operation.

FOOD PRODUCTS

Herbs and Spices

Herbs and spices have been used since civilization and during cooking. Ancient history tells that the preparation of food became an art form and a source of nourishment. Along with this history came the use of herbs and spices to season the foods. Herbs or spices are a healthy and low-fat way to enhance bland or otherwise dull foods. Therefore, chefs emphasize the use of flavorings in foods, especially those that have no flavor. The world's foods are very regional and are typically characterized by specific herbs and spices that are native to the area. Regardless of what dish may be prepared, there will be flavorings such as herbs and spices used. India and internationally dominate the flavoring industry and have become a multibillion-dollar industry.

Definition of Herbs

Herbs are the aromatic leaves of plants without woody stems that grow in temperate zones. An herb is a plant that is valued for flavor, scent, medicinal, or other qualities. Herbs may be classified as Culinary, Medicinal, or Spiritual. Culinarians typically use "herbs" from the leafy green parts of a plant only, either fresh or dried. Many culinary herbs are perennials such as thyme or lavender, while others are biennials

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such as parsley or annuals like basil. Some herbs such as rosemary are perennial shrubs or trees such as bay laurel. Some plants are used as both an herb and a spice, such as dill weed and dill seed, or coriander leaves "cilantro" and seeds. Also, some herbs, such as those in the mint family, are used for both culinary and medicinal purposes. To retain their full flavor and aroma qualities, both Herbs and Spices should be stored in airtight glass jars, a cool-dark place, and for no longer than six months.

Definition of Spices

Spice flavoring can be strong even to hide other flavors. In the kitchen, spices made from the bark, buds, fruit or flower parts, roots, seeds, or stems of various aromatic plants and trees differ from herbs, which are leafy, green plant parts used for flavoring. Many spices are used for other purposes, such as medicine, religious rituals, cosmetics, perfumery, or for eating vegetables. For example, turmeric is also used as a preservative, licorices as a medicine, garlic as a vegetable.

Both spices and herbs should be used cautiously because, if highly concentrated could become harmful. Also, the use of herbs gathered from the wild should not be used in a commercial kitchen if not picked by a botanical expert. For example, some members of the Bay Leaf family, "laurel family," and the unrelated species, but visually similar mountain laurel and cherry laurel, have leaves that are poisonous to humans' livestock. While these plants are not sold anywhere for culinary use, even the display of these hers should be avoided.

Application of Herbs and Spices

There are various techniques in using flavoring in food processing: for seasoning, flavoring, and flavor building.

Definition of Seasoning

Within the context, "*seasoning*" is defined as "*the addition of substances that increase the taste of food without altering the taste or adding their flavors*." Whenever possible, they are added at the end of cooking. They are sometimes added earlier to meat and vegetables to give the seasonings time to penetrate and bring out their full flavor.

Definition of Flavoring

Within this context, "*flavoring*" is defined as "*the addition of a product to add its distinctive flavor to the final dish. It is the blending of one flavor into another in such a way that the two complement each other and still keep their own identity*." Flavoring and seasoning are often confused because both are usually used in the final steps of completing a dish. Flavoring changes the dish's taste by adding a new flavor, while seasoning brings out the flavor that is already there. When flavoring is enhanced again later, the technique is called "layering of flavors at the end of the cooking." This process is used frequently in Italian cuisine.

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Flavor Building

Building flavor in processed food is an integral part of the cooking process. Flavor builders are cooked right into the dish so that their different flavors merge with the total flavor creating a new complexity of flavors.

15. SEASONINGS

Seasoning is one of the most critical processes in the entire field of cooking to bring food to its peak of flavor and taste. They include four everyday products: salt, pepper, Monosodium Glutamate (MSG), and fresh lemon juice or vinegar. Seasonings are limited to these four because they enhance a food's flavor without altering it. If you used it in the right quantities, they do not add their flavors to the food.

Salt: There is only one rule to follow when seasoning with salt: do not overuse it. Once a dish is salty, there is no way to correct it.

Pepper: Three kinds of pepper are commonly used as seasonings: *white, black, and red, and pink*. Green peppercorns are usually used in brine for pepper sauce preparation. White and black pepper both come from the oriental pepper plant. Black pepper is the dried unripe berry, and white pepper is the kernel of the ripe berry. Red pepper comes from dried pepper pods.

Regarding the use of Pepper, Please Note: As a seasoning in preparation and in service in the dining room, black pepper should only be used in dark-colored foods because it spoils the appearance of lighter-colored foods. White and red pepper can be used in both light and dark foods.

1. **Black Pepper:** It comes in three forms: whole black peppercorns, crushed peppercorns, and table-ground pepper. Only the table-ground form is used for seasoning. Whole pepper is used as a flavor builder during cooking, as in making stocks. Crushed black pepper is used in several ways. It can function as a flavor builder during cooking or can be added as flavoring to a finished dish. But crushed pepper is not used as a seasoning because it cannot be used subtly. Table-ground black pepper is used as a seasoning by most chefs. Its flavor can become very "sharp" and must be used carefully.
2. **White Pepper:** It comes in two forms: whole peppercorns and ground white pepper. White peppercorns are used in the same ways as black. Ground white pepper can be used for all-around seasoning. It blends depth into white dishes both in appearance and in flavor and has the strength necessary to season dark dishes. Very little is needed. It is highly regarded as the true seasoning pepper.
3. **Red Pepper:** It is the most difficult of the peppers to use. It is quite hot and easily overdone. Two kinds are used as seasonings: cayenne and "red pepper." Both are hot, but the flavor of cayenne has a great deal more to it than hotness. When used with restraint in soups and sauces, cayenne is one of the better seasoning peppers.
4. **Pink pepper:** These peppercorns come from dried berries of the shrub *Schinus molle*. Pink peppercorn is also labeled "baies roses," a French term. They are not from the Brazilian pepper tree, *Schinus terebenthifolius,* which has toxic qualities. The use of the term "peppercorn" for this pink

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berry is a misnomer; this berry does not belong to the peppercorn family. Although French exporters argued that it is safe to eat these berries from Madagascar, in 1982, the American Food and Drug Administration (FDA) asserts that these berries may cause possible allergic reactions upon consumption. Since then, it seems as they have disappeared from the American kitchens.

MSG (Monosodium Glutamate): Monosodium glutamate is a crystalline substance made in the laboratory. It is also a natural ingredient in seaweed, soybeans, sugar beets, and mushrooms. MSG heightens the perception of flavor. As a seasoning, MSG should be used with caution or not at all. Even a slight overuse can give food an unusual flat taste. Also, many people are allergic to MSG

Fresh Lemon Juice: Lemon juice is seldom called seasoning, yet its use is not unusual. Many recipes call for small amounts of lemon juice, primarily with fish dishes. When used with restraint to spark the dish's flavor and the lemon flavor cannot be perceived, then lemon juice is a seasoning.

16. FLAVORINGS

Flavoring adds a complementary flavor to a dish at the end of its preparation. It creates a blend in which both the original and the added flavor are identifiable, as in the addition of black pepper to a green salad. Commonly used flavorings are:

Capers: add an intriguing taste to cold sauces and dressings as well as many warm sauces.

Grated Rind: The grated rind of fresh citrus fruits such as lemon and orange are often added to a sauce or used in baking. Only the colored outer portion, called the zest, is used as it contains flavorful oils.

Condiments: They are highly flavored bottled "sauces" added to a dish as flavorings after cooking are completed. Among these are catsup, soy sauce, chili sauce, prepared mustard, prepared horseradish, chutney, hot-pepper sauce, pickle relish, and Worcestershire sauce.

Fresh Herbs: A few fresh herbs are used as flavorings. These include parsley, mint, chives, garlic, and minced green onion. With rare exceptions, dried herbs and spices are not suitable as flavorings. They should be used only for flavor building.

Dried Herb: A few dried herbs such as tarragon and chervil can be used as flavorings if they are soaked in a liquid first to restore their moisture. But these dried herbs and spices are exceptions to the rule.

17. SPICES AND HERBS

All Spice: Dried berry of pimento tree. The flavor resembles a blend of cinnamon, nutmeg, and cloves. It is used whole in pickling, stews, soups, preserved fruits, spicing meat, boiling fish, and seasoning gravy. The ground All Spice is used to season pot roasts, baked goods, and minced meats.

Anise: Dried seed of plant belonging to the celery family. They are used for sprinkling on coffee cakes, sweet rolls, cookies, used in sweet pickles, flavoring cough syrups, licorice products, and some candies.

Balm: A lemon-scented herb cultivated in Europe. A pleasant seasoning for broiled fish, meats, salads, soups, and sauces. A few bruised leaves in cold tea and punch adds a nice touch.

Basil: Belongs to the mint family and is grown in Europe and North America. Famous in tomato dishes, bean and potato soups, good in potato, spaghetti, and egg dishes, steaks, venison, and wild duck.

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Bay Leaf: Dried leaves of laurel, which grows in many parts of the world. Famous in pickled beets, stews, gravies, spiced vinegar or marinade, and in meats. It is one of the most widely used herbs.

Borage: A rough, hairy, blue-flowered European plant with a cucumber odor. Used to season cucumber salad, green beans, and green salads.

Burnet: Belongs to the rose family. They are used for flavoring green salads and vinegar.

Caraway Seed: They are dried pungent from the carrot family's herb and used in rye bread, baked goods, sauerkraut, goose, potatoes, cabbage, roast pork, cheesecake, and cookies.

Capers: Low-growing shrub in the Mediterranean. The green flower buds of the shrub are picked. Used in fish, chicken, potato, and green salad. Used also in sauces for fish, lamb, mutton, and used as a garnish.

Cardamon: Belongs to the ginger family. The seed and pod may be ground together, or only the seeds are ground. The seeds are used for pickling. Ground cardamon adds delectable flavor to Danish pastry, coffee cake, and fancy rolls; bruised seeds in coffee are delicious.

Cassia Bark: From the cassia tree and resembles cinnamon flavor. It is used for pickling and preserving. It also can be ground and used in combination with allspice, nutmeg, and cloves to make mincemeat spice.

Cayenne: The smallest, hottest member of the red pepper family. It is used sparingly to season meats, fish, sauces, egg dishes, and mayonnaise.

Celery Seeds: Pungent seed from a plant-like garden celery. They are used in croquette mixture, stews, coleslaw, potato salad, salad dressings, pickles, cheese, fish, and meat spreads.

Chervil: Aromatic herb of the carrot family. Like parsley but more delicate. It is used It is used ed fresh or dried in salads, soups, egg, and cheese dishes.

Chili Peppers: A red pepper grown in Mexico and the Southern United States. They are used to make chili powder for chili con carne, tomatoes, pickles, cooked dried beans. Both green and ripe peppers are also pickled and used to make hot sauce.

Chili Powder: A blend of chili, red peppers, cumin seeds, oregano, garlic powder, and salt. Most widely used in chili con carne and used in cocktail sauces, gravies, stews, and appetizers.

Chives: Grows indoors or outdoors from clumps of small onion-like bulbs. It has a mild, onion-like flavor. Adds color and flavor to cottage and cream cheese, egg, and potato dishes, soups, and used as a vegetable garnish.

Cinnamon: The bark of the cinnamon tree. Milder in flavor and thinner than cassia bark. It is used to flavor pickles, preserves, fruits, and hot drinks. It also can be ground and used in baked goods, puddings, cake, and mincemeat.

Cloves: Nail-shaped, dried flower bud of the clove tree. Comes from the East Indies and from Zanzibar. Rich and pungent in flavor. Used whole in baked ham, pickling, and beverages. Used ground in cakes, cookies, conserves, and desserts.

Coriander: An aromatic herb of the carrot family, they are the seeds of cilantro. Grows in India and the Mediterranean and in Mexico. Has a flavor like lemon peel and sage. The spicy seeds are used in curry powder, oriental candy, pickles, and meat products.

Cumin: A member of the carrot family. Aromatic seeds with a bitter, warm flavor. Used in curry powder, cookies, egg and cheese dishes, sauerkraut, soup, meat, rice, pickles, sausage, chili con carne, and hot tomatoes.

Curry Powder: A blend of spices from India. By varying proportions of up to 16 spices, different flavored curries are produced. Used to make curries of meat, fish, eggs, chicken, and flavoring gravies.

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Dill: Herb of the carrot family with aromatic leaves, seeds, and stem. Fresh leaves used in sauces for potatoes, beans, fish, lamb, and veal. Fresh seed heads make a lovely garnish. Dried seed heads and stems are used to make pickles.

Fennel Seed: From plant of the carrot family. It is very aromatic with a resemblance to anise and dill but with a very distinct flavor of its own. Used in rye bread, rolls, other baked goods, beans and lentil soup.

File: A powder made from dried tender sassafras leaves and other herbs. It thickens and flavors. Used in Creole cooking in place of okra to thicken gumbos.

Garlic: Potent flavored bulb of the onion family. Used either fresh or dried to enrich flavor of salad dressings, meat, and many cooked vegetables.

Ginger: Dried root of a subtropical plant grown in Jamaica, China, and Japan. Cracked roots are used in pickles, preserves, and chutney. The ground root is used in cakes, gingerbread, cookies, puddings, soups, and pot roasts.

Juniper Berries: Dried berries of the evergreen shrub. Has a warm, pungent flavor. Used sparingly for a fine touch to roasts, venison, lamb, duck, goose, stews, and sauerkraut.

Lovage: European herb of the carrot family with a pronounced rich celery flavor. Used to flavor tomato juice, soups, stews, and gravies.

Mace: The lacy covering on the inner shell holding the nutmeg. The flavor is more delicate than nutmeg. Ground mace goes well with chocolate. Used in pound cakes and other yellow cakes, oyster stew, and spinach. Used whole for pickling, preserving, and fish sauces.

Marjoram: Belongs to the mint family. Dried marjoram is good pounded into veal, used in meats, potatoes, spinach, cheese, egg and fish dishes, chicken or poultry stuffing, sausages, stews, and soups.

Mint: A widely grown herb with a delightful cool, pungent flavor. Obtainable in dried form. It is very popular in sauce or jelly with roast lamb. Use chopped as an edible garnish on carrots and green peas. Delicious in iced tea and fruit beverages.

Mustard: Seed of the mustard plant. Prepared mustard is ground seeds blended with other spices and vinegar. Whole seeds are used in pickles, boiled with beets, cabbage, and sauerkraut. Ground mustard is used to flavor sauces and gravies.

Nutmeg: The kernel of fruit of the nutmeg tree. It is one of the oldest known spices. Traditional flavoring for baked custard and other desserts. Also used in cream soups, sauces, stews, and vegetables such as spinach, cauliflower, and Brussels sprouts.

Oregano: This is also known as wild marjoram. Widely used in Mexican and Italian dishes, in meat stews, dried beans, lentils, salad dressings, tomato sauces, and pizza.

Paprika: A red pepper grown in Hungary or Spain. Spanish paprika is used for coloring and mild flavor. Hungarian paprika is used in fish dishes, for shellfish, vegetable and egg dishes, in salad dressings, and for spicy meat dishes like goulash.

Parsley: A widely grown universally used herb. Used chopped to season and garnish soups, stews, salads, potatoes, and stuffing. Use sprigs for salad ingredients and as an edible garnish.

Pepper: Black pepper is the dried, small immature berries of a climbing vine grown in India and the East Indies. White pepper is the mature berries with the bulbs removed. Use whole in pickling, soups, gravies, and meat dishes. Used ground in most meat, vegetable, fish, and egg dishes, and more.

Pimiento: The ripe fruit of a sweet pepper plant. Used for spots of brilliant color, mild flavor in soups, stews, and salads. Used as a garnish for green vegetables like asparagus or green beans.

Poppy Seed: Tiny seed of the poppy plant. Used whole as a topping for breads and cookies and as a filling for other types of savories. Also used as a garnish for noodles.

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Poultry Seasoning: A mixture of sage, pepper, marjoram, savory, thyme, onion powder, and celery salt. Used in poultry, pork, veal, and fish stuffing. Also used to season meat loaf, dumplings, and crusts for meat and poultry pies.

Rosemary: Belongs to the mint family. Dry, needle-like leaves. Delicious in tomato and egg dishes, soups, fish, roast lamb, pork, beef, and duck. Also used in stuffing, vegetables, cheese dishes, biscuits, and muffin mixtures.

Saffron: Grown in the Mediterranean region. Used primarily for yellow coloring as well as flavor in yellow rice, breads, soups, and stews.

Sage: Dried leaf of a shrub belonging to the mint family. Grown in North America and Southern Europe. Very powerful in flavor. Used to season stuffing, sausage, veal, pork dishes, beans, tomatoes, and fresh cheese.

Savory: Flavor is at its best in early summer, so the term "summer savory" denotes top quality. Has a clean balsam fragrance. Useful in boiled fish. Fine flavor for peas, beans, lentils; also good in stuffing, meatballs, potato croquettes, meat sauces, gravies, and egg dishes.

Sesame Seeds: From pods inside blossoms of a plant grown in India, China, and Turkey. Hulled seeds are pearly white with a toasted almond flavor. They are baked on rolls, bread, and buns to give a rich, nutty flavor to the crust.

Shallots: Small type onion producing large clusters of small bulbs. They are used like garlic to flavor meats, poultry, sausage, dried cheese, and stews.

Sorrel: Long slender leaves, when used fresh, have a pleasant acid flavor. Used as an addition to lettuce in salads and used in some soups.

Tabasco: Made by crushing fresh, pickled, small hot Mexican peppers; salting and curing for three years; blending it with vinegar; straining and bottling. Used to season egg dishes, gravies, marinades, salad dressings, sauces, sea foods, poultry, and soups.

Tarragon: Related to the wormwood family. Has aromatic leaves with a slightly bitter flavor. Use freshly picked for flavoring vinegar and to shred with lettuce for salads. Fresh or dried adds flavor to fish, egg, chicken dishes, lobster Thermidor, fish sauces, beets, spinach, and aspics.

Thyme: An excellent seasoning for clam chowder, lamb, meat, soups, and stews. Good on vegetables such as carrots, peas, eggplant, scalloped onions, and stuffing.

Turmeric: The root of a plant belonging to the ginger family. Bright yellow, with a rich, appetizing aroma and a rather sharp flavor. Often combined with mustard for pickling and used in meat and egg dishes.

18. OILS AND FATS

Oils are an essential part of human nutrition and an integral part of the food inventory. However, they are susceptible to heat and light and should be treated carefully. High temperatures during deep-fat frying can lead to partial decomposition of the oil and the formation of toxic by-products. Oils should never be heated up to the smoking point in order to avoid decomposition. Fats and oils are basically very similar. They consist of fatty acids and glycerin. Depending on the fatty acid, they are either liquid, semi-liquid, or solid at room temperature. If using a deep fat fryer, oil is usually heated up to about 170° Centigrade or 350° Fahrenheit, which represents the optimum working temperature for most high-quality oils. If heated lower than 350 F., the food will become greasy and not crispy. If the oil is heated above the rec-

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ommended temperature for an extended period, the oil deteriorates quickly. Shortly before the smoking point, oils start to decompose very rapidly, generating toxic smoke. Furthermore, this overheated oil can no longer be properly digested by the liver and may cause liver damage. When heated above the smoke point, the oil is no longer fit for human consumption and must be discarded.

IMPORTANT FACTS WHEN COOKING WITH OILS AND FATS

Flashpoint

The flashpoint of a volatile liquid such as oil is the lowest temperature at which it can vaporize to form an ignitable mixture in air.

Smoke Points of Fats

The smoke point generally refers to the temperature at which a cooking fat or oil begins to break down to glycerol and free fatty acids and produce bluish smoke. The glycerol is then further broken down to acrolein, which is a component of the smoke. It is the presence of the acrolein that causes the smoke to be extremely irritating to the eyes and throat. The smoke point also marks the beginning of both flavor and nutritional degradation of a fat or oil. Therefore, it is a crucial consideration when selecting a fat for frying, with the smoke point of the specific oil dictating its maximum usable temperature and thus its possible applications. For instance, since deep frying is a very high-temperature process, it requires fat with a high smoke point. According to the data in Table 1. “avocado oil” has the highest smoke point of all oils.

The above values are approximate averages gathered from various sources. The accuracy rests with the sources from which the data has been gathered from.

None of these frying oils should ever start to smoke. If this happens, the oil should be replaced with fresh product immediately. Frying oil should be checked regularly according to the frying volume using color comparison test kits available from frying oil manufacturers. The fat in the deep fat fryer also should be filtered daily, especially after heavy use after every service period.

PLEASE NOTE: *The following oils are widely used for frying in commercial restaurant kitchens from the numerous oils available on the market. Some oils are very heat resistant, while others become toxic if overheated just once.*

Peanut Oil: it is good to fry every day with the same oil but should be used only for a few hours per day. Nevertheless, it can be contaminated with carcinogenic byproducts of mold fungi if processed from moldy peanuts.

Sunflower Oil: can be used to fry the whole day continuously with the same oil. But after one day of extensive use, it might have to be replaced.

Coconut Fat: is suitable for frying if it is not hydrogenated (hardened). Hydrogenated fats and oils are extremely dangerous for health and should not be used in commercial kitchens. The unnatural content of harmful trans-fatty acids and traces of metallic nickel, which function as a catalyst in the hydrogenation process; so are shortenings and margarine; they too usually contain hydrogenated fats.

Clarified Butter: It is perfect for frying, but it is more expensive than most oils.

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Table 1 shows some of the approximate value for smoke points of various common fats

Fat	Smoke Point °F	Smoke Point °C
Avocado oil	520°F	271°C
Safflower oil	510°F	266°C
Soybean oil	495°F	257°C
Extra light olive oil	468°F	242°C
Olive pomace oil	460°F	238°C
Refined corn oil	450°F	232°C
Refined high-oleic sunflower oil	450°F	232°C
Refined peanut oil	450°F	232°C
Refined Safflower oil	450°F	232°C
Refined soy oil	450°F	232°C
Semi refined sesame oil	450°F	232°C
Semi refined sunflower oil	450°F	232°C
Peanut oil	440°F	227°C
Sunflower oil	440°F	227°C
Hazelnut oil	430°F	221°C
Almond oil	420°F	216°C
Cottonseed oil	420°F	216°C
Grapeseed oil	420°F	216°C
Virgin olive oil	420°F	216°C
Sesame oil	410°F	210°C
High quality (low acidity) extra virgin olive oil	405°F	207°C
Refined canola oil	400°F	204°C
Semi refined walnut oil	400°F	204°C
Macadamia nut oil	390°F	199°C
Lard	370°F	182°C
Vegetable shortening	360°F	182°C
Butter	350°F	177°C
Coconut oil	350°F	177°C
Semi refined canola oil	350°F	177°C
Semi refined soy oil	350°F	177°C
Unrefined sesame oil	350°F	177°C
Hemp seed oil	330°F	165°C
Extra virgin olive oil	320°F	160°C
Semi refined safflower oil	320°F	160°C
Unrefined corn oil	320°F	160°C
Unrefined high-oleic sunflower oil	320°F	160°C
Unrefined peanut oil	320°F	160°C
Unrefined soy oil	320°F	160°C
Unrefined walnut oil	320°F	160°C
Unrefined canola oil	225°F	107°C
Unrefined flaxseed oil	225°F	107°C
Unrefined safflower oil	225°F	107°C
Unrefined sunflower oil	225°F	107°C

Source: (Apostolos & Kiritsakis,1998; ChartsBin, 2011; Guillaume, Terral, & Cornille, 2017; ARS, 2019; CCC, 2019.)

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Olive Oil: contains many mono-unsaturated fatty acids and is good for pan frying but not for the rigors of extensive deep fat frying.

Canola Oil: made from rapeseed, is used extensively in foodservice. There have been many controversies about this product, and its use in commercial kitchens has been reduced.

19. PRODUCE

Classification of Fruit

Fruits can be classified on a botanical basis and for several operational purposes, including nutritional purposes. Some fruits are borne on herbaceous plants and others on woody plants. According to fruit succulence and texture on maturity and ripening, a very common operational way of classifying fruits is fruit succulence and texture. On this basis, there are two basic kinds of fruits-fleshy fruits and dry fruits. However, anatomically, fruits are distinguished by the arrangement of the carpel from which they developed. A carpel is sometimes called the pistil (consisting of a stigma, style, and ovary), the female reproductive structure. Simple fruits develop from a single carpel or sometimes from the fusing together of several carpels. This group of fruits is very diverse. When mature and ripe, the fruit may be soft and fleshy, dry and woody, or have a papery texture. There are three types of fleshy fruits (Tous & Ferguson, 1996; Vaughan & Geissler, 1997).

Fleshy Fruits

Drupe: A drupe may comprise one to several carpels. Usually, each carpel contains one seed. The endocarp (inner layer) of the fruit is hard and stony and is often highly attached to the seed. Examples are cherry, olive, coconut, peach, and plum.

Berry: A berry is a fruit characterized by an inner pulp that contains a few to several seeds but not pits. It is formed from one or several carpels. Examples are tomato, grape, and pepper. Fruits whose skin is leathery and contains oils are classified as citrus fruits such as orange, lemon, and grapefruit. Some berries have a rind, as in watermelon, cucumber, and pumpkin.

Pome: A pome is a pitted fruit with a stony interior. The pit usually contains one seed chamber and one seed. This very specialized fruit type develops from the ovary, with most of the fleshy part formed from the receptacle tissue. Pomes are characteristic of one subfamily of the family Rosacea (rose family). Examples of pomes are apple, pear, and quince.

Dry fruits: Dry fruits are not juicy or succulent when mature and ripe. When dry, they may split open and discharge their seeds (called dehiscent fruits) or retain their seeds (called indehiscent fruits).

Dehiscent Fruits: A fruit developed from a single carpel may split from only one side at maturity to discharge its seeds. Such fruit is called a follicle. Examples are columbine, milkweed, larkspur, and magnolia. *(Warning: many chefs like to experiment with new kinds of foods; however, these kinds of fruits especially, if not cooked properly, can be poisonous, therefore before putting such items on the menu, one should seek the advice of an expert)*. Sometimes, the ovary's splitting occurs along two seams, with seeds borne on only one of the spilled ovaries' halves. This kind of fruit is called a legume, such as a pea, bean, and peanut. In the third type of dehiscent fruit, called silique or silicle, seeds are attached to a central structure such as radish and mustard.

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Indehiscent Fruits: Some indehiscent fruits may have a hard pericarp or outer shell, from the top to the end of the fruit. This stony fruit wall is cracked to reach the seed. Such fruits are called nuts, as found in chestnut and hazelnut.

CLASSIFICATION OF VEGETABLES

Vegetables may be classified based on life cycle: annuals, biennials, or perennials and their edible or economic parts of the plant use, its climatic and geographic adaptation, and botanical features (Vaughan & Geissler, 1997.)

Annual

Most vegetable garden crops are true annuals, such as corn, or are cultivated as annuals, such as tomato. These plants are selected for either fall or summer cultivation. They require a few weeks to several months to maturity, depending on the cultivar.

Biennial

Few popular vegetable garden crops are biennials, and, even then, they are frequently cultivated as annuals and replanted each season. Examples are sugar beet and carrot.

Perennial

Whenever farmers cultivate perennial vegetables, they strategically plant them so as not to interfere with seasonal land preparation activities needed for planting annual crops. These plants may be pruned to control growth or to remove dead tissue. Examples are asparagus and horseradish.

Edible or Economic Parts

Vegetables may be operationally classified according to the parts of the plant harvested for food or other uses.

Pods

Pods are legumes that are harvested prematurely, cooked, and eaten with the seeds inside. When harvesting is delayed, pods develop fiber and become stringy and undesirable for fresh use. Examples are green bean and okra.

Roots

Sometimes primary plant parts (stem, root and leaf) may become modified as storage organs for food. Roots may become enlarged because of the accumulation of stored food. The roots are dug and eaten baked, boiled, or fried. An example is a sweet potato.

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Bulbs

Like roots, bulbs are modified stems and leaves, as found in onions. The stem is highly compressed to form what is called a basal plate, while the leaves are storage organs.

Tubers

Tubers look like modified roots. The difference between them is that tubers are swollen stems, whereas roots are swollen roots. Sample tuber vegetables are taro, jicama, potato, cassava, yam, Jerusalem artichoke, and sweet potato.

Greens

Greens are vegetable crops whose leaves are usually picked at tender stages to be used for food. The leaves are generally cooked before being eaten.

Leafy Vegetables

A leaf vegetable is one that is grown for its edible leaves. They are called potherbs, green vegetables, greens, or leafy greens. Most leaf vegetables are very versatile and can be prepared raw or cooked, in salads, as vegetable side dishes, or added to recipes. ***Leaf vegetables include*** Amaranth, Arugula, Beet greens, Bitter leaf, Bok choy, Broccoli Rabe, Brussels sprout, Cabbage, Celery, Carrot, Chard, Chicory, Chinese cabbage, Chrysanthemum leaves, Collard greens, Cress, Dandelion, Eggplant, Endive, Epazote, Fat hen, Fiddlehead, Kai-lan, Kale, Komatsuna, Lettuce, Mizuna greens, Mustard greens, Pea sprouts, pea leaves, Plantain, Radicchio, Seakale, Sorrel, Spinach, Swiss chard, Turnip greens, Watercress.

Fruit Vegetables

In chef's terms, fruit can be a vegetable such as a tomato; however, a vegetable cannot be a fruit. Most "fruit" vegetables are less sweet than just fruit because they have much less fructose, the natural sweetener found in fruit. ***Fruit vegetables include*** Avocado, Bell pepper, Bitter melon, Bitter gourd, Cucumber, Eggplant, Pumpkin, Squash, Sweet corn, Sweet pepper, Tomatillo, Tomato, Winter melon, Gherkin, Zucchini.

Sea Vegetables

Used mostly in Asian cooking and specifically in Japanese cuisine, although seaweed or many species of algae are consumed in most countries where seafood consumption is predominant. Aonori, Carola, Caulerpa or Seaweed, Dabberlocks or badderlocks, Dulse, Gim, Hijiki, Kombu, Laver, Mozuku, Nori, Ogonori, Sea cucumber, Sea grape, Seakale, Sea lettuce, Wakame.

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Legumes

The term "legume" refers to a plant from the *Fabaceae* (or *Leguminosae*) family, the third-largest flowering family in the world. Trailing only orchids and sunflowers in number, there are nearly 20,000 species of legumes. Legumes are a class of vegetables that includes beans, peas, and lentils such as Beans. Adzuki, Black, Black-eyed, Broad Beans, Butter, Calico, Cannellini, Chickpeas (garbanzo), Edamame, Great Northern, Italian, Kidney, Lentils, Lima Beans, Mung, Navy, Pinto, Soy, Split Peas, White.

Mushrooms

Mushrooms are widely used in culinary preparations across the world. However, many species are poisonous. Chefs should be careful when using wild mushrooms picked by non-professionals and purchased from non-traditional suppliers. Also, mushrooms' consumption with many gills can cause digestion problems because they contain a large amount of cadmium, which is hard to metabolize by the liver. Therefore, the selection and use of mushrooms should be carefully made when planning menus. ***Mushrooms include*** cultivated mushroom, Honey mushroom, Boletus, Truffle (winter, summer, white), Morel, Chanterelle, Orange agaric, Oyster mushroom, Shiitake mushroom, Straw mushroom, Wood ear mushroom.

20. MEATS

In the commercial foodservice sector, various meat categories are used in the preparation of meals. Meat products vary depending on the kind of animal and how it is handled.

The inspection and grading of meat and poultry are two separate programs within the U.S. Department of Agriculture (USDA). Inspection for wholesomeness is **mandatory** and is paid for with public funds. Grading for quality is **voluntary**, and the service is requested and paid for by meat and poultry producers/processors. However, there are mandatory inspections.

Mandatory Federal Inspection

American consumers can be confident that the Food Safety and Inspection Service (FSIS), the public health agency in the USDA, ensure that meat and poultry products are safe, wholesome, and correctly labeled and packaged. Under the Federal Meat Inspection Act and the Poultry Products Inspection Act, FSIS inspects all raw meat and poultry sold in interstate and foreign commerce, including imported products.

The Agency monitors meat and poultry products after they leave federally inspected plants. In addition, FSIS monitors State inspection programs, which inspect meat and poultry products sold only within the State in which they were produced. The 1967 Wholesome Meat Act and the 1968 Wholesome Poultry Products Act require State inspection programs to be "at least equal to" the Federal inspection program. In states that choose to end their inspection program or cannot maintain this standard, FSIS must assume responsibility for inspection within that State.

FSIS does allow under a final rule State-inspected establishment with 25 or fewer employees to ship meat and poultry products in interstate commerce because of a new voluntary cooperative agreement program. Meat and poultry products produced under the program that have been inspected and passed

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by designated State personnel will bear an official Federal mark of inspection and will be permitted to be distributed in interstate commerce. FSIS will provide oversight and enforcement of the program.

In these efforts to protect the safety and integrity of meat and poultry products, FSIS works with many other agencies, including other agencies within the USDA, State inspection programs, the Food and Drug Administration of the U.S. Department of Health and Human Services, and the Environmental Protection Agency.

Since the Federal inspection program began at the turn of the twentieth century, the meat and poultry industries have grown and changed significantly. In the early 1900's, most meat came from local slaughter plants and was used locally. Further processing was limited to simple products such as sausages. Today, however, a wide variety of meat and poultry products are on the market. Animals are slaughtered, and meat is processed in sophisticated, high-volume plants. The meat is often shipped great distances to reach consumers.

As the industry changed, FSIS began changing inspection. In earlier days, the inspectors' primary concern was animal diseases, and they relied almost exclusively on visual inspection of animals, products, and plant operations. However, refinements in animal production reduced disease and created a more homogeneous animal population. Thus, today's inspectors' concerns are broader and include unseen hazards such as microbiological and chemical contamination.

The requirements in the "Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems" final rule are designed to minimize the likelihood of harmful bacteria contaminating raw meat and poultry products. However, some bacteria could be present and might become a problem if meat and poultry are not handled safely. The USDA requires that safe handling instructions be put on all packages of raw and not fully cooked meat and poultry to assist food handlers.

Figure 1. Sample safe handling of meat instructions
Source: *USDA, (2020). (United States Department of Agriculture)* USDA Food Safety and Inspection Service



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FSIS's HACCP Systems mandate measures to target and reduce the presence of pathogenic organisms in meat and poultry products. These measures include FSIS testing to verify pathogen reduction performance standards are being met, plant microbial testing to verify process control for fecal contamination, written sanitation standard operating procedures (SOPs), and a mandatory HACCP system in all meat and poultry plants. The implementation of HACCP by FSIS helps ensure the safety of the meat, poultry, and egg products supply. To learn more, visit FSIS's Web page on HACCP at https://www.fsis.usda.gov/wps/portal/fsis/home (USDA, 2020.)

Every establishment is required to reassess the adequacy of its HACCP plan at least annually and whenever any changes occur that could affect its hazard analysis or alter its HACCP plan. The establishment may reassess its HACCP plan, or plans, any time during the calendar year to meet the annual reassessment requirement.

Meat that has been federally inspected and passed for wholesomeness is stamped with a round purple mark. The dye used to stamp the grade and inspection marks onto a meat carcass is made from a food-grade vegetable dye and is not harmful. (The exact formula is proprietary/owned by the maker of the dye.) The mark is put on carcasses and major cuts. After trimming, the mark might not appear on retail cuts such as roasts and steaks. However, meat that is packaged in an inspected facility will have an inspection mark that identifies the plant on the label.

Figure 2. Sample inspection mark on raw meat
Source: *USDA (2020) (United States Department of Agriculture)* USDA Food Safety and Inspection Service

	**Inspection mark on raw meat**
	**Inspection mark on raw poultry**
	**Inspection mark on processed products**

Voluntary Federal Inspection

For animals not covered under mandatory inspection (i.e., buffalo, rabbit, reindeer, elk, deer, antelope) is handled under the Agricultural Marketing Act. This Act gives the Secretary of Agriculture the authority to take whatever steps are necessary to make the product marketable.

The FSIS inspector must know about that species, and the carcass must fit available equipment in the plant. Businesses that request voluntary inspection must pay an hourly fee for the service, whereas mandatory inspection is funded by tax dollars. For voluntary inspection, the mark of inspection (as ref-

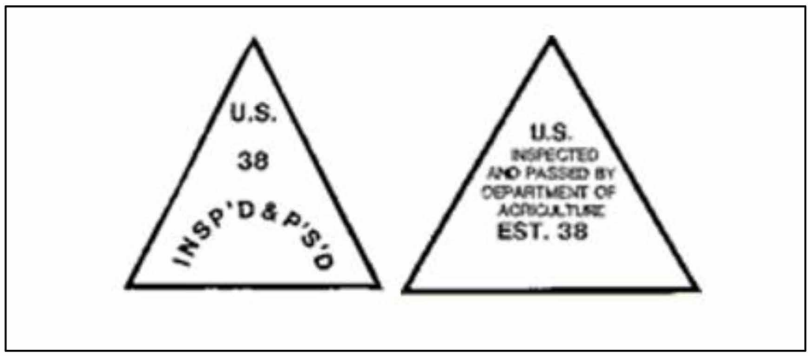
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erenced in 9 CFR 352.7-Marking Inspected Products) illustrates the mark to be the shape of a triangle for exotic species.

For application to exotic animal carcasses, primal parts and cuts therefrom, exotic animal livers, exotic animal tongues, and exotic animal hearts. The establishment number of the official exotic animal establishment where the product is prepared shall be used in lieu thereof.

For the inspection of rabbits, as per 9 CFR 354.63, the mark of inspection is the same as the inspection mark for raw poultry.

Figure 3. Voluntary Inspection mark
Source: *USDA (United States Department of Agriculture)* USDA Food Safety and Inspection Service



GRADING

After meat and poultry are inspected for wholesomeness, producers and processors may request that they have products graded for quality by a licensed Federal grader. The USDA's Agricultural Marketing Service (http://www.ams.usda.gov) is the agency responsible for grading meat and poultry (USDA, 2020). Those who request grading must pay for the service. Grading for quality means the evaluation of traits related to tenderness, juiciness, and flavor of the meat, and, for poultry, a normal shape that is fully fleshed and meaty and free of defects.

The USDA grades are based on nationally uniform Federal standards of quality. No matter where or when a consumer purchases graded meat or poultry, it must have met the same grade criteria. The grade is stamped on the carcass or side of beef and is usually not visible on retail cuts. However, retail packages of beef and poultry will show the U.S. grade mark if they have been officially graded. According to the Truth in Labeling Law, the grade symbol and wording are no longer copyrighted; it is illegal to mislead or misrepresent the shield or wording.

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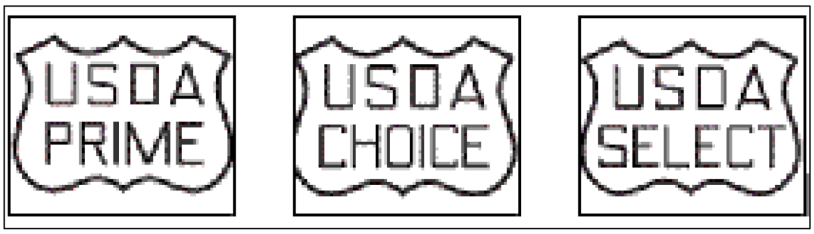
USDA GRADES FOR MEAT AND POULTRY

Beef

Beef is graded as whole carcasses in two ways:

- **quality grades** - for tenderness, juiciness, and flavor; and
- **yield grades** - for usable lean meat on the carcass. There are eight quality grades for beef. Quality grades are based on the amount of marbling (flecks of fat within the lean), color, and maturity.

Figure 4. Quality Grades and Stamps
Source: *USDA, (2020). (United States Department of Agriculture)* USDA Food Safety and Inspection Service



Prime grade is produced from young, well-fed beef cattle. It has abundant marbling and is generally sold in restaurants and hotels. Prime roasts and steaks are excellent for dry-heat cooking (broiling, roasting, or grilling).

Choice grade is high quality but has less marbling than Prime. Choice roasts and steaks from the loin and rib will be very tender, juicy, and flavorful and are, like Prime, suited to dry-heat cooking. Many of the less tender cuts, such as those from the rump, round, and blade chuck, can also be cooked with dry heat if not overcooked. Such cuts will be most tender if "braised" — roasted or simmered with a small amount of liquid in a tightly covered pan.

S**elect grade** is very uniform in quality and normally leaner than the higher grades. It is tender, but, because it has less marbling, it may lack some of the juiciness and flavor of the higher grades. Only the tender cuts (loin, rib, sirloin) should be cooked with dry heat. Other cuts should be marinated before cooking or braised to obtain maximum tenderness and flavor.

Rational:

- **Standard and Commercial grades** are frequently sold as ungraded or as "store brand" meat.
- **Utility**, **Cutter**, and **Canner** grades are seldom if ever, sold at retail but are used instead to make ground beef and processed products. Note: Grades such as Prime, Choice, and Select are not acceptable terms for raw cuts of pork or poultry.

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Yield grades range from "1" to "5" and indicate the amount of usable meat from a carcass. Yield grade 1 is the highest grade and denotes the greatest ratio of lean-to fat; yield grade 5 is the lowest yield ratio. Though yield grades are not something consumers normally see, they are most useful when purchasing a side or carcass of beef for the freezer.

Veal/Calf

There are five grades for **Veal/Calf**: **prime**, **choice**, **good**, **standard**, and **utility**.

Prime and **choice** grades are juicier and more flavorful than the lower grades. Because of the animals' young age, the meat will be a light grayish pink to light pink, firm, and velvety. The bones are small, soft, and quite red. Cuts such as chops can be cooked by the dry-heat methods of roasting, grilling, or broiling.

Lamb

There are five grades for lamb. Normally only two grades are found at the retail level —**prime** and **choice**. Lower grades of lamb and mutton (meat from older sheep)— **good**, **utility**, and **cull** — are seldom marked with the grade. Lamb is produced from animals less than a year old. Since the quality of lamb varies according to the age of the animal, it is advisable to buy lamb that has been USDA graded.

- **Prime grade** is very high in tenderness, juiciness, and flavor. Its marbling enhances both flavor and juiciness.
- **Choice grade** has slightly less marbling than prime but still is of very high quality. Most cuts of prime and choice grade lamb (chops, roasts, shoulder cuts, and leg) are tender and can be cooked by the dry-heat methods (broiling, roasting, or grilling). The less tender cuts — breast, riblets, neck, and shank — can be braised to make them more tender.

Pork

Pork is not graded with USDA quality grades as it is generally produced from young animals that have been bred and fed to produce more uniformly tender meat. Appearance is an important guide in buying fresh pork. Look for cuts with a relatively small amount of fat over the outside and with meat that is firm and grayish pink in color. For best flavor and tenderness, meat should have a small amount of marbling.

Pork's consistency makes it suitable for a variety of cooking styles. Chops can be prepared by pan broiling, grilling, baking, braising, or sautéing. Ribs can be braised, roasted, or grilled. Slow cooking yields the most tender and flavorful results. Tenderloins are the most tender and tasty cut of pork.

Poultry

The USDA grades for poultry are **A**, **B**, and **C**.

Grade A is the highest quality and the only grade that is likely to be seen at the retail level. This grade indicates that the poultry products are virtually free from defects such as bruises, discolorations, and feathers. Bone-in products have no broken bones. There are no tears in the skin or exposed flesh that could dry out during cooking for whole birds and parts with the skin on, and a good covering of fat under the skin. Also, whole birds and parts will be fully fleshed and meaty.

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The U.S. grade shield for poultry may be found on the following chilled or frozen ready-to-cook poultry products: whole carcasses and parts, as well as roasts, tenderloins, and other boneless and/or skinless poultry products that are being marketed. There are no grade standards for necks, wingtips, tails, giblets, or ground poultry.

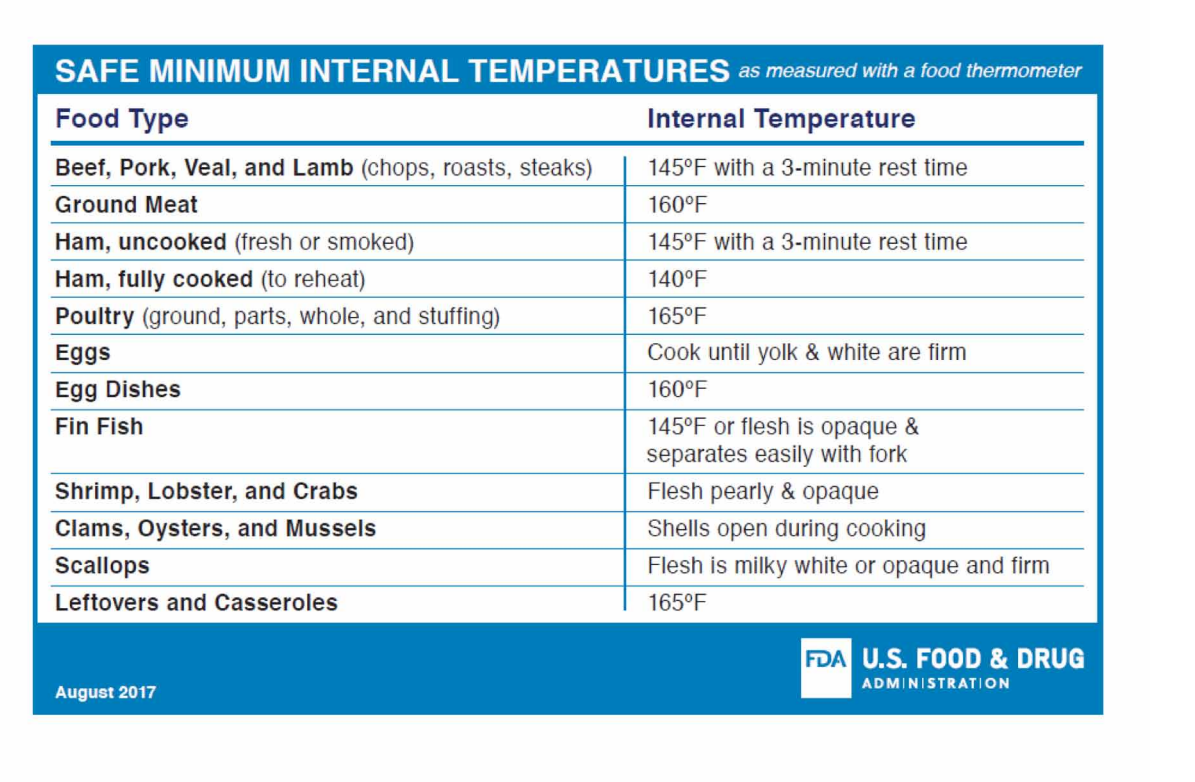
Grades B and C poultry are usually used in further-processed products where the poultry meat is cut up, chopped, or ground. If sold at retail, they are usually not grade identified.

Cooking Food Safely

Following four simple steps, one can help keep food safe and avoid food poisoning.

1. **CLEAN**. Wash hands and surfaces often.
2. **SEPARATE**. Separate raw meats from other foods.
3. **COOK**. Cook food to the right temperature.
4. **CHILL**. Refrigerate food promptly.

Figure 5. Cooking food safe at the required temperature
Source: *USDA, (2020). (United States Department of Agriculture)* USDA Food Safety and Inspection Service *and Agricultural Marketing Service (AMS) Web site at www.ams.usda.gov/*



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21. FISH AND SEAFOOD

In this section, we discuss the topic of fish and seafood as an essential category of restaurant menus and their contribution to the total food revenues. In this context, it is imperative to include the topic of fish sustainability. With the evolution of mass-production and the ease of global commercial transportation within the global commerce, fish and seafood can now be imported and exported to and from any country that engages in fish and seafood production and sales and has mutual commercial agreements trade and exchange.

However, overfishing concerns have created serious fears about ecological problems worldwide as many species are in danger of extinction. As a result, many governments worldwide and mainly the U.S. impose a fishing moratorium and promote fish farming to protect the natural ecological environment of marine life and assure that there will be continuous supply in the future. Thus, fish and seafood overfishing has become an important economic and ecological issue of global proportion being argued and even boycotted by concerned wildlife activists. Millions of people depend on fish for their livelihoods, particularly in the small-scale fisheries sector. Besides, fish is an essential source of food, and in some coastal communities, the larger part of protein intake is derived from fish.

All stakeholders agree that this vital resource is protected to meet food requirements and sustain fishers' livelihoods into the future. Globally, a highly significant number of fish stocks are now in decline or fast approaching their natural limits. Overfishing and indiscriminate fishing practices have become an ongoing threat to fish stocks' continued viability and supporting ecosystems. This development poses serious social, environmental, and economic consequences for communities, especially in developing countries, where large populations are dependent on fisheries for their day-to-day living.

Therefore, fish farming or "aquaculture" is now being promoted worldwide, where fish and seafood are an essential component of the country's economic system and as a source of external revenue. As a result, many organizations have emerged to protect marine life and mostly edible species. For example, the Marine Stewardship Council (MSC) is a global, non-profit, and independent organization working to reverse the decline in global fish stocks by using market incentives.

The MSC's fishery eco-labeling and certification program allows chefs to identify and support environmentally responsible fishing practices through purchasing decisions. Support for sustainable fishing in the marketplace leads to economic benefits for well-managed fisheries and long-term sustainability of fisheries, ensuring secure livelihoods and continuous availability of fish for food. For example, Chefs throughout Europe not only look beyond price and quality when choosing fish for their menus but also for contribution to aid the effort of programs established by organizations such as the MSC.

Thus, foodservice establishments in the UK, Germany, and Sweden were the first to benefit from the opportunity and promote sustainable products in their foodservice operations. The initiative includes a diverse list of operations from school canteens to Michelin-starred restaurants and even fast-food chains. The MSC seal of approval can be found on menus and marketing promotional materials (MSC, 20200.)

Most fish and seafood products promoted in restaurants today are from farmed sources or aquaculture product suppliers. Again because of the notion of overfishing but also because of high labor cost and loss in product quality and consistency, fish products sizing after fishing have contributed to the increased production of aquaculture fish and seafood.

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Definition of Aquaculture

Within this context, *aquaculture is defined as "the process of farming or growing animals and plants in a controlled water environment."* Due to the increasing global demand, edible farm-raised aquatic products are the fastest growing sector in world food production. The National Oceanic and Atmospheric Administration (NOAA) projects that the world will need 40 million tons of farm-raised products per year by 2030 to meet the increasing demand for seafood. Experts argue that the expansion in fish farming is to supplement the insufficient wild seafood harvests and play an important role in meeting an increasingly health-conscious and growing population's dietary needs (NOAA, 2020)

There are advantages and disadvantages to buying aquaculture fish. Some aquaculture advantages include the control of uniform size and quantity of their product. The supply of the product can be more natural to maintain to help achieve a desirable price structure. Selective breeding and feeding can be used to increase disease resistance and growth rates. However, because these products live in a controlled environment, they feed on strictly regulated feed products added to the waters by fish farmers; therefore, the fish may have a non-natural flavor when processed. Furthermore, because the fish live in an overpopulated environment, they cannot freely swim and nourish themselves using their instinct.

Consequently, the tails, fins, and other body parts are either underdeveloped or malformed or even nonexistent. For example, this is the main criteria used in identifying whether a fish such as salmon was farm-raised or was caught wild. Typically, a farm-raised salmon has both underdeveloped and malformed tail and fins. For the discriminating chef and restaurant patron, this poses a clear disadvantage in quality and taste.

The Principal Fish Species Farmed in Aquaculture Farms Include:

Amberjacks, Blue Crab (hard), Blue crab (soft), Dolphin, Flounders, Golden Tilefish, Grouper, King Mackerel, Mullet, Oysters, Pompano, Shark, Shrimp, Shrimp, rock, Snapper, Spanish mackerel, Spiny Lobster, Stone Crab Claws, Swordfish, and Tuna (NOAA, 2020).

According to the National Marine Fisheries Service Regional Councils and United Nations Food and Agricultural Organization, many fish species are overfished in the United States and around the world. That chefs should be mindful when purchasing seafood and when writing menus and describing their seafood sources; this could cause controversial perception because the restaurant may not be contributing to fish sustainability. The Food and Drug Administration (FDA) catalogs about 94 species of edible fish and seafood in the U.S. A complete list of informational material is available on the FDA website (FDA, 2020).

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Commonly Known Fish and Seafood Species in Foodservice

Table 2. Fish and seafood classification chart

Seawater						Freshwater
Flat (usually cold water)	**Round (cold water)**	**Round (warm water)**	**Shellfish/ crustaceans**	**Mollusks and Cephalopods (includes clams)**	**Sea vegetables**	**** (also a Seawater fish)**
Dover Sole	Cod	Barracuda	Lobster	Squid	Samphire	Salmon **
Sand Dab	Catfish	Barramundi	Craw fish	Cattle fish	Seaweed	Trout
Plaice	Haddock	Sea Bass	Cray fish or spiny or rock lobster	Octopus	Red dulse	Brook char
Lemon Sole	John Dory	Sea Brim	Langoustines/scampi	Clams	Carrageen	Arctic char
Halibut	Pollack	Snapper	King crab	Oysters	Nori	Pike
Turbot	Whiting	Moonfish	Snow crab	Mussels	Kombu	Striped bass
Skate	Mackerel	Pomfret	Dungeness crab	Scallops	Sea lettuce	Tilapia
	Herring	Mahi-Mahi	Shrimp/prawns		Wakame	Brim
	Sardines	Marlin			Sea spaghetti	Carp
	Anchovies					Catfish
						Perch

Source: The seafood training academy (2020) http://www.seafoodacademy.org/home.html

Chart recreated by the author from information accessed on the website

The difference between flatfish and round fish are seen from an economic point of view

Flatfish

All flatfish are born round, and then as they grow, the eyes move to either the left or right side of the fish so they can see all around when lying on the seabed. Left-eye fish are called sinistral (Turbot, Brill, and Megrim), and right-eye fish are called dextral (all others such as sole, halibut, skate). They all have dark skin on the ‘eye side’ and white on the ‘blind side’ except Greenland Halibut, which is dark on both sides. Filets from flatfish do not possess any pin bones and have one pintail either round, semi-round, cylindrical, or triangular fanned tail. Flatfish have four fillets, one of which is extremely small after cleaning, the part that covers the intestines. Flat fish are considered bottom feeders, and therefore, they are scavengers.

Round Fish

Round fish exist in all waters, warm, cold, and fresh. This species includes trout, bass, cod, pike, snapper, and salmon, which have a backbone along the upper body with a filet located on both sides. Round fish have an eye situated on each side of their head and consist of 2 filets. Round fish are considered top feeders and are not considered scavengers. Round fish usually have a two-pin tail like two isosceles

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triangles; however, if the round fish is farm-raised, the tail may be malformed and may not reflect the natural shape described above.

Based on the above description, a chef must consider the yield advantage between the two types of fish when preparing menus such as for many people as in banquet. A round fish offers a much better and consistent yield in the sense that it has two equal filets, and it can be portioned in two or more different cuts: steaks (bone-in), filets (boneless), darne (boneless). A flatfish has four filets; however, each one is of varying size and shape and may not offer the same flexibility as a round fish when serving it as a set menu for many people. This, of course, does not apply for á la carte orders since the chef can manipulate the cooking process and presentation of single food order.

Fish Preparation Terminology

1. Butterflying: shrimp, lobster
2. Cleaning and pulling squid, cuttlefish, other mollusks
3. Peeling: shrimp, scampi, other shellfish
4. Filet and skinning: flatfish, round fish
5. Scaling, gutting, cleaning: round and flatfish
6. Cleaning and de-bearding: mussels, oysters
7. Shucking: clams, oysters
8. Removing meat from a cooked lobster, crab, other crustaceans

DERIVATIVE SEAFOOD PRODUCTS

Caviar

Caviar is the unfertilized eggs of a female sturgeon fish such as the Sterlet or Astra can. There are several classifications of caviar; however, they follow into two categories: red and black. Its taste, color, consistency, size of eggs, and caviar price depend on the species of fish used for that specific classification. Black caviar is obtained from sturgeon fishes, and red caviar is obtained from salmon fishes. Imperial or golden caviar is obtained from a rare albino beluga fish, usually 60 years of age or older; therefore, the golden color derives from the fish's pigmentation, hence amber fish. The golden caviar was once reserved only for the Tzar. The red caviar is obtained mainly from the salmon species Keta (dog salmon) and other species such as pink salmon, red salmon, king salmon, Coho salmon, and salmon trout. Yellow caviar is obtained from trout. Caviar is processed with the solution of sea salt with the addition of some preservatives. The quality of caviar depends on the fish species, method of preparation, and the care taken during the preparation stage.

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Caviar Grading

• The first grade of Caviar is Malossol.

Caviar connoisseurs prefer fresh malossol, which means lightly salted and contains a maximum of 5 percent sea salt by weight. In some countries, the food preservative borax is added to caviar with low salt content; however, borax is illegal in the U.S.

A label on the side of the tin indicates the number of fish used for the batch, the number of tins filled with roe from the same fish, and the color classification of the caviar: light, medium, or dark.

- **The second grade** is salted caviar, which contains up to 8 percent of sea salt by weight. This type of caviar is generally destined for the North American market to ensure that the eggs are well preserved.
- **The third grade** is pressed caviar, made from soft, broken, or over-mature eggs. The eggs are brined in a heavy salt solution, and by shaking the containers, the caviar will release the milky by-product. The eggs are then placed in cheesecloth and later in small oak barrels coated with paraffin, then pressed to remove the excess liquid.
- **The last grade** is pasteurized caviar: it is vacuum-packed in small glass jars three to four hours after the fish has reached the processing plant. The pasteurization process, which involves heating the eggs at high temperature for a few minutes, alters the flavor of the caviar; however, it prolongs its shelf life.

Types of Caviar Available on the Market

- **Golden caviar:** the eggs of the albino Beluga sturgeon or those of an Oscietre sturgeon, which is at least 60 years of age. The flavor of sturgeon eggs is exceptionally delicate.
- **Beluga:** Beluga eggs are the largest of all sturgeons and light grey to nearly black with a fine silky skin. The flavor is delicately and intensively fishy.
- **Oscietre:** this species of sturgeon produces the broadest range of egg color. The eggs fade from dark golden to pale amber as the fish ages and tend to have a delicate nutty flavor.
- **Sevruga:** these are the smallest species of sturgeons whose eggs are grey-black and are of fine grain. They taste distinctively salty. Sevruga is usually the least expensive on the wholesale market; however, its retail price is high due to its distinctive flavor.
- **Sterlet:** the Sterlet sturgeon is smaller than the average Sevruga, and the eggs have similar qualities well appreciated by connoisseurs.
- **Pasteurized caviar:** after putting the Caviar into glass jars and sealed, it is then pasteurized at a temperature of about 140°F. The jars are then labeled in the traditional colors as known for decades. Sevruga marked with a red label, Oscietre with a yellow label, and Beluga with a blue label. Pasteurized caviar has a shelf life of up to a year unrefrigerated, but once opened, it must be consumed within 2-3 days before it becomes spoiled.
- **Pressed caviar:** this style of caviar is preserved very salty, and it has a strong fishy taste. The content is usually made from either immature or overripe Sevruga or Oscietre roe or roe that has been damaged during processing. Before refrigeration existed, pressed caviar was very expensive because it could not be preserved for an extended period. The Russian term for pressed caviar

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is payusnaya ikra. Pressed caviar is not readily available outside Russia; however, connoisseurs claim that it is a favorite caviar style due to its dense - strong fishy flavor.

- **Schipp caviar:** Schipp is a crossbreeding of Sevruga and Sterlet sturgeons. It is usually packaged and marketed as either Sevruga or Oscietre, depending on the egg size, although its eggs are often less firm than those of its genetic parents.

Figure 6. Sample Caviar styles
Source: *La Maison du Caviar, 145 Avenue de Tervuren, 1150 Brussels, Belgium*



Caviar today is produced in Russia, Iran, U.S., France, Spain, and Italy; however, the most prestigious remains the Russian and Iranian caviar.

Table 3. Caviar size tins or jars

Jar/Tin	1 oz/28 gr.
Jar/Tin	2 oz/56 gr.
Jar/Tin	3.5 oz/100 gr.
Tin	4.5 oz/125 gr.
Tin	7 oz/200 gr.
Tin	8.75 oz/250 gr.
Tin	16 oz/450 gr.
Tin	17.5 oz/500 gr.
Tin	35 oz/1000 gr.

Source: La Maison du Caviar, 145 Avenue de Tervuren, 1150 Brussels, Belgium

How to Serve Caviar

Caviar should be served in its original container set on a bed of crushed ice, the lid removed and placed slightly over the age of tin, showing the color of the label to identify the type of caviar being served. Use mother of pearl caviar cutlery, consisting of a spoon, a little shovel, and a knife. The traditional accompaniment is a hardboiled egg whose yolk and white are grated separately, sour cream, finely chopped white onions, blinis (buckwheat pancakes), and chilled vodka.

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22. CHEESE

Cheese is a product of pure, fresh milk, cream, or milk and cream mixture. The milk to make the cheese can be from cow, sheep, goat, or other animals, like buffalo. It is made by first pasteurizing the milk, curdling it with the addition of bacteria and rennet. The solid portion "crud" is separated from the liquid portion "whey." The curd is then processed according to the type of cheese being made. It is then put into molds to ripen and age. The character, texture, and flavor are dependent on the land on which the cattle graze and the types of feeds. The method of manufacture could also be determinant.

The cheese can be highly processed or simply fermented. While high in proteins, cheese can be low or high in fat and low or high in water content. The lower the percentage of the water, the harder or firmer the cheese is. The higher the percentage the fat is, the higher the solids found inside. Double-crème and triple-crème cheeses are cheeses with high-fat content. Cheese could have as much as 60% to 75% fat content, meaning that cheese with a 60-75% fat content has no liquid content, such as hard Parmesan cheese. However, the fat content is measured from dry matter only, meaning after the amount of water has been separated.

Aged cheese has more pronounced flavors, and in some cases, has a depth of color and aroma not found in the young cheeses of the same variety. Fresh cheeses are usually consumed or stored for immediate usage. Cheese such as cottage cheese has a short shelf life, while hard cheeses, if kept whole with the rind uncut, can keep for an extended period, often for several months. Cheese is one of the few food items that can be served with any courses, as an appetizer, dessert, garnish, and stuffing, accompaniment, as an ingredient, or as a main dish. Cheese that is served as the main dish is generally served at room temperature, while fresh cheese such as mozzarella is served chilled.

Each country produces a variety of cheeses with European countries leading on top, such as Holland, France, Italy. In the U.S., the USDA catalogs about 400 different types of cheeses, many made in the U.S., and others are imported. Cheeses are divided into different categories, which could vary from country to country. Some of the most popular cheese types on the market are:

1. Fresh: Cottage, Ricotta and farmer cheeses
2. Quick aged: Farmhouse Cheddar, Camembert, Haloumi
3. Aged: Sharp Cheddar, Bleu, Parmesan
4. Cow: Camembert, Gorgonzola, Asiago
5. Goat: Chevre, Caprino, Aragon
6. Sheep: Pecorino Romano, Manchango, Roquefort
7. Water Buffalo: Mozzarella di Bufala, Borelli, Toma
8. Very Soft: Mascarpone, Neufchâtel, Fromage Blanc
9. Soft: Brie, Limburger, Feta
10. Semisoft: Baby Swiss, Butterkase, Mysost
11. Semihard: Brick, Edam, Gouda
12. Hard: Parmesan, Stilton, Romano

The American Cheese Society Defines American Cheese Styles as Follows

The types of cheeses produced in the Americas continue to grow and expand, fueled by cheesemakers' market demand and knowledge. The numbers of new cheeses being offered, from specialty, artisanal, and

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farmstead cheesemakers, have dramatically increased over the last decade, resulting in literally hundreds of cheeses being available in supermarkets, specialty stores, farmer's markets, and via the Internet.

Cheeses produced in the United States may be made from cow, goat, or sheep's milk or a blend. Federal Department of Agriculture regulations require that any cheese aged fewer than 60 days be made from pasteurized milk; however, those cheeses aged beyond 60 days may be made from non-pasteurized, or "raw," milk.

Like wines and other fine foods, the best way to decide on your favorites is to taste them, and any good cheese monger will be happy to provide a sample before you buy. And always remember to buy only as much as you can consume within a few days. Most modern refrigerators will dry out cheeses over long periods. The best place to store refrigerated cheese is the vegetable compartment, usually located at the bottom of the refrigerator because of its high humidity level.

The definitions below represent the cheeses' general descriptions to explain the basic characteristics of cheeses found in most U.S. markets.

Fresh Cheeses

The term "fresh" is used to describe cheeses that have not been aged or are very slightly cured. These cheeses have high moisture content and are usually mild and have a very creamy taste and soft texture. These may be made from all types of milk, and in the United States, these cheeses will always be pasteurized. It is always best not to buy fresh cheeses if they are not consumed before the expiration date indicated on the package, as they are highly perishable. Cheeses in the fresh category include Italian Style Mascarpone, and Ricotta, Chevre (from goat), Feta, Cream Cheese, Quark (a German-style cream cheese, and Cottage Cheese.

Soft-Ripened Cheeses

The term "soft-ripened" is used to describe cheeses that are ripened from the outside in, very soft, and even runny at room temperature. The most common soft-ripened cheeses have a white, bloomy rind that is sometimes flecked with red or brown. The rind is edible and is produced by spraying the surface of the cheese with a special mold called *penicillium candidum*, (for Camembert Cheese, the mold used is called *penicillium camemberti)* before the brief aging period. In the United States, soft-ripened cheeses are generally produced from pasteurized milk. Cheeses in the soft-ripened category include brie and camembert styles, triple crèmes, as well as branded cheeses produced throughout North America.

Semi-soft Cheeses

The term "semi-soft" is used to describe cheeses that have a smooth, generally creamy interior with little or no rind. These cheeses are generally high in moisture content and range from very mild in flavor to very pungent. Semi-soft cheeses may be made from pasteurized and raw milk, depending on the aging requirements and the style the cheesemaker creates. Cheeses in the semi-soft category include many blue cheeses, Colby, fontina styles, Havarti, and Monterey Jack. Many washed-rind cheeses fall into this category and are described separately.

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Firm/Hard Cheeses

The terms "firm" and "hard" are used to describe a very broad category of cheeses. Their taste profiles range from very mild to sharp and pungent. They generally have a texture profile that ranges from elastic, at room temperature, to the hard cheeses that can be grated. These cheeses may be made from pasteurized or raw milk, depending on the cheese and the cheesemaker. Cheeses in this category include gouda styles, most cheddars, dry jack, Swiss (Emmen haler) styles, Gruyere styles, many tome' styles, and Parmesan styles.

Blue Cheeses

The term "blue" is used to describe cheeses that have a distinctive blue/green veining created when the *penicillium roqueforti* mold, added during the cheese-making make process, is exposed to air. This mold provides a distinct flavor to the cheese, which ranges from mild to assertive and pungent. Blue cheeses are found in all the categories above, except for fresh cheeses. Blue cheeses may be made from both pasteurized and raw milk, depending on the age of the cheese and the cheesemaker. Blue cheeses may be made in many styles, the most common being the French (Roquefort), Italian (Gorgonzola), and Danish Blue styles.

Pasta Filata Cheese

The term "pasta filata" is applied to a whole family of cheeses, mostly of Italian origin. The pasta filata cheeses are cooked and kneaded, or "spun," as the name implies. This family of cheeses can range from very fresh to hard grating cheeses, depending on the cheese and the producer. The pasta filata family of cheeses includes Italian style Mozzarella, Provolone, and Scamorza.

Natural Rind Cheeses

"Natural rind" cheeses have rinds that are self-formed during the aging process. Generally, no molds or microflora are added, nor is washing used to create the exterior rinds, and those that do exhibit molds and microflora in their rinds get them naturally from the environment. Because most natural rind cheeses are aged for many weeks to develop their flavor as well as the rinds, many natural rind styles cheeses are made from raw milk. Many tome' style cheeses fall into this category, especially the French Tomme' de Savoie and Mimolette, as well as the English Stilton (also a blue) and Lancashire cheeses.

Washed Rind Cheeses

"Washed rind" is used to describe those cheeses that are surface ripened by washing the cheese throughout the ripening/aging process with brine, beer, wine, brandy, or a mixture of ingredients, which encourages the growth of bacteria. The exterior rind of washed-rind cheeses may vary from bright orange to brown, with flavor and aroma profiles that are quite pungent, yet the interior of these cheeses is most often semi-soft and, sometimes, very creamy. Washed rind cheeses may be made from both pasteurized and raw milk, depending on the cheese style and the cheesemaker producing them. Cheeses in this category include some tomme-style cheeses, triple-crème, and semi-soft cheeses, like Epoisses, Livarot, and Taleggio.

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Processed Cheeses

The term "processed" is used to describe cheese by-products made from a combination of natural cheese and added ingredients, such as stabilizers, emulsifiers, and flavor enhancers that are used to create a consistent and shelf-stable product aimed at mass-market consumption. Cheeses in this category include American Cheese, processed cheese spreads, and "cheese flavored" spreads.

Cheese Service

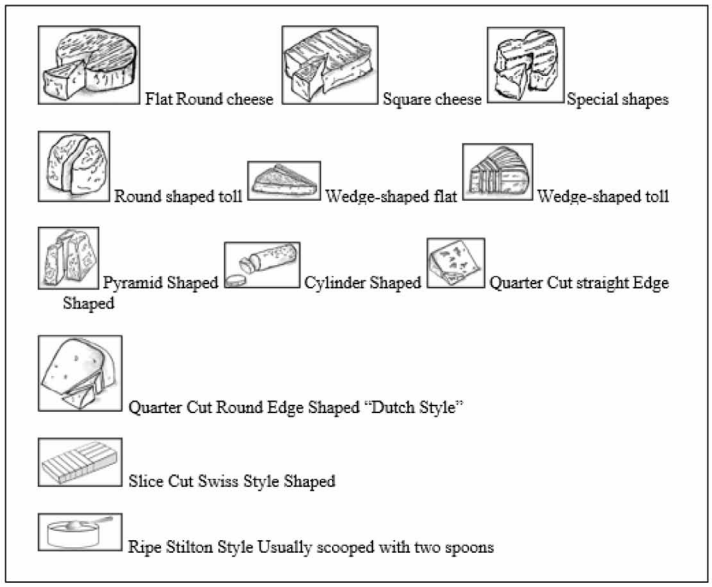
In fine dining, cheese service has always been an art, together with other types of tableside service such as carving, flambé, cocktails, etc.

For luxury hotels and restaurants, the cheese menu is an integral part of the whole offering. Thus, the service staff must be well trained to perform such a service and work together with the sommelier to pair cheese with wine and other beverages.

Cheese from around the world is challenging to find in one single place because some cheese is highly perishable. In France, there are cheese exporters who can ship specialty cheeses all over the world. Cheese is well appreciated and recommended in human nutrition as well.

Cheese helps digestion and tends to neutralize stomach acids. That is why it is traditionally served at the end of the meal to help smooth the transition from the main course to dessert. In Europe, cheese is served before dessert; even the Romans used to eat this way; in fact, in their lavish menus, dessert served at the end was called "***Dulcis in Fundo***." Cheese is served with fruit, especially grapes, crudités, nuts, bread, crackers, and is paired with old red wines, old, fortified wines such as Port wines, and beer. **Light Beer** with a Mild Cheddar or Brick cheese, and **Lager Beer** with Saint Paulin or Friulano (fresh, not aged), **Ale - Mild to Medium** with Cheddar, Emmental, Medium Gouda, and **Dark Beer** with Old Cheddar, and well-aged Provolone or Parmesan.

Figure 7. How to cut cheese



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23. ALCOHOLIC BEVERAGES

An alcoholic beverage is defined as a drink containing *ethanol*, commonly known as *alcoho*l. Alcohol is consumed to some degree in most cultures and societies around the world. The consumption of alcohol has played an important role since its discovery and in the history of man. Alcohol service and consumption is often important at special events in many societies and may be an important aspect of a community's culture. These events are often held at hotels and restaurants, and therefore the Director of Food and Beverage must be fully familiar with all kinds of alcoholic beverages, alcohol consumption, and the law, and must know how to manage the facilities that serve alcohol, from ordering and receiving, to the guest's table.

Brief History of Alcohol

Alcohol has been widely consumed since prehistoric times by people around the world for many reasons: as an integral part of their diet, for hygienic or medical reasons, for its relaxant and euphoric effects, for recreational purposes, for artistic inspiration, as aphrodisiacs, and for other reasons such as at Diplomatic events, weddings, funerals, and evidence of alcoholic distillation were found in ancient Egypt whose apparatus used for distillation was called Alambic.

Some drinks have been invested with symbolic or religious significance suggesting the mystical use of alcohol, e.g., by Greco-Roman religion in the ecstatic rituals of Dionysus, the Greek God of wine, and Bacchus, the Roman God of wine and revelry; in the Christian Eucharist; and on the Jewish Shabbat and festivals (particularly during Passover).

However, even older evidence was found in the Near, Middle, and Far East. Chemical analysis of traces absorbed and preserved in pottery jars from the Neolithic village of Jiahu, in Henan province, Northern China, have revealed that a mixed fermented beverage of rice, honey, and fruit was being produced as early as 7,000 years BC. This is approximately the same time that barley beer and grape wine were beginning to be made in the Middle East. Recipes have been found on clay tablets and art in Mesopotamia (today's Iraq) that show individuals using straws for drinking beer from large vats and pots.

The Hindu Ayurvedic scriptures describe both the beneficent uses of alcoholic beverages and the consequences of intoxication and alcoholic diseases. Most of India and China's peoples have continued, throughout, to ferment a portion of their crops and nourish themselves with the alcoholic product. However, in India, devout Buddhists abstain from alcohol to this day, as do devout Hindus and Sikhs. In Mesopotamia and Egypt, the birthplace of beer and wine, handling and consumption of alcohol today is prohibited because it is in direct violation of Islam's religion. The wine was consumed in Classical Greece at breakfast or symposia, and in the 1st century BC, it was part of most Romans' diet. After the collapse of the Roman Empire, wine production in Europe was sustained and improved mainly by monks living in monasteries. These monks also invented most liqueurs as we know them today as "Cordials." They used fruit, spices, herbs, and vegetables to make alcoholic beverages with honey by the process of fermentation, maceration, or distillation. When the first Europeans migrated to the Americas in the 15th century, they found that several native civilizations had also developed alcoholic beverages.

According to an ancient Aztec document, the consumption of a local wine called "pulque" was generally restricted to religious ceremonies but freely allowed to those over 70 years old. The natives of South America manufactured a beer-like product from cassava or maize, which humans chewed before fermentation to convert the starch into sugars by human enzymes in their mouths. This chewing tech-

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nique was also used in ancient Japan to make sake from rice and other starchy crops. The medicinal use of alcohol was also mentioned in Sumerian and Egyptian texts dated from 2100 BC or earlier (Levey, 1955; Allchin, 1979). In addition, the Hebrew Bible recommends giving alcoholic drinks to those who are dying or depressed so that they can forget their misery.

Definition of Ethanol

Ethanol is recognized in science as a drug with a depressant effect. Ethanol is slightly toxic but has significant psychoactive effects at sublethal doses below the range of 1400 mg per kg. Depending on the country where alcohol is legally allowed, a significant blood alcohol content may be considered legal drunkenness as it reduces attention, lengthens reaction time, and lowers inhibitions. Alcoholic beverages are addictive when consumed repeatedly or in high doses, and the state of addiction to ethanol is known as alcoholism. Its sale and consumption are age-restricted in many countries and especially in the U.S. and Canada. The production of alcohol is also strictly regulated except in some countries like Italy and New Zealand, where a private person can produce a specific amount of alcohol for private consumption. In the U.S., a private person can only produce a specific volume of wine and beer for personal use only; however, the distillation of spirits is illegal.

Chemistry and Toxicology of Ethanol

Ethanol (CH_3CH_2OH) is the principal component and an active ingredient in alcoholic drinks. When used for consumption purposes, it is always produced by the process of fermentation, the metabolism of carbohydrates by certain species of yeast in the absence of oxygen. The process of converting sugar or starch to alcohol and carbon dioxide through yeast culturing is referred to as brewing. However, this method leaves yeast residues, and on the industrial scale, carbonation is done separately.

Drinks with a concentration of more than 50% ethanol by volume (100 US proof) are defined as flammable liquids and are easily ignited. Some exotic drinks have distinctive flavors through the intentional ignition of the drink, such as the Flaming of Sambuca. This anise-like liqueur has high alcohol content and high sugar content and, therefore, can be ignited with ease by heating it slightly, e.g., adding the spirit to a warmed shot glass. When compared to other alcohols, ethanol is only slightly toxic. Nevertheless, overdosing on alcoholic drinks, especially those of concentrated variety, is a risk for humans but especially for women, lightweight persons, and children.

These people have a smaller quantity of water in their body, so that alcohol is diluted less. Excessive consumption of alcohol leads to alcohol intoxication and hangover. Hangover starts after the euphoric effects of alcohol have subsided, typically in the night and morning after alcoholic drinks were consumed. However, the blood alcohol concentration may still be substantial and above the limits imposed by law for drivers, pilots, and other dangerous equipment operators. Hangover subsides during the day. Based on the preceding, foodservice managers must be well trained, and so must be anyone who serves alcohol about the risk the establishment may be exposed to when serving intoxicated patrons.

Alcoholic Content in Beverages

The concentration of alcohol in a drink may be specified in percent alcohol by volume (ABV) in percentage or proof. The ‘proof’ measurement corresponds in a 2:1 ratio to percent alcoholic content by

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volume (80 proof = 40% ABV) at 60 degrees Fahrenheit in the USA. Degree's proof was formerly used in the UK, where 40% ABV was approximately 70 degrees proof. Common distillation cannot exceed 191.2 proof (USA) because, at that point, ethanol is an azeotrope (*a mixture of liquids that has a different boiling point from any of its components and retains its composition as a vapor*) with water. Alcohols of this purity are commonly referred to as grain alcohol and are not meant for human consumption, with the notable exception of neutral grain spirits.

On the market, these alcohols are found under the common brand name of Ever clear. Most yeasts and especially in the fermentation process of winemaking, cannot grow when the concentration of alcohol is higher than about 18% by volume, so that is a practical limit for the strength of fermented beverages such as wine, beer, and sake. However, with the advancement of scientific discovery, many yeast strains have been developed that can survive in solutions of up to 25% alcohol by volume; however, these yeast strains were bred for ethanol fuel production, not beverage production for humans. Spirits are produced by distillation of a fermented product that contains sugar and or starch, concentrating the alcohol and eliminating some of the by-products. Fortified wines are produced by adding brandy or other distilled spirits to achieve a higher ABV than is easily reached using fermentation alone.

Flavoring of Alcohol

Ethanol is a moderately suitable solvent for many fatty substances and essential oils. It thus facilitates the inclusion of several coloring, flavoring and/or aromatic compounds to alcoholic beverages, especially to distilled ones. These flavoring ingredients may be naturally present in the starting material or maybe added before fermentation, before distillation, during distillation (for example, gin which is made from Juniper Berries) or before bottling the distilled product. Sometimes the flavor is obtained by allowing the beverage to stand for months or years in oak barrels, typically American or French oak, sometimes charred (such as in use for making bourbon), sometimes already used for aging a different spirit, wine or fortified wine. Occasionally, in the bottle, herbs or fruits have been inserted to flavor the final product.

Uses of Alcohol

In many countries, alcoholic beverages are commonly consumed at major daily meals, such as lunch and dinner, but outside meals during any occasion. Most early beers were, in fact, highly nutritious and served as a means of calorie distribution. Beer is still called today "Liquid Bread." In colder climates, strong alcoholic beverages such as vodka are popular and are consumed to warm up the body. This, however, is a dangerous misconception, and people experiencing hypothermia should avoid alcohol; although the brain thinks that it increases the body temperature, the effect is the opposite; the body loses heat and body temperature decreases, which may increase the effects of hypothermia, and eventually can cause death. Also, alcohol is extremely diuretic and causes loss of water in the body. In many cultures, alcoholic beverages have also played an important role in various kinds of social interactions, providing a form of reinforced courage one would not normally show during the absence of alcohol in the body. While many other psychoactive drugs have been socially used for centuries, only coffee, tea, betel (leaves used as a stimulant, antiseptic, and a breath freshener), and tobacco are currently as universally used and accepted as ethanol.

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Legal Considerations

Several countries forbid the commerce, consumption or advertising of alcoholic beverages or restrict them in various ways. Drinking alcohol in public places, such as streets and parks, is against the law in most of the United States and in some European countries, but legal in others such as Belgium and Germany. Most countries have laws against drunk driving, driving with a certain concentration of ethanol in the blood. Consequences for driving while intoxicated usually include fines, temporary loss of driving license, and imprisonment. According to local law, the legal threshold of blood alcohol content ranges from 0.0% to 0.08% (or 8 drops of alcohol for every 1000 drops of blood). Similar prohibitions exist for drunk sailing. Foodservice personnel, especially bartenders, are now required to be trained on "responsible alcohol service" or so-called SERV Safe alcohol, a certification training program administered through the National Restaurant Association Educational Foundation (NRAEF) and other institutions.

Types of Alcoholic Beverages

Low-alcohol-content drinks are produced by fermentation of sugar- or starch-containing products, and high-alcohol ones are produced by distillation of these ingredients. Sometimes, the alcohol content is increased by adding distilled products, particularly in the case of wines. Such wines are defined as "fortified" wines and include Port, Sherry, Madeira, and Marsala. The process through which alcoholic beverages are made defines the final product. Beer involves a relatively short fermentation process, and depending on the style, it requires a short aging process of up to 14 days, except for lager up to 30 days resulting in alcohol content generally between 3-8%, as well as natural carbonation.

Wine instead involves a longer fermentation process which can be manipulated according to the wine style being made, and a relatively long aging process; from a few months to several years and sometimes decades, in case of extremely rare wines, resulting in alcohol content between 7-18% without fortification. Sparkling wine is generally made by adding a small amount of sugar before bottling called "dosage," which causes a secondary fermentation to continue in the bottle.

Distilled products are generally not made from a fermented liquid that does not require aging except for specialty alcoholic beverages such as Cognac, Armagnac, etc. Most finished distillates are 30% or greater alcohol by volume. Liqueurs are characterized by the way in which their flavors are infused and modified and typically have high sugar content. Spirits typically contain at least 37.5% alcohol and are not infused with flavors during the distilling process; however, some available today, such as the "Citron Vodka," are infused with flavors after distilling.

Standard alcoholic drinks in the United States contain about 0.6 fl. oz. of alcohol each. A standard drink in the U.S. is a 12-fluid ounce can or bottle of beer, or a pint "12 fluid oz" draught beer dispensed from keg, or a five-ounce glass of wine, or a 1.5-ounce drink of 40% distilled spirits (either straight or in a mixed drink). However, since there is no national standard guideline for dispensing alcohol, each foodservice operation may dispense spirits at a single measure of multiple thereof, depending on their pouring policy advertised on their menus. In other countries, the alcohol content is measured in units. For example, one unit is equal to 10 ml of pure ethanol (approx. 1/3 fl. oz. American volume equivalent). A typical large glass or a pint of beer contains approximately two units. A shot (25 ml) of 40% spirit contains exactly 1 unit. In Germany, spirits served straight are dispensed in glasses marked with rings representing the volume of fluid served in centiliters and multiples thereof.

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Alcoholic Beverages Identification

The names of many alcoholic beverages are determined by the source of the raw ingredients used in the fermentation process or are determined by the further process of fermented beverages such as wine:

1. A**gave Juice:** Pulque, Tequila, Mezcal, (Mexico)
2. **Apple juice:** Cider, Apfelwein (Germany), Applejack, Calvados (France)
3. **Barley:** Beer, Ale, Barley Wine, Scotch Whisky, Irish Whiskey
4. **Beets:** Pink vodka in Russia
5. **Cassava melon/Manioc plant or Yuca:** Nihamanchi, in South America, Kasiri in Sub-Saharan Africa, and Chicha in Ecuador
6. **Corn:** is used in making Chicha, Corn Beer, Bourbon Whiskey, some types of Vodka
7. **Ginger root juice:** Ginger Beer (Botswana)
8. **Grain:** Aquavit or brännvin in Sweden, Denmark, Norway, and in Iceland
9. **Honey:** Mead, in Ireland, Teg in Ethiopia, Distilled
10. **Pear's juice:** Perry, Or Pear Cider; Poire (France), Pear Brandy, Eau-De-Vie (France)
11. **Pineapple juice:** Tepache (Mexico)
12. **Plum juice:** Plum Wine, Slivovitz, Tzuica, Palinca, Umeshu (Balkans)
13. **Pomace or lees from wine must**: Raki in Turkey), Tsipouro and Tsikoudia in Greece, Grappa in Italy, Trester in Germany, Marc in France, Zivania in Cyprus, Aguardente in Portugal, Tescovină in Romania
14. **Potato:** Potato vodka mostly used in Poland and Germany,
15. **Rice:** Huangjiu, Choujiu, Baijiu and in China, Sake, Shōchū, and Awamori in Japan, and Soju in Korea
16. **Rye:** Rye Beer, Rye Whiskey, Roggenkorn (a type of brandy from Germany)
17. **Sap O\of Palm:** Coyol Wine in Central America, Tembo in Sub-Saharan Africa
18. **Sorghum:** certain types of distilled spirit such as Burukutu in Nigeria; Pito in Ghana; Merisa in Southern Sudan; Bilibili in Chad; and Cameroon; and certain types of Baijiu in China.
19. **Sugarcane juice or sugar molasses**: Rum (Caribbean), Pinga or Cachaça (Brasil), Aguardiente (Spain, Portugal, various South American countries, Shōchū (Japan)
20. **Wheat:** Wheat Beer, Wheat Whisky, Weizenkorn (a type of wheat brandy from Germany)
21. **Wine or grape juice or lees from wine must:** Brandy in general, Grappa (Italy) Cognac (France), Vermouth, Armagnac (France), Branntwein (Germany), Pisco (Chile & Perú), "Rakia" (The Balkans and Turkey), Singani (Bolivia), Pálinka (Hungary)

Bar Management Guide

Every country serves alcohol in different measures and according to the law and the policy of the establishment. Table 4 shows the conversions of major measurements used in the U.S. and a few other nations. Most countries, however, use the metric system, including the UK.

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Table 4. Measurements' conversion table

Measurements' conversion table (approximate values)			
Term	**Fluid ounce conversion**	**Volume conversion**	**Metric conversion**
1 Dash/splash	1/32 ounce	1/5 tablespoon	3 ml
1 teaspoon	1/16 ounce	1/3 tablespoon	5 ml
1 tablespoon	1/2 fluid ounce	3 teaspoons	15 ml
2 tablespoons	1 fluid ounce	1/8 cup, 6 teaspoons	30 ml
1 Pony	1 fluid ounce	1/8 cup, 6 teaspoons	30 ml
1 Shot / jigger	1 1/2 fluid ounce	3 tablespoons	44.3 ml
1/4 cup	2 fluid ounces	4 tablespoons	59 ml
1/3 cup	2 2/3 fluid ounces	5 tablespoons + 1 teaspoon	79 ml
1/2 cup	4 fluid ounces	8 tablespoons	118 ml
2/3 cup	5 1/3 fluid ounces	10 tablespoons + 2 teaspoons	158 ml
3/4 cup	6 fluid ounces	12 tablespoons	177 ml
7/8 cup	7 fluid ounces	14 tablespoons	207 ml
1 cup	8 fluid ounces/ 1/2 pint	16 tablespoons	237 ml
2 cups	16 fluid ounces/ 1 pint	32 tablespoons	473 ml
4 cups	32 fluid ounces	1 quart	946 ml
1 pint	16 fluid ounces/ 1 pint	32 tablespoons	473 ml
2 pints	32 fluid ounces	1 quart	946 ml, 0.946 liters
8 pints	1 gallon/ 128 fluid ounces		3785 ml, 3.78 liters
4 quarts	1 gallon/ 128 fluid ounces		3785 ml, 3.78 liters
1 liter	1.057 quarts		1000 ml
1 gallon	128 fluid ounces		3785 ml, 3.78

Source: Author's own representation sourced from various literature

BAR TERMINOLOGY

Mixing

The term used when preparing cocktails. In cocktail preparation, such as mixing, bartenders follow basic but important rules: ice must always be placed first in the shaker, and the liquor last. This is done to ensure that all ingredients are properly chilled by the ice when they are poured over the ice. The liquor is added last to reduce the chance of dilution and avoid the loss of an expensive item if the basic ingredients may have been added to the shaker by error, e.g., coke instead of tonic water.

Floating

The purpose of floating is to keep each ingredient in the drink in separate layers that do not mix with the others. This will create a drink with separate layers, and therefore floating often is referred to as layering. The easiest way to float one liquor on top of another is to use a demitasse spoon, holding it over or

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in the glass, and slowly trickle the ingredient over the back of the spoon. Typical floaters are cocktails called Pousse-Caffe' defined as: "a style of layered drink prepared by gently adding each ingredient from densest to least dense in order to create colored stripes when the drink is viewed from the side."

Shaking

A term used when preparing cocktails. Instead of stirring a cocktail is shaken. This method will mix the ingredients more than stirring but will also result in a less clear drink. When shaking drinks that contain ingredients such as cream, fruit juices, and eggs, they should be shaken vigorously to ensure that the ingredients have been well mixed. Shaking is done with a bar shaker. It takes about ten strong shakes to complete a drink.

Blending

The term used when preparing cocktails. It is done by using an electric blender to mix fresh fruit, liquor, juices, and ice instead of using a shaker. It is the ideal method for making frozen cocktails or to blend ingredients that are otherwise difficult to mix.

Stirring

A term used when preparing cocktails. A drink that is stirred instead of shaken will retain its clarity and be free of ice chips. Drinks based on clear liquors, like a Martini, should always be stirred and not shaken. When stirring a cocktail, one should stir it enough to mix the ingredients but not stir it too much. If the drink is stirred too much, the ice will dilute the liquor. It takes about 10-15 stirs to properly mix a cocktail. If the recipe includes a carbonated ingredient, it should be stirred gently to retain the carbonation.

Muddling

The term used when preparing cocktails. The most famous "muddled" drink is the "Mint Julep,", an old favorite since WWII. Muddling is a simple mashing technique for grinding herbs, such as mint, smooth at a glass's bottom. The muddler is usually made of wood, which can easily crush herbs without scaring the glass.

Frosting

A term used when preparing cocktails or regular drinks. To create a frosting, a glass is dipped in water and then put it in the freezer for about half an hour or less. Bartenders prefer to use metal and silver mugs or cups because they frost better than glasses.

Salting or Sugar Crusting

A term used when preparing cocktails. To salt or sugar crust, the rim of a glass, a fresh cut wedge of lemon or lime is rubbed around the rim. The glass is then dipped into a shallow tray with salt or sugar by turning it several times until the rim is totally coated.

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Liquor Glossary, Bar Ingredients, and Mixes

- **Abricotine:** An apricot liqueur made in France.
- **Absinthe:** Absinthe is now illegal not only in the United States but also in Switzerland, the place of its origin, because it is hallucinogenic. Absinthe is a green cordial with an anise flavor. The ingredient that caused hallucination was wormwood, which is also used in vermouth.
- **Absolut:** High-quality vodka from Sweden, usually consumed unmixed. Also available flavored with lemon, blackberry, and peppers.
- **Advokaat:** A bottled eggnog mixture made with brandy and eggs that originated in the Netherlands.
- **Amaretto:** An after-dinner liqueur made from the pit of the apricot with an almond flavor that is made in Italy. The original amaretto, Amaretto di Saronno, was first made in Saronno, Italy, in 1525.
- **Amer picon:** A bitter French cordial, bitter, orange-flavored, made from quinine, spices, cinchona bark, oranges, and gentian.
- **Angostura bitters:** (see bitters) made from the bark of a tree native to Trinidad; its recipe remains a secret.
- **Anisette:** A sweet, clear, aniseed-flavored liqueur, the main ingredient is aniseed.
- Applejack
- An apple brandy produced principally in the United States and France. A version produced in Normandy, Calvados, is of very high quality. Also known as "Jersey lighting" and "hard cider." Made from winter apples, a great deal of applejack produced in the United States is of the home-made variety, and thus of widely varying quality.
- **Aquavit** (Akvavit): Scandanavian Vodka flavored with caraway, dill, and other herbs and spices.
- **B&B:** A cordial made by mixing Cognac and Benedictine liqueur
- **Bacardi**: A clear light-bodied rum made from sugar cane and molasses.
- **Bahai:** A coffee flavored liqueur from Brazil.
- **Bailey's Irish cream:** A mocha flavored whiskey and double-cream liqueur, a combination of Irish whiskey, cream, coffee, chocolate, and coconut.
- **Benedictine:** The oldest and perhaps most famous cordial in the world, Benedictine dates from 1510. Its formula consists of about twenty-seven different ingredients, and it has never been duplicated or even imitated.
- **Bitters:** A highly concentrated flavoring agent made from roots, barks, herbs, and/or berries. Some bitters include Compari and Fernet-Branca from Italy and are consumed as an aperitif and digestive, respectively.
- **Blended whiskey:** Unless a whiskey is labeled as "single malt," most whiskeys are blended. By U.S. law, blended whiskey must contain at least 20% straight whiskey. The rest may be non-aged grain neutral spirits, pure alcohol with little or no flavor. Most Scotch, Bourbon, Canadian, rye, and Irish whiskeys currently on the market, including the very best available, are blended whiskeys and fall into this category.
- **Borouvicka:** A juniper brandy from Czechoslovakia like gin.
- **Bourbon:** An American whiskey distilled from a fermented mash of grain that is at least 51% corn. Bourbon is aged for at least two years in new charred oak barrels. Bourbon originated in Bourbon County, Kentucky. One of the most famous bourbon is Jack Daniels, a high-quality Bourbon that is filtered through maple charcoal before aging.

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- **Brandy:** Brandy is distilled from a fermented mash of grapes or other fruit, and the aged in white oak casks at least two years and usually bottled at 80 proof or 40% alcohol in volume.
- **Calvados:** One of the most famous brandies made from apple in Normandy, France.
- **Campari:** A popular Italian bitter aperitif. Usually served on the rocks with soda, Campari is very dry with a distinctive quinine taste.
- **Canadian club:** A high-quality whiskey from Canada.
- **Canadian whiskey:** Like American whiskeys, Canadian whiskey is made primarily from corn, rye, and malted barley, and is distilled using a sweet mash.
- **Chambraise:** A French liqueur made from wild strawberries.
- **Chambord:** A French liqueur made from small black raspberries.
- **Chartreuse:** A French herbal liqueur produced by the Carthusian monks in France from a formula dating back to 1605 and containing at least 130 herbs and spices. This distinctive liqueur is available in two colors: yellow and green.
- **Cheri-Suisse:** A Swiss liqueur that tastes like chocolate-covered cherries.
- **Cherry Marnier:** A French cherry liqueur with an almond aroma
- Cognac: A type of brandy that is produced only in the Cognac region of western France and is universally recognized as the finest and most elegant brandy in the world. The Cognac region is divided into six districts, with the Cognac of Grand Champagne considered the best. Cognac is coded on the label by the following letters: V (very), S (superior), O (old), P (pale), E (extra or especial), F (fine), X (extra). French law states that Cognac with three stars be aged at least 1½ years old to be rated VS & 4 years to be rated VSOP (although 7-10 years is very common). By French law, the words Extra, Napoleon, Reserve, and Vieille may not appear on the label unless the brandy Cognac has been aged at least 5½ years.
- **Cointreau:** A fine, colorless, orange-flavored liqueur made from the dried skins of Curaçao oranges grown on the Curaçao island in the Dutch West Indies. For less expensive mixed drinks, Curaçao is substituted with an orange liqueur called triple sec.
- **Cordials:** General term to describe sweetened spirits distilled from fruits, seeds, herbs & peels, same as liqueur.
- **Cream of coconut:** Coconut syrup used in many exotic drinks.
- **Crème de...:** A general term describing a liqueur of a distinctive flavor. Flavors include almond, banana, cassis (black currant), celery, cocoa, ananas (pineapple), menthe (mint), mocha (coffee), noisettes (hazelnut), noyaux (bitter almond), rose (vanilla and roses), the` (tea), fraise (strawberry) and violette/yvette (violets)
- **Cuarente y tres**: A brandy-based liquor from Spain containing 43 ingredients and a hint of vanilla. Also known as Licor 43.
- **Curaçao:** Generic term for a liqueur made from the dried skins of small green bitter curacao oranges. Curaçao is available in blue, white, or orange color.
- **Drambuie:** A whisky liqueur consisting of Highland malt Scotch whisky, heather honey, and herbs.
- **Ezra brooks:** A high-quality whiskey from Tennessee.
- **Falernum:** A sweet syrup of Caribbean origin made from ginger, almonds, limes, and other tropical fruits and herbs. Falernum contains little or no alcohol and is used to flavor or sweeten mixed drinks.

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- **Fernet-Branca:** An extremely bitter Italian herbal digestive made largely from cinchona bark, gentium, rhubarb, calamus, angelica, myrrh, chamomile and peppermint.
- **Finlandia:** A vodka with 94 proof alcohol content that is produced in Finland.
- **Fizzes:** Made using liquor, citrus juices, egg white, and sugar. Usually shaken with ice and strained into a highball glass. Soda "fizz" water is then added. Any carbonated beverage, even Champagne, may be used.
- **Flips:** An eggnog and fizz combination. Made with liquor, egg, sugar, and shaved ice. It is shaken well and \sprinkled with nutmeg.
- **Forbidden fruit:** An American liqueur made from shaddock (a grapefruit) and brandy.
- **Fraisette:** Cordial made from alcoholic syrup, white wine, and strawberries.
- **Framboise:** French cordial made from raspberries.
- **Frangelico:** A hazelnut liqueur from Italy.
- **Frappes:** A drink made by packing a glass with crushed ice and pouring liqueur over it.
- **Galliano:** A sweet, golden liqueur whose main ingredient is star anise.
- **George Dickel:** A high-quality whiskey form Tennessee.
- **Gin:** Gin is made from a mixture of about ¾ of grain alcohol, mostly corn, with about 15% malted barley 10% other grains. The mixture is then redistilled with juniper berries and other flavors. Most of the gin now produced is London dry, which is clean light, not sweet, and ideal for martinis preparation. The Dutch also produce a sweeter version called Hollands gin.
- **Glenfiddich:** a high-quality single malt brand Scotch whisky from the Scottish Highlands
- **Glenlivet:** a high-quality single malt brand Scotch whisky from the Scottish
- Whisky producing area on the River Spey, in the eastern portion of the Scottish Highlands.
- **Golden rum:** Also known as Anejo, is a light-bodied rum of golden color from Cuba, Puerto Rico, and the Virgin Islands. This rum, amber in color, has a stronger taste and pronounced character than white rum.
- **Goldwasser:** A German brandy originally made in Danzig in 1598, Goldwasser is a spicy citrus flavored liqueur with 22 karat gold flakes mixed in it.
- **Grand Marnier:** An orange-flavored cognac based French liqueur of the curacao type.
- **Grappa:** An Italian brandy distilled from the lees left in the wine press after the grapes have been pressed.
- **Grenadine:** A sweet syrup flavoring used for drinks made from pomegranate juice, containing little or no alcohol.
- **Grog:** Originally a mixture of rum and water that was issued to sailors in the royal navy and later improved with the addition of lime juice and sugar. Now a grog is any kind of drink usually made with a rum base, fruit, and various sweeteners and served hot or cold in a large mug or glass.
- **Highballs:** Any liquor served with ice, soda, plain water, ginger-ale, or other carbonated beverages in a high ball glass.
- **Irish mist**: A famous liqueur produced in Ireland, consisting of Irish whiskey and honey.
- **Irish whiskey:** Irish whiskey is distilled three times using coal as a filter. Irish whiskey is distilled from a grain mixture that consists of malted as well as unmalted barley, along with small proportions of wheat, oats, and rye. Irish whiskey is at least seven years old when released to the market. Full-bodied, unblended Irish whiskeys produced in pot stills have a very pronounced character, which makes them very popular with connoisseurs.

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- **Jaegermeister:** A complex, aromatic concoction containing some 56 herbs, roots, and fruits. It is one of the most popular bitters on the market. It is used as cocktail bitters but is more frequently consumed as a digestive and as an aperitif.
- **Kahlua:** Coffee liqueur originating in Mexico made from Mexican coffee beans.
- **Kirschwasser:** A strong, dry black cherry fruit brandy made by both the Germans and the French. It is a clear dry brandy with a strong cherry flavor.
- **Kummel:** A cordial liqueur of Dutch origin made from caraway seeds, cumin seeds, coriander seeds, and aniseed, with herb flavors added.
- **Lillet:** A popular French aperitif, light and dry, produced in two styles, white and red.
- **Liqueur:** the term used to describe an alcoholic beverage that is manufactured by adding flavorings such as strawberry, orange, or almond to a distilled spirit. The flavorings are added by steeping, percolating/filtering, and redistilling. Combinations of flavors, such as mint, chocolate, vanilla, and coffee, are also used. Because of the way they are produced, the differences in quality among liqueurs are dramatic. Some liqueurs, especially those manufactured in Europe, are still made by natural processes and contain natural ingredients. Unfortunately, many American producers use chemical flavor concentrates on the manufacture of their liqueurs.
- **Liquor:** Alcoholic beverage most often distilled rather than fermented.
- **Malibu:** A coconut flavored rum liqueur from Jamaica.
- **Mandarin Napoleon:** A liqueur made from mandarin, orange-flavored cognac.
- **Maraschino:** A very sweet white cherry liqueur made from the "marasca cherry" of Dalmatia, Yugoslavia. This liqueur is sometimes used in sours in place of sugar.
- **Marie Brizard:** A fine and distinctive anise/mint/eucalyptus like flavored liqueur from France.
- **Metaxa:** A brandy produced in Greece.
- **Midori:** A melon liqueur of pale green color made in Japan that tastes like fresh muskmelon or cantaloupe.
- **Myer's rum:** Famous dark - high-quality Jamaican rums.
- **Napoleon brandy:** The term is related to age and usually means a cognac that is at least 5 years old.
- **Noilly prat:** A well-known brand of French dry vermouth used to make dry martinis.
- **Orange bitters**: Made from the dried peel of the bitter Seville oranges which are less aromatic but fruitier than the more popular and sophisticated Angostura bitters.
- **Orange flower water:** A light, non-alcoholic preparation based on the oil of orange blossoms, used as a flavoring in drinks.
- **Orgeat:** Syrup made with the milk of bitter almonds.
- **Ouzo:** An anise-flavored liqueur from Greece, usually served on the rocks.
- **Parfait amour:** Cordial made of citron, cinnamon, coriander, and brandy.
- **Passion fruit:** A liqueur made in Hawaii from peaches or mangos.
- **Peppermint schnapps:** A mint-flavored liqueur like crème de menthe.
- **Pernod:** A famous French anise-licorice flavored liqueur.
- **Rickey:** A drink that is a cross between a collins and a sour. It consists of lime or lemon juice, club soda, and alcohol. Unlike the collins and sour, it contains no added sugar.
- **Sabra:** An orange-flavored liqueur with a hint of chocolate, from Israel.
- **Sake:** This traditional drink from Japan is slightly sweet and is commonly referred to as "rice wine," when, in fact, it should be classified as rice beer.

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- **Sambuca:** An Italian liqueur flavored with anise. The Italians often serve it "with flies," which is 3 or 4 coffee beans on top of a glass of Sambuca and then flamed.
- **Schnapps:** The term "schnapps" (from the German Schnappen, to snap) refers to a mixture of vodka, gin, brandy, or another spirit. In Scandinavia, the term used is snaps and almost always means Akvavit. In the U.S., the term has taken on a different meaning to describe flavored, sweet, inexpensive liqueurs of moderate strength (22 to 30% (44 to 60 proof) alcohol by volume).
- **Scotch… (Whisky):** Scotch whisky is produced only in Scotland. Some Scotch whiskies sold in the United States are produced in Scotland and then bottled in the U.S. Most of these whiskies are blends of malt whiskies and grain whiskies and typically contain the products of fifty or more distilleries. Some Scotch Whiskies are blends of different malts, and these are known as "vatted" malts.
- **Slivovitz:** A brandy made from plums, fermented, and distilled. Slivovitz usually has a very high alcohol content.
- **Sloe gin:** Sloe gin is a liqueur made from the sloe berry, a kind of small, wild plum, which is soaked in gin.
- **Sour mash:** The term is usually applied to bourbon whiskey; this whiskey is made from a blended grain mash consisting of a new mash and a portion of mash from a preceding mash.
- **Southern comfort:** The oldest American liqueur and very popular in many countries. Southern Comfort is a blend of bourbon, peaches, and peach liqueur. It is dry and strong, with about 100 proof.
- **Stolichnaya:** High quality vodka produced in the Soviet Union and favored by many serious vodka connoisseurs.
- **Straight whiskey**: A blended straight whiskey made with several mature rye or bourbon whiskeys, as opposed to a blended whiskey in which bourbon or rye whiskey is mixed with an inferior whiskey or a grain-neutral spirit.
- Strega: Cordial made in Italy from orange peel, spices and very strong spirits, and very sweet.
- **Tennessee whiskey:** Tennessee whiskey is made in the same way as a sour-mash bourbon whiskey except that the Tennessee whiskey is filtered through charcoal from hard Tennessee maple trees.
- **Tequila:** Is a product from the mezcal plant, specifically the blue agave plant. One misconception is that mezcal and mescaline are related; only the words mezcal and mescal are alike. All tequilas are mescals. True tequila is produced in a very small region of Mexico, around the town of Tequila, in the state of Jalisco. Tequila must be distilled at least twice, and quality gold tequilas are aged in wood for three years.
- **Tia Maria:** A coffee flavored liqueur from Jamaica. Dryer than Kahlua, Tia Maria is Jamaican rum-based and flavored with spices. It is a clear and fine liqueur with a very distinctive coffee flavor.
- **Triple sec**: A highly popular, orange-flavored liqueur used in many drinks and rarely consumed on its own. It is the substitute for many orange liqueurs such as Grand Marnier and Curaçao.
- **Tuaca:** Italian brandy-based liqueur flavored with vanilla, citrus, almond, coconut, orange and cocoa.
- **Vermouth:** This beverage is produced in Italy and France. The word, however, derives from the German term "Vermutwein," meaning wormwood wine.
- **Vodka**: By United States law, vodka must be colorless, odorless, and tasteless, a combination that has made it the great universal mixer of our time and the most popular selling spirit today. It is the

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least toxic of all alcoholic beverages for the fact that it is distilled up to 4 and 5 times, depending on the brand.

- **Whiskey (Irish whiskey, American and Canadian Whiskeys are spelled with "ey" at the end. Only Scottish Whisky is spelled with "ky" at the end.** The Irish invented the whisky. In Gaelic, it means "the water of life." All basic whiskeys are made from one type of grain, or other Straight whiskeys are bottled from the casks in which they are aged, with water added to reduce their proof. Blended whiskeys are of two types: Blended straight whiskeys are a blend or combination of different straight whiskeys of the same general type. Many Scotches and bourbons fit this description. However, "blended whiskeys," as the term is used in the United States, refers to whiskeys in which a straight whiskey has been blended with neutral grain spirits.
- **Whisky… (Scotch):** Means simply that the whisky was distilled and matured in Scotland. Whiskies are made in other countries as well, such as Ireland and Japan.
- **Whisky… (Malt):** This indicates that the raw material is barley malt, by itself fermented with yeast and distilled in a pot still. This produced a far superior whisky to the common grain whisky found in blends. **Malt** is essentially barley, which has been allowed to germinate by soaking in water then has been dried by the application of heat. The malting process converts the stored starch into soluble compounds such as the sugar maltose and, by so doing, makes fermentation possible. Drying the malt over a furnace stops the germinating process and lacing the furnace with peat imparts a peaty aroma to the malt.
- **Whisky… (Grain):** Indicates by contrast that the raw material is unmalted barley, wheat or maize produced as a continuous process in a column still.
- **Whisky … (Single Malt):** This indicates that the whisky was made in only one distillery and has not been blended with any other product from elsewhere. It may, however, contain whisky from several production batches over a period of up to two years.
- **Whisky … (Vatted Malt):** Such malt is a blend of single malts. This produces a product that is more consistent and can be "tuned" to bring out a particular character. Such whiskies may be less demanding and can form a convenient introduction to the rich and varied world of true single malts. Lovers of malts will argue that it is precisely this inconsistency that gives malt whiskies their charm.
- **Whisky … (Blended Scotch):** Such a whisky contains a variable proportion of blended malt and grain whiskies, commonly about 40% malt: 60% grain. A good quality blend may contain more than 40% malt, a cheap one much less. Many malts may be incorporated in the blend to provide bulk then fine elements of the final taste ("top dressing").
- **Whisky's Age:** This statement gives the age of the youngest component of the blended whisky. Maturation or aging stops at bottling, so both the year and the age may be significant. This means that once the whisky is bottled, it will stop aging, the same as all brandies, including Cognac. A 12-year-old whisky bottled four years ago is still a 12-year-old, not a 16-year-old though different years may occasionally be quoted.
- **Whisky … (Cask Strength):** Newly distilled malt whisky is generally 115-120-degree proof as it comes off the still. It is generally watered down and bottled at the 70-degree proof for the British domestic market. It has long been noted; however, that whisky bottled at full strength and diluted in the glass tastes superior to the same whisky diluted at bottling. This has never been adequately explained but has, in recent years, led to the availability of "cask strength" malt whiskies bottled at

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typically 100-110-degree proof (57-63% alcohol by volume). These may be consumed cautiously at their full strength but more commonly diluted with a small splash of water.

Cocktails

Cocktails are alcoholic beverages containing a mixture of alcohol combined with other ingredients such as fruit juices or mixers. They are the most popular bar drinks anywhere in the world. These drinks feature an exotic and colorful presentation and are often accompanied by tropical fruits, crushed ice, umbrellas, sparklers, paper flowers, etc. Cocktails are prepared in different ways, shaken, stirred, blended, poured, mixed, or layered. Types of liquor contained in recipes for cocktails might include gin, vodka, wine, brandy, rum, wine, whiskey, etc. Cocktails are the most profitable beverages together with soft drinks. Mocktails are cocktails that do not contain alcohol. The most famous and popular cocktail recipes include Cosmopolitan, Rum based, Champagne, Manhattan, Vodka based, Summer cocktails, Margarita, Bellini, Seasonal and regional cocktails, Mimosa and Mojito, and many more.

Contemporary Bartending Terminology

- **Age:** The amount of time a whiskey, rum, or brandy has been stored.
- **Bang:** A term used to identify the double or triple flavor cocktails. (i.e., Peach Bang! – peach schnapps and peach juice)
- **Base Liquor:** The main ingredient in the cocktail.
- **Box:** Pour cocktail into and out of shaker. Mixes the cocktail without shaking.
- **Call Drink:** A cocktail where the liquor is clearly defined. (e. g. gin and tonic, jack and coke)
- **Chaser:** A drink that is consumed directly after taking a shot or shooter.
- **Collins:** A sour served in a highball glass with club soda or seltzer water.
- **Cooler**: A cocktail made with ginger ale, club soda, or another carbonated beverage and garnished with a lemon or orange rind. These types of cocktails are usually served in a collins glass.
- **Crusta:** A short sour type drink that is completely lined with an orange or lemon peel cut in a continuous strip.
- **Daisy:** An oversized sour type of cocktail sweetened with fruit syrup. Usually served in a large goblet.
- **Dry:** No vermouth or a tiny amount.
- **Flag:** Term used when someone has had enough to drink. Also, a garnish.
- **Flamed:** Drink is topped with high-proof alcohol and lit on fire.
- **Fizz:** A beverage that is carbonated or produces small amounts of bubbles.
- **Lace:** Applies to the last ingredient in a recipe, meaning to pour on top of the drink.
- **Mist:** To pour a drink over crushed ice.
- **Mixer:** A non-alcoholic beverage you mix spirits with.
- **Neat:** The consumption of a spirit as a straight, unaccompanied shot.
- **Nightcap:** Any drink taken before retiring.
- **On-The-Rocks:** Any wine or spirit poured over ice cubes.
- **Pick-Me-Up:** Any drink designed to delay the effects of overindulgence in alcoholic beverages.
- **Shooter:** A straight shot of whiskey or another kind of spirit. It was taken without a chaser.
- **Straight Up:** When a drink is mixed with ice and then strained into a glass.

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- **Tot:** A small amount of any beverage, a "short shot" or a "touch."
- **Up:** A drink served with no ice.
- **Virgin:** A non-alcoholic drink.
- **Well-Drink:** A liquor and mixer, of which neither are defined brands. (e.g., Gin and Tonic, Rum and Coke)

Bar Glassware and Purpose

According to Corning Museum of Glass, glassware was made about 3,500 years ago in Mesopotamia. Over the centuries and through the evolution of foodservice establishments dating back to Roman times, glass has played an essential role in people's lives. In every foodservice operation, the type of glassware, shapes, sizes, and design reflect the establishment's standard. From simple glass to elegant and experience crystal, glassware complements restaurant operations' overall décor. Glassware inventory can be very costly, especially in fine dining. Examples of delicate and expensive glassware are the products from Riedel in Austria and Murano in Italy. The author highlights the glassware used in most operations in the next section, describing its use, shapes, and size.

Figure 8. Liquor and cocktail glasses
Source: various online catalogs from companies' websites described in the introduction to glassware



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Figure 9. Samples beer glasses
Source: various online catalogs from companies' websites described in the introduction to glassware



Figure 10. Samples drinking glasses
Source: various online catalogs from companies' websites described in the introduction to glassware



For glass shapes and use, refer to figures 8 through 11 above and the companies' websites.

Beer Glass for Pilsner

Holds 10 ounces. Usually made of thin glass, quite light, and toll. Used to serve Pilsner style beer which needs to preserve its cooler temperature.

Beer Mug

Holds 10 ounces. Usually made of thick glass, quite heavy, toll with handle. It comes in different shapes and sizes however the most common size is about 10 oz. Used to serve small mugs of beer, especially strong beers. They have a textured bottom for an easier grip. They also have a thick bottom and thick

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Figure 11. Samples wine glasses
Source: various online catalogs from companies' websites described in the introduction to glassware



walls. All of this allows this beer glass to be one of the most durable of beer mugs, reducing the risk of breakage. They also have a thumb-rest that makes this beer a lot like a stein.

Brandy Snifter

Holds 5 to 25 ounces. Balloon shaped brandy snifters have a very short stem small enough to be cradled in the palm which heats the spirit.

Champagne Flute or Tulip

Holds up to 6 ounces. This is a stemmed-tulip shaped glass that can retain the cold temperature of the Champagne and prevents the natural carbonation to be released slowly due to its narrow shape.

Cocktail Glass

Holds 4 to 6 ounces, it is also known as a martini glass. The shape of the glass helps keep ingredients from separating, and the stem allows the drink to stay cool while holding.

Collins Glass

Holds 10 to 16 ounces named after the drink Tom Collins, this glass is tall and skinny and can be found in clear or frosted glass.

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Cordial

Holds 2 to 3 ounces. It is used to serve a small portion of liquor as digestive. It is small and stemmed.

Goblet Glass

Holds 12 ounces. It is used to serve various drinks, but also simply water.

High Ball Glass

Holds 12 ounces a tall, straight, wide glass used for serving spirits plus a mixer. These glasses have a base the same diameter as the rim.

Hurricane:

Holds between 10 and 15 ounces. It is typically used for frozen and blended cocktails. The distinct pear-shaped curve of this glass is reminiscent of vintage hurricane lamps.

Irish Coffee Mug

Holds 10 to 12 ounces with a short stem and a handle, this glass is also known as the Irish coffee glass. It is used for almost any hot beverage.

Lowball Glass

Holds 4 to 10 ounces. Lowball glasses are short with a base diameter of the same size as the rim. These glasses are most used for serving “straight” drinks “on the rocks”. The lowball glass is also called a “rocks glass” or “old fashioned glass”.

Margarita Glass

Holds 12 ounces. Slightly larger than a cocktail glass, the margarita glass has a broad rim for holding a salt crust, ideal for margaritas. Also used in serving daiquiris and other fruit drinks.

Pina Colada Glass

Pitcher:

Holds 30 to 60 ounces. This larger container usually has a handle and a lip or spout for pouring the contents into several glasses. Available in glass or plastic; in clear, or translucent colors.

Pousse Café

Holds 2 to 6 ounces. This glass resembles a cordial glass, but it usually flares out slightly at the top.

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Red Wine Glass

Holds 6 to 10 ounces. Typically, red wine glasses have a wider bowl than white wine glasses and are made with fine crystal. The wider bowl is said to let the wine breathe.

Shot Glass

Holds 1 to 4 ounces. Shot glasses are made of very thick glass, especially at the bottom. They are available in two types. The regular shot glass is approximately 2 inches tall, and the tall shot glasses can be as high as 6 inches. Normally they both have the same diameter. The regular shot glass can also be used as a measuring tool when preparing cocktails. Short size: approximately 1 to 2 ounces tall size: approximately 2 to 6 ounces.

Whiskey Sour Glass

Holds 4 to 6 ounces. This is a stemmed, wide-opening glass, like a small version of a champagne flute.

White Wine Glass

Holds 6 to 8 ounces. A tulip stemmed glass whose stem helps to keep the wine chilled by not allowing the heat of the hand to be in contact with the upper part of the glass. Like the red wine glass this glass is made of fine crystal.

Wine Carafe

Holds half a liter (13 ounces) or one liter (26 ounces). Smooth glass with a thicker sham and flared neck, ideal for decanting and serving wine. They also come in small sizes for serving water or juice or other misers to any mixed drink such as Whisky and soda.

23.1. WINE

Introduction to Wine

Wine is an alcoholic beverage produced by the fermentation of grapes and grape juice. Wine-like beverages can be produced by the fermentation of other fruits and flowers barley, rice, honey, and even herbs. However, in such cases, an identification clearly defining the type of wine may be legally required in many countries (e.g., “plum wine”).

The Early History of Wine

According to historical records, wine is one of the oldest manmade beverages. The history of wine spans thousands of years and is closely intertwined with the history of agriculture, cuisine, civilization, and the man himself. On January 11, 2011, major news media reported that Hans Barnard, the lead author of an

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article about an archeological study published in the peer-reviewed *Journal of Archaeological Science,* found the oldest winery ever documented in history (McGovern, Mirzoian, & Hall, 2009).

The artifacts were discovered by Armenian, the U.S. and Irish archaeologists inside a cave complex in southern Armenia, near the border with Iran and close to a village that still makes its own wine. According to Gregory Areshian, co-director of the excavation and assistant director of the University of California Los Angeles's Cotsen Institute of Archaeology, archeologists now have, for the first time, a complete archaeological picture of wine production dating back 6,100 years. (National Geographic, 2011).

Earlier findings were identified by several sources. Wine residue has been identified by Patrick McGovern's team at the University Museum, Pennsylvania, in ancient pottery jars. Records include jars from the Pottery Neolithic (5400-5000 BC) site of Hajji Firuz Tepe in the Zagros Mountains of present-day Iran and from Late Uruk (3500-3100 BC) occupation at the site of Uruk, in Mesopotamia. The identifications are based on the identification of tartaric acid and tartrate salts using a form of infrared spectroscopy (FT-IR). These identifications are regarded with caution by some biochemists because of the risk of false positives, particularly where complex mixtures of organic materials, and degradation products, may be present.

The identifications have not yet been replicated in other laboratories. In Iran (Persia), mei (the Persian wine) has been a central theme of their poetry for more than a thousand years, although alcohol is strictly forbidden in Islam. However, little is known of the prehistory of wine. It is plausible that early foragers and farmers made alcoholic beverages from wild fruits, including wild grapes (Vitis sylvestris). This would have been easier following the development of pottery vessels in the later Neolithic of the Near East, about 9000 years ago. However, wild grapes are small and sour, and relatively rare at archaeological sites. It is unlikely they could have been the basis of the wine industry.

Domesticated grapes were abundant in the Near East from the beginning of the Early Bronze Age, starting in 3200 BC. There is also increasingly abundant evidence for winemaking in Sumeria and Egypt in the third millennium BC. Grapes were, of course, also an important food. There is scarce evidence for earlier domestication of grape, in the form of grape pips from Chalcolithic Tell Shuna in Jordan, but this evidence remains unpublished. Exactly where wine was first made will probably never be known. It could have been anywhere in the vast region, stretching from Spain to Central Asia, where wild grapes grow.

However, the first large-scale production of wine must have been in the region where grapes were first domesticated, the Near East. Wild grapes grow in the northern Levant, coastal and southeastern Turkey, the Caspian coast of Iran, Armenia, and Georgia. None of these areas can be singled out, despite persistent suggestions that Georgia is the birthplace of wine (McGovern, Mirzoian, & Hall, 2009; National Geographic, 2011; Nicholson, & Shaw, 2000; Zohary & Hopf, 2000).

Wine-Producing Regions

Wine grapes grow almost exclusively between thirty and fifty longitudinal degrees north or south of the Equator. The world's most southerly vineyards are in the South Island of New Zealand near the 45th parallel. Grapevines prefer a relatively long growing season of 100 days or more with warm daytime temperatures no greater than 95°F and cool nights, a difference of 40°F or more). Wine is consumed in more than 70 countries and produced in all continents where climatic conditions support grape growing, except on the Artica and Antarctica continents. In the world's wine supply chain, there are fifteen major

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players leading the world market. Primary producers include Italy, Spain, France, the United States, Argentina, and China (OIV, 2010). The U.S. wines and the wine industry did not gain recognition until a Napa winery competed against French wines in a wine tasting competition in France in 2005 (Taber, 2005).

Wine Grape Varieties

Wine is usually made from one or more varieties of the European species, Vitis vinifera. According to the country in which wine is produced, when one of the varieties, such as Pinot Noir, Chardonnay, or Merlot, for example, is used as the predominant grape varietal this is usually defined by law as a minimum of 75 or 85% content, the result is a varietal, as opposed to a blended wine. Blended wines are not inferior to varietal wines; indeed, some of the world's most valued and expensive wines from the Bordeaux, Rioja or Tuscany regions are a blend of several grape varieties of the same vintage. Wine can also be made from other species or from hybrids created by the genetic crossing of two species. Vitis labrusca, Vitis aestivalis, Vitis muscadinia, Vitis rupestris, Vitis rotundifolia and Vitis riparia are native North American grapes, usually grown for eating in fruit form or made into grape juice, jam, or jelly, but sometimes made into wine as well as in the case of Concord grape wine, the Vitis Labrusca species.

Although generally prohibited by law in traditional wine regions, hybrids are planted in substantial numbers in cool climate viticultural areas. Hybrids are not to be confused with the practice of grafting. Most of the world's vineyards are planted with European vinifera vines that have been grafted onto North American species rootstock. This is common practice because North American grape species are resistant to phylloxera, a parasite that destroys the rootstock of the vine. Grafting is done in every wine-producing country of the World except for Chile, which has yet to be exposed to the phylloxera.

The variety of grape(s), aspect of the landscape such as the direction of slope, elevation, microclimatic conditions, and topography of the vineyard, type, and chemistry of soil, the seasonal conditions under which grapes are grown; the local yeast cultures altogether form the concept known as "terroir." The range of possibilities in perfecting a wine leads to great variety among wine products, which is then extended by the fermentation, finishing, and aging processes. These processes eventually are controlled and mastered by the winemaker "oenologist' who will perfect the best final product to reflect a specific style marketed according to the winery's strategy and vision to position a wine in the marketplace. Many small wine producers use growing and production methods that preserve or emphasize the aroma and taste influences of their unique "terroir." However, flavor differences are not necessarily a desirable quality for large producers of wine or more affordable wines, where consistency is more important to mass-market specific wine brands. Their producers will try to minimize differences in sources of grapes, hide any hint of often-unremarkable "terroirs," or climatically under-performing harvest years, using a variety of techniques:

1. By blending harvests of various years and vineyards.
2. By purifying the grape juice to kill indigenous yeasts (to be replaced with "choice" cultivated yeasts); and
3. By using flavor additives

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CLASSIFICATION OF WINE

Wine Classification by Vinification Methods

These include classifications such as sparkling, still, fortified, rosé, and blush. The color of the wine is not determined by the juice of the grape, which is almost always clear, but rather by the presence or absence of the grape skin during fermentation and for how long they remain in the must during the crushing fermentation process. Grapes with colored juice are known as "teinturiers", such as "alicante bouchet". Red wine is made from red (or black) grapes, but its red color is bestowed by the skin being left in contact with the dark purple wine grapes on the vine juice during fermentation. White wine can be made from any color of the grape as the skin is separated from the juice during fermentation. A white wine made from a very dark grape may appear pink or 'blush'. Rosé wines are made by mixing reds and white grapes during the ferment ion, or by mixing red and white wines after the fermentation, or by letting the juice of red grapes to remain in contact with the skins for a very short time (usually only a couple of hours), and lastly, a rose can be made directly and exclusively from a pink grape as they do in Germany with the production of the Schiller Wein.

Sparkling wines, such as champagne, are wines that contain carbon dioxide, either from natural first and secondary fermentation or added later in the form of non-natural Co2. They vary from just a light bubble in French called "Crémant De Cramant" to the classic Champagne. To have this effect, the wine is fermented twice, once in an open container to allow the carbon dioxide to escape into the air and a second time in a sealed container, where the gas is caught and remains in the wine.

In France, wines that gain their carbonation from the traditional method of bottle fermentation are called Méthode Traditionnelle. Other international denominations of sparkling wine include Sekt or Schaumwein (Germany), Cava (Spain), Spumante or Prosecco (Italy). In most countries except the United States, champagne is legally defined as sparkling wine originating from a region in France. Fortified wines are often sweeter, and usually, they have their fermentation process stopped by the addition of a spirit, such as brandy.

Wine Classification by Taste

Wines may also be classified by their primary impression on the drinker's palate, being the overall taste. They are made up of chemical compounds, which are like those in fruits, vegetables, and spices. Different grape varieties are associated with the aromas and tastes of different compounds. Wines may be described as "dry" in the absence of sugar off-dry, fruity, or sweet, for example. The sweetness of wines can be measured in Brix degrees in most countries, but in Germany, Switzerland, and Luxemburg it is measured in °Oechsle, or °Oe degrees, and in the Balkan States, as well as in Hungary and Italy it is measure in °KMW degree, (Klosterneuburger Mostwaage), at harvest with the use of a refractometer, however in actuality, it is determined by the amount of residual sugar in the wine after fermentation. Dry wine, for example, has only a tiny amount of residual sugar. Specific flavors may also be sensed, at least by an experienced taster, due to the highly complex mix of organic molecules, such as esters, that a fully vinted wine contains.

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In Foodservice There are Four Types of Wines

1. Table wine: Red, White, and Rose. These are further categorized into Still, Natural, Sweet and Dry.
2. Fortified wines: Port, Sherry, and Marsala.
3. Sparkling wine: Champagne, Sekt, Spumante, Cava
4. Aromatized wine: Vermouth, Wines.

23.1.1. FORTIFIED WINES

• Madeira

Madeira is a fortified wine that is produced on the island of Madeira in the Atlantic Ocean. The wine is very long-lived and, although essentially sweet, the finish of good Madeira is very dry and never cloying. Germany and France are the major importers of Madeira, which they use as a culinary aid.

Madeira Wine Style

- **Sercial:** A pale, dry wine with a slight almond flavor. The very dry finish makes it an excellent aperitif served chilled. The Sercial is quite harsh when young and takes a long time to mature.
- **Verdeiho:** A golden wine with a smoky flavor. It is soft and sweet and benefits from even a few months of bottle age. This can be the most elegant of the Madeiras and is the classic wine to serve with soup.
- **Bual:** A velvet-brown colored wine with a full, rich flavor that complements many desserts.
- **Malmsey:** A dark rich wine with full soft flavor. The sharp, tangy finish balances the sweetness, and many consider it one of the world's finest wines.
- **Blends:** A few Madeiras are blended and marketed under the shipper's trade name, e.g., Rainwater and London Particular.

• Port Wine

Port is the name given to the fortified wine produced around the valley of the river Douro from a point near Barca 'Alva on the borders of Spain to within fifty miles of Oporto. Until the eighteenth century, the upper Douro valley produced coarse feeble wine. Elderberry juice was frequently used to improve the color, and various methods of stabilization were tried, one of which was the addition of local grape brandy to a cask during fermentation. This preserved the natural sugar of the grape and provided a more palatable wine. Portugal and Britain had been allies for many centuries, and in 1703 the Methuen Treaty granted Portugal preferential trading terms. Winemakers began adapting their red table wine to the English palate by adding brandy to create a sweeter drink. By the second half of the eighteenth century, the vintage port was being shipped to Britain. English merchants established headquarters in Oporto and purchased vineyards so that many of the port shippers now have British names.

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Styles of Port

- **Vintage Port**

In a very good year, a shipper will make a vintage port. This is still a blend but only of wines of the same year. Very few ports are the unblended product of one quinta. To preserve the fruit, the wine must be bottled before all impurities have had time to settle out in cask, so sediment will form in a bottle of vintage port. A white splash on the glass indicates the topside of the bottle during its early maturation in the lodge and so the crust will have formed on the opposite side. This crust will form again after the wine has been moved if it is left to rest for a few weeks. The port must be decanted off the crust before being served. The law requires that vintage ports be bottled in Portugal and carry the government authority's seal. Each shipper makes his own decision on whether to declare a vintage, and as there is more demand for good quality blends than for vintage port, most shippers will declare about three times in a decade.

- **Late Bottled Vintage**

Port wine of a single year that has been aged in wooden barrels from four to six years before bottling. After bottling, it is ready for immediate consumption. The label must bear the vintage date and the year of bottling.

- **Crusted Port**

A blended port that has been bottled after five or six years and then cellared until it throws a crust. This style is not sold in Portugal and needs at least seven years in bottle. Port that has been in wood for at least seven years, then bottled. It must bear the vintage date, year of bottling and an indication that the wine has been aged in cask, while descriptions such as Reserved are permitted for this style.

- **Tawny Port**

As port ages in oak, its color changes from purple through ruby to a light tawny; a fine tawny port has usually been in wood for about ten years and has a velvety consistency. It can also be made by blending red and white ports. Tawnies that have been aged for ten, twenty, thirty or over forty years. The label must carry an indication of age, the year of bottling and state that the port has been aged in cask.

- **Ruby Port**

A blend of old and young wine. The former contributes softness and character, the latter a fresh fruitiness. It is chilled before bottling to precipitate any sediment and so lengthen its shelf life.

- **White Port**

White grapes fermented out to make a dry wine which is then fortified. It is consumed as an aperitif.

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- **Vintage Character**

A quality blended port ready for immediate drinking. These ports must not carry a date on the label.

- **Sherry**

Sherry is a fortified wine made from white grapes that are grown near the town of Jerez, Spain. In Spanish, it is called "Vino de Jerez." The word "Sherry" is a British English term derived from "Jerez." In Spain, Sherry was once known as sack (from the Spanish saca, meaning "a removal from the solera"). In Europe, "Sherry" is a protected designation of origin; in Spanish law, all wine labeled as "Sherry" must legally come from the area designated as the "Sherry Triangle", which is an area in the province of Cádiz between Jerez de la Frontera, Sanlúcar de Barrameda, and El Puerto de Santa María. In 1933 the "Jerez Denominación de Origen" became the first Spanish denominación to be officially recognized as such, thus was officially named "D.O. Jerez-Xeres-Sherry" and sharing the same governing council as D.O. Manzanilla Sanlúcar de Barrameda. The "solera" system or process is used in aging Sherry. This process is also used in aging other liquids as well. Specifically, "Solera" is a process for aging liquids such as wine, beer, vinegar, and brandy, by fractional blending in such a way that the finished product is a mixture of ages, with the average age gradually increasing as the process continues over many years. A solera is literally the set of barrels stacked on top of others used in the process. In the solera process, a succession of containers are filled with the product over a series of equal aging intervals, usually a year. One container is filled for each interval. At the end of the interval, after the last container is filled, the oldest container in the solera is rackened for part of its content, which is bottled. Then that container is refilled from the next oldest container, and that one in succession from the second oldest, down to the youngest container, which is refilled with the new product. This procedure is repeated at the end of each aging interval. The transferred product mixes with the older product in the next barrel. The process usually happens from the top down.

Interestingly many products are aged using a solera system. Some of these products both, Spanish and non-Spanish, include Sherry, Madeira, Port wine, Marsala, Mavrodafni, Muscat, and Muscadelle wines; Balsamic, Commandaria, and Sherry vinegar; and Spanish brandy; and rums. The process of making Sherry is very much the same as for all other wines. After fermentation is complete, sherry is fortified with brandy. Because the fortification takes place after fermentation, most Sherries are initially dry, with any sweetness being added later in the process. Sherry is produced in a variety of styles, ranging from dry, light versions such as finos to darker and heavier versions.

Grapes Used to Make Sherry

Before the phylloxera infestation in 1894, there were estimated to be over 100 varietals of grapes used in Spain to produce Sherry. Still, today only three grapes are grown for Sherry-making, and they are all white:

1. **Palomino:** the dominant grape used for the dry sherries. Approximately 90 percent of the grapes grown for Sherry are Palomino. As varietal table wine, the Palomino grape produces a wine of very bland and neutral characteristics. This neutrality is what makes Palomino an ideal grape because the Sherry winemaking style so easily enhances it.

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2. **Pedro Ximénez:** it is used to produce sweet wines. When harvested, these grapes are typically dried in the sun for two days to concentrate their sugars.
3. **Moscatel:** used similarly to Pedro Ximénez, but it is less common.

Sherries are nowadays produced in many countries, *including the U.S. however, the Sherry-style wines produced are not always from the same grapes as in Spain but also other grape varieties.*

Types of Sherry

1. **Manzanilla Dry:** a delicate Fino made from grapes grown by the shores of Sanlúcar de Barrameda and matured in local cellars. Sharp, aromatic – some claim to detect a salty tang.
2. **Fino:** a delicate, extremely dry Sherry, pale in color, fragrant, with a powerful bouquet.
3. **Amontillado:** it is fuller and more rooted in color than Fino, with a delightful nutty flavor.
4. **Oloroso:** is naturally dry with a deep mahogany color and full flavor.
5. **Palo Cortado:** it tastes and looks between Amontillado and Oloroso. Although popular in Spain, it is not well known internationally. A good Palo Cortado is clean and crisp and has a deep, subtle bouquet.
6. **Cream:** This type of Sherry is more popular outside Spain. Cream sherry is produced by sweetening oloroso, traditionally with Pedro Ximenez. Pale cream is a sweetened Fino.
7. **Pedro Ximenez:** a rich, naturally sweet wine from grapes ripened in the sun for longer than usual. Traditionally used to sweeten other Sherries. Expensive to produce just the same as Ice Wine because by hanging longer on the vine, it will dehydrate and lose yield.
8. **Sweet Sherries (Jerez Dulce in Spanish):** are made either by fermenting dried Pedro Ximénez or Moscatel grapes, which produces an intensely sweet dark brown or black wine or by blending sweeter wines or grape must with a drier variety.
9. **Brandy De Jeréz:** it is a brandy conditioned using old Sherry barrels. About 90% of Spanish brandy is produced in Jeréz. The wine spirit is matured in old sherry casks. It is sweeter than French brandy and may be classified as a solera, gran solera, and solera reservada, 37 º - 40º degrees alcohol by volume or 74 to 80 proof in American scale.

Marsala

Like Port and Sherry, Marsala, too, was a British discovery. Marsala is made in the region of Marsala, a city on the west of Sicily. The grape varietals used in the vinification process are the autochthonous white grapes such as Catarratto, Grillo, and the highly aromatic Inzolia grape. The ruby colored Marsalas are made from any combination of other local red grapes, namely Pignatello, Calabrese, Nerello Mascalese, Nero d'Avola. Marsala wine is made in the "solera" tradition, the same as for the making of Sherry in Spain. First, a keg is filled with wine from the current vintage of grapes. Subsequent years with similar tastes are placed in kegs above the first. When liquid is drawn out of the bottom keg, representing the oldest, it is refreshed with liquid from the next keg up, and so on. In this manner, the taste remains the same throughout the cycle, and every bottle has potentially some wine from the very first vintage. Thus, every Marsala is aged.

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There are Three Styles of Marsalas Represented by Three Levels of Sweetness

1. **Secco** (dry): with a maximum 40 grams of residual sugar per liter
2. **Semisecco** (semi-dry): with residual sugar content between 41-100 grams per liter
3. **Dolce** (Sweet): with a residual sugar content of over 100 grams per liter

The Color and Aging Classifications of Marsala are Defined as Follows:

1. **Oro:** has a golden color.
2. **Ambra:** has an amber color. The coloring comes from the *mosto cotto* sweetener added to the wine.
3. **Rubino:** has a ruby color.
4. **Fine:** has minimal aging, typically less than a year.
5. **Superiore:** is aged at least two years.
6. **Superiore Riserva:** is aged at least four years.
7. **Vergine e/o Soleras:** is aged at least five years.
8. **Vergine e/o Soleras Stravecchio e Vergine e/o Soleras Riserva:** is aged at least ten years.
    - Except for the **Fine,** which has 17% alcohol by volume or 34 proof, all other styles have 18% of alcohol by volume or 36 proof.

23.1.2. SPARKLING WINES

Champagne and Sparkling Wines

Champagne is a sparkling wine produced by inducing a secondary fermentation in wine. It is named after the Champagne region of France. While makers of sparkling wine often use the term “Champagne” in other parts of the world, such as California and Canada, it should properly be used to refer only to the wines made in the region of Champagne in France. Under the auspices of the Comité Interprofessionel du Vin de Champagne, the community has developed a comprehensive set of rules and regulations for all wine that comes from the Champagne region. These rules are designed to ensure the highest quality of production and include a codification of the most suitable places for grapes to grow, the most suitable types of grapes. Most Champagne is produced from one or a blend of up to three varieties of grapes: chardonnay, pinot noir, and pinot meuniere. Even though five other varietals are permitted, it appears as only the aforementioned grapes are being used in the process.

The strict adherence to the regulations includes vine pruning, the maximum yield of the vineyard, the degree of pressure applied to the grapes when squeezed open, and the time that bottles must remain on the lees. Only if a wine meets all these requirements may the name Champagne be placed on the bottle. In Europe and most other countries, the name “champagne” is legally protected as part of Madrid’s 1891 Treaty to mean only sparkling wine produced in its namesake region and adhering to the standards defined for that name as an Appellation d’Origine Contrôlée. This right was reaffirmed in the Treaty of Versailles following World War I. Even the term méthode champenoise, or champagne method, is, as of 2005, forbidden in favor of méthode traditionelle.

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There are sparkling wines made worldwide, and many use different terms to define their own sparkling wines. For example, Spain uses the term Cava, Italy uses Spumante, Germany uses the term Sekt, and South Africa uses the name Cap Classique. Champagne's protection does not exclude other regions of France; they too are forbidden to use the name Champagne. For example, Burgundy and Alsace's wine-makers produce a sparkling wine call Crémant, which also refers to a sparkling wine with less carbonation.

Other sparkling wines not from Champagne sometimes use the term "sparkling wine" on their label. While most countries have labeling laws that protect wine-producing locations, such as Champagne, some, including the United States, continue to allow U.S. wine producers to utilize the name "Champagne" on the label of products that do not come from Champagne. To allow this practice, the U.S. Congress passed a law claiming that the term "champagne" is semi-generic. This often leads to consumer confusion about genuine Champagne and is seen as deceptive marketing practice by some consumers and wine experts.

While some U.S. companies ironically claim that their extended usage of the term prevents them from dropping the word champagne on the bottle, many quality U.S. sparkling winemakers have ceased use of the term, instead favoring "sparkling wine" as their identifier. Champagne comes in many styles, and its sugar content varies according to each style. The sweetest style is doux (meaning sweet), demi-sec (half-dry), sec (dry), extra sec (extra dry), brut (almost completely dry), and extra brut/ brut nature / brut zero (no additional sugar, sometimes fiercely dry.

Method of Production

Grapes used for Champagne processing are generally picked earlier when sugar levels are lower and acid levels higher. Except for pink or rosé Champagne types, the grapes' juice is removed from the dark grape skins immediately after gentle pressing to keep the wine white. The traditional method of making Champagne is known as the Méthode Champenoise. Champagne undergoes two fermentation processes. The first fermentation begins in the same way as any wine, converting the natural sugar in the grapes into alcohol while the carbon dioxide can escape. This produces the "base wine." This wine is not very pleasurable by itself, being too acidic. At this point, the blend is assembled, using wines from various vineyards, and, in the case of non-vintage Champagne, various years. The blended wine is put in bottles along with additional yeast, and a small amount of sugar called the liqueur de tirage and stored in a wine cellar horizontally for a second fermentation. During the secondary fermentation, the carbon dioxide is trapped in the bottle, keeping it dissolved in the wine. The amount of added sugar will determine the pressure of the bottle. To reach the standard value of 6 bars inside the bottle is necessary to have 18 grams of sugar, and the amount of yeast, Saccharomyces cerevisiae, is regulated by the European Commission (Regulation 1622/2000, 24 July 2000) to be 0.3 grams per bottle. The "liqueur de tirage" is then a mixture of sugar, yeast, and still champagne wine.

Champagne Capsules

After aging from one and a half to three years, the champagne bottles undergo a process known as riddling (remuage in French), in which they are rotated a small amount each day and gradually moved to a neck-down orientation, so that the sediment ('lees') collects in their necks and can be removed. The removal process is called "disgorging" (dégorgement in French). This is a skilled process, where the cork and the lees are removed without losing large quantities of the liquid, and a dosage (a varying

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amount of additional sugar and or brandy liqueur) is added. Until this process was invented (reputedly by Madame Clicquot in 1800), Champagne was cloudy, a style still seen occasionally today under the label méthode ancestrale. Modern disgorgement is automated by freezing a small amount of the liquid in the neck and removing this plug of ice containing the lees. A cork is then inserted with a capsule and wire cage, securing it in place. Wines from Champagne cannot legally be sold until it has aged on the lees in the bottle for at least 18 months. Champagne under the Appellation d'Origine Contrôlée (AOC) regulations require that vintage champagne be aged in cellars for three years or more before disgorgement, but most top producers exceed this minimum requirement holding bottles on the lees for 6 to 8 years before disgorgement.

Much of the Champagne produced is non-vintage (also known as mixed vintage), a blend of wines from several years. Typically, most of the wine is from the current year, but a percentage is made of "reserve wine" from previous years. This serves to smooth out some of the vintage variations caused by the marginal growing climate in Champagne. Most Champagne houses strive for a consistent "house style" from year to year, which is the most challenging task of the winemaker.

The grapes to produce vintage Champagne (Millésime) must be 100% from the year indicated (other sparkling wines in the EU need only be 85% to be called vintage). A champagne millésime must be the expression of an exceptional year. To maintain the quality of non-vintage Champagne, a maximum of half the grapes harvested in one year can be used to produce vintage Champagne, ensuring at least 50%, though usually more is reserved for non-vintage wines. Vintage Champagnes are the product of a single high-quality year, and bottles from prestigious makers can be rare and expensive.

Champagne Producers

This information on the label is very important in the fact that the consumer can easily identify why the Champagne is priced at a certain price level. If the Champagne is made by one manufacturer using its own grapes from one vineyard, the final product may be more expensive than other champagne, which could be mass-produced.

The type of champagne producer can be identified from the abbreviations followed by the official number on the bottle:

- **NM:** Négociant manipulant. These companies (including most of the larger brands) buy grapes from grape growers and make the wine
- **CM:** Coopérative de manipulation. Co-operatives that make wines from the growers who are members, with all the grapes pooled together
- **RM:** Récoltant manipulant. A grower that also makes wine from their own grapes
- **SR:** Société de récoltants. An association of growers making a shared Champagne but who are not a co-operative
- **RC:** Récoltant coopérateur. A co-operative member selling Champagne produced by the co-operative under its own name
- **MA:** Marque auxiliaire or Marque d'acheteur. A brand name unrelated to the producer or grower; the name is owned by someone else, for example, a supermarket
- **ND:** Négociant distributeur. A wine merchant selling under his own name

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Bottles Sizes and Names

Champagne is bottled in different sizes, and each carries specific names. The names associated with many bottles are from Jewish Kings; however, no one knows how these names were given to those bottles.

1. Quarter bottle also called split, or piccolo bottle contains 187.5 or about 6 ounces
2. Half-bottle also called Demi-Bouteille containers 375 ml or 13 ounces
3. Full bottle, also called Imperial, contains 750 ml, or 26 ounces
4. Magnum, 1.5 Liters, equivalent to 2 bottles or 52 ounces
5. Jeroboam contains 3 Liters or 4 bottles or 104 ounces
6. Rehoboam contains 4.5 Liters, or 6 bottles or 156 ounces
7. Methuselah contains 6 Liters or 8 bottles or 208 ounces
8. Salmanazar contains 9 Liters or 12 bottles, or 312 ounces
9. Balthazar contains 12 Liters or 16 bottles or 416 ounces
10. Nebuchadnezzar contains 15 Liters or 20 bottles or 520 ounces
11. Melchior contains 18 Liters or 24 bottles or 624 ounces
12. Solomon contains 25 Liters or 33 bottles 858 ounces
13. Primat contains 27 Liters or 36 bottles or 936 ounces
14. Melchizedek contains 30 Liters or 40 bottles or 1040 ounces

Sizes larger than Jeroboam are rarely produced. Primat sized bottles and Melchizedek sized bottles are relatively new on the market and are offered exclusively by the Champagne House Drappier.

Champagne Styles After Secondary Fermentation

1. White (regular blend from red and white grapes)
2. Pink (rosé)
3. Blanc de Blancs (white grapes only)
4. Blanc de noir (red grapes only)
5. Crémant (Less bubbles – no longer used in Champagne)
6. Vintage (Wine from a single year, exclusive harvest)
7. Non-vintage (wine from a single year plus reserve)
8. Cuvée – Cuvée de prestige (blend)
9. De Luxe (a prestigious vintage)
10. Other styles from each individual producer: grand cru, cordon rouge etc.

Champagne Sweetness, Residual Sugar in Grams per Liter

1. Extra Brut 0-6 (extremely tart) “Dom Perignon”
2. Brut (Dry) 3-15
3. Extra Sec (Off-Dry to Medium Dry)12-20
4. Sec (Medium-Dry)7-35
5. Demi-Sec. (Quite Sweet)35-50
6. Doux (Rich and Sweet) 50 plus

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Note: Nearly all Champagne is produced as Brut or Extra Sec. Only a little sweeter Champagne is produced to accompany dessert courses and spicy foods.

Wine and Food Pairing, an Italian Perspective

There has been extant literature published on wine and food pairing; however, each country, each winery, each restaurant, and each wine lover may have a different interpretation, different perception, and different appreciation about pairing wine with food. For example, Germans whose production is represented by over 2/3 in white wine tend to pair wine differently than Italians do. Therefore, every foodservice operation should conduct extensive training on wine and food pairing depending on the establishment's wine offering. The example below represents how Italians appreciate wine with food, although this sample may not be representative of the entire Italian wine drinking population.

Actual Tasting and Food Pairing

By Analogy: Wines and foods are considered in this case by typology, color, aroma, and structure. Here are some examples of matches

By typology: Rustic dishes and rustic wines. Refined cuisine and fine wines. Local specialties and local wines

By color: White wines and light-colored foods: most seafood and shellfish, chicken, and veal with light sauces. Red wines and dark-colored foods: salami, red meats, game, pigeon, duck, dishes with brown sauces. (The most frequent exceptions to the color guide are cheeses and desserts).

By aroma: Wines of delicate scent with foods of subtle taste and odor. Aromatic wines with foods of pronounced odor and flavor. Wines of a rich bouquet with smoked or spicy foods.

By structure: Full-bodied wines with dishes of rich textures and flavors.

By Contrast: The different tastes of wine become pleasing when they strike a balance at the finish. Likewise, contrasting flavors in wines and foods can achieve harmony on the plate. Following are some examples:

1. Acidic or tannic wines of an aromatic vine go with foods of mellow flavor and high-fat content.
2. Soft and somewhat alcoholic wines go with foods of tart piquant flavor.
3. Strong but mellow-flavored wines go with highly flavored foods.
4. Softly sweet wines go with dishes marked by a bitter vein.

The final balance is the key to success. If one of the contrasting flavors - sweet, acid, salty, spicy or bitter - predominates, it will cover the others, and the balance will be off. Desserts, for example, do not go with dry, acidic wines. Also, despite what one might have heard about obligatory matches of local dishes with local vintages, it is important to notice that the food of any region in the world and so in Italy is usually admirably adaptable and so, naturally enough, are the wines of that region.

The Procedure of Serving Table Wine in a Restaurant

Once the wine has been ordered, it must be requisitioned from the wine store. Without wiping it, the bottle is presented to the host for approval from his/her right-hand side, with the label facing the host. White

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wine glasses are placed just below the water goblet to the right. Red wine glasses are placed below the white wine glass to the right. If the guest does not order white wine, then the red wine glass may take the place of the white wine glass. Remove the bottle's seal at the side table, and with a corkscrew, uncork the bottle. Place the corkscrew with the cork on a side plate of the guest for the host to approve. The cork should be wet and firm. Wipe the bottle mouth and inner neck with a clean cloth. Wrap the bottle with a clean napkin and pour a little into the host's glass for him/her to taste and approve. After the host has agreed, change his/her tasting glass with a fresh one, then proceed to serve the guests clockwise; ladies first and host last.

While pouring the wine, the following rules need to be respected:

1. Pour the wine gently without making contact between the bottle's mouth and the rim of the glass.
2. Only three-fourths of the glass should be filled.
3. Only the glass is filled; twist the bottle to one side with a jerk to avoid spillage. However, this procedure should be avoided as it is considered unprofessional. Experienced sommeliers do not twist the bottle; they simply "sharply" lift it with a sudden movement so that the wine will not spill.
4. Note that Champagne is not required to be tested by the host since it is considered a perfect beverage that rarely fails to match its quality and consistency unless wrongly stored while aging.

For white wine or champagne, place the bottle in an ice bucket to the host's right and cover the bottle's mouth with a clean napkin. In the case of red wine, place it straight on the table with a napkin folded around or in a red wine basket. Refill the glasses as a napkin folded around or in a red wine basket. Refill the glasses as and when they become empty.

24. BEER

Introduction to Beer

Beer is an alcoholic beverage produced through the fermentation of sugars suspended in a watery solution and which is not distilled after fermentation. The unfermented sugar solution, called wort, is obtained from steeping, or "mashing," malted grains, usually barley. Alcoholic beverages made from the fermentation of sugars derived from non-grain sources, fruit juices, or honey, for example, are generally not called "beer," despite being produced by the same yeast-based biochemical reaction. The process of beer production is called brewing. Because the ingredients used to make beer differ from place to place, beer characteristics such as taste and color vary widely and, consequently, the style or classification. Brewing dates to at least the 5th millennium BC and is recorded in Ancient Egypt and Mesopotamia's written history. Beer is a social and cultural beverage in many societies. Various social traditions and activities are associated with beer drinking, such as buying a round, pub crawling, or various pub games. There are a number of related beverages such as ***kvass*** (an alcoholic drink similar to beer, made in Russia and eastern European countries from rye or barley or stale bread), ***sahti*** (a traditional beer from Finland made from a variety of grains, malted and unmalted, including barley, rye, wheat, and oats; sometimes bread made from these grains is fermented instead of malt itself; the product is a cloudy, mildly alcoholic beer with

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yeasty and phenolic flavors and distinct taste similar to that of a banana, and ***pulque*** (a thick alcoholic drink made in Mexico from the sap of the agave plant). Historians hypothesize that prehistoric nomads may have made beer from grain and water before learning to make bread. Beer became ingrained in the culture of civilizations with no significant viticulture.

Different grains were used in different cultures:

1. Africa used millet, maize, and cassava
2. North America used persimmon, although agave was used in Mexico
3. South America used corn, although sweet potatoes were used in Brazil
4. Japan used rice to make sake
5. China used wheat to make samshu
6. Other Asian cultures used sorghum
7. Russians used rye to make quass or kvass
8. Egyptians used barley and may have cultivated it strictly for brewing as it made poor
9. bread

As mentioned earlier, beer, like wine, is one of the oldest beverages humans have ever produced. In Classical Greece and Rome, beer was little known, except as a drink favored by foreigners (barbarians) of the Middle East and northern Europe. Since then, beer has largely remained a homemaker's activity, especially during medieval times. By the 14th and 15th centuries, beer-making gradually changed from a family-oriented activity to an artisan one, with pubs and monasteries brewing beer for mass consumption. Today, the brewing industry is a huge global business, consisting of several multinational companies and many thousands of smaller producers ranging from brewpubs to regional breweries.

Beer in the United States is manufactured by more than 1,800 breweries, ranging from industry giants to brewpubs and microbreweries. The United States produces about 6.1 billion gallons (about 231 million hectoliters) of beer annually. Americans consume about 21 gallons or about 85 liters per capita annually, which in 2009 ranked 8th in the world. The most common beer style in the United States is an American style pale lager modeled off the Pilsner style. Most of the new breweries in the US are Craft or Microbreweries, called Brew Pubs, when they also serve food on the premises. These producers make beer modeled off traditional and original styles, but the majority originates from Belgian, German, and English traditions. Thus, in this section, we will discuss the European beers and beer-making process more in-depth than the American ones.

The Beer Brewing Process

Though the process of brewing beer is complex and varies considerably, the basic stages that are consistent are outlined below. There may be additional filtration steps between stages.

Ingredients: The main ingredients of beer are water, malted barley, hops, and yeast. Other ingredients, such as flavoring or sources of sugar, are called adjuncts and are commonly used; common adjuncts are corn and sugar. These starches convert in the mashing process to easily fermentable sugars that increase beer content while adding little body or flavor. Major American breweries use relatively high percentages of adjuncts to produce very light-bodied beer at 4-5% alcohol by volume.

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Water: Because beer is composed mainly of water, the source of the water and its characteristics have an essential effect on the beer's character. Many beer styles were influenced or even determined by the characteristics of the water in the region. Although the effect of and interactions between various dissolved minerals in brewing water is complex, as a rule, hard water is more suited to dark styles such as stouts or porters. In contrast, very soft water is more suited for light-colored brewing beers, such as pilsners.

Malt: malt is barley or other cereals that have been partially germinated to allow starches to be converted into fermentable sugars. Malt is formed from grain by soaking it in water, allowing it to start to germinate, and then drying the germinated grain in a kiln. Malting the grain produces the enzymes that will eventually convert the starches in the grain into fermentable sugars. Among malts, barley malt is the most widely used due to its high amylase content, a digestive enzyme that facilitates the starch's breakdown into sugars. However, depending on what can be cultivated locally to make local beer, other malted and unmalted grains are commonly used, including wheat, rice, oats, rye, and less frequently, maize and sorghum. Different roasting times and temperatures are used to produce different colors of malt from the same grain. Darker malts will produce darker beers. In most cases, two or more types of malt are combined when making modern beers.

Hops: Hops have commonly been used as a bittering agent in beer since the seventeenth century. Hops contain several characteristics very favorable to beer: (a) contribute a bitterness that balances the sweetness of the malt, (b) contribute aromas which range from flowery to citrus to herbal, (c) hops also have an antibiotic effect that favors the activity of brewer's yeast over less desirable microorganisms and (d) the use of hops aids in "head retention," the length of time that foamy head created by the beer's carbonation agent will last. The bitterness of commercially brewed beers is measured on the International Bitterness Units scale. While hops plants are grown by farmers worldwide in many different varieties, there is no major commercial use for hops other than in beer.

Yeast: is a microorganism that is responsible for fermentation. Brewing yeasts may be classified as "top cropping" (or "top-fermenting") and "bottom cropping" (or "bottom-fermenting"). Top cropping yeasts are so-called because they form a foam at the top of the wort during fermentation. Bottom cropping yeasts are typically used to produce lager-type beers, though they can also produce ale-type beers. These yeasts ferment more sugars, creating a dryer beer, and grow well at low temperatures. A specific strain of yeast is chosen depending on the type of beer being produced, the two main strains being ale yeast (saccharomyces cerevisiae) and lager yeast (saccharomyces uvarum), with some other variations available, such as Brettanomyces and Torulaspora delbrueckii. Yeast will metabolize the sugars extracted from the grains and produce alcohol and carbon dioxide as a result. On average, after brewing, beer's alcohol content is between 4% and 6% alcohol by volume, although it can be as low as 2% and as high as 14% under ordinary circumstances, and several brewers claim to make beers that are upwards of 20%. Since the invention of the microscope, scientists have isolated many yeast strains allowing brew masters to create new beer types and styles by cloning and mixing different types of yeast by simply using one only, thus creating a new and unique style of beer.

Clarifying agent: Some brewers add one or more clarifying agents to beer that are not required to be published as ingredients. Common examples of these include Isinglass finings, obtained from swim bladders of fish; kappa carrageenan, derived from seaweed; Irish moss, a type of red alga; and gelatin. Since these ingredients may be derived from animals, those concerned with animal products' use or consumption should obtain specific details of the filtration process from the brewer. In other words, these beers are not vegetarian.

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Mashing: The first phase of brewing, in which the malted grains are crushed and soaked in warm water to create a malt extract. The mash is held at constant temperature long enough for enzymes to convert starches into fermentable sugars.

Sparging: Water is filtered through the mash to dissolve the sugars. The darker, sugar-heavy liquid is called the wort.

Boiling: The wort is boiled along with any remaining ingredients (excluding yeast), to remove excess water and kill any bacteria. The hops (whole or pelleted) are added, or a hop extract is used.

Fermentation: The yeast is added (or "pitched"), and the beer is left to ferment. After primary fermentation, the beer may be allowed a second fermentation, allowing further settling of yeast and other particulate matter "trub," which may have been introduced earlier in the process. Some brewers may skip the secondary fermentation and filter off the yeast.

Packaging: At this point, the beer contains alcohol but not much carbon dioxide. The brewer has a few options to increase carbon dioxide levels. The most common approach by large-scale brewers is force carbonation, via the direct addition of CO2 gas to the keg or bottle. Some brewers add extra ("priming") sugar or a small amount of newly fermenting wort ("kräusen") to the final vessel, resulting in a short secondary fermentation known as "cask" or "bottle conditioning." After brewing, the beer is usually a finished product. At this point, the beer is kegged, casked, bottled, or canned. Unfiltered beers may be stored for further fermentation in conditioning tanks, casks, or bottles to allow smoothing of harsh alcohol notes, integration of heavy hop flavors and/or the introduction of oxidized notes such as wine or sherry flavors.

Varieties of Beer

There are many different types of beer, each of which is said to belong to a style. A beer's style is a label that describes the overall flavor and often the origin of a beer, according to a system that has evolved by trial and error over many centuries. A major component of determining the type of beer is the yeast used in the fermentation process. Most beer styles fall into one of two large families: ale, top-fermenting yeast, or lager, using bottom-fermenting yeast. Beers that blend the characteristics of ales and lagers are referred to as hybrids. Alcoholic beverages made from the fermentation of sugars derived from non-grain sources are generally not called "beer," despite being produced by the same yeast-based biochemical reaction. Fermented honey is called mead, fermented apple juice is called cider, fermented pear juice is called perry, and fermented grape juice is called wine.

Ale: Modern ale is commonly defined by the strain of yeast used and the fermenting temperature. Ale yeast is typically considered to be a top-fermenting yeast, though several British brewers use ale yeast strains that settle at the bottom. Standard features of ale yeasts, regardless of top or bottom fermentation, ferment quicker than lager yeasts, converting less sugar into alcohol, thus producing a sweeter, fuller-bodied beer with esters fruity taste and buttery taste.

Fermenting Temperature

Ale is typically fermented at higher temperatures than lager beer (60–75°F). Ale yeasts at these temperatures produce significant amounts of esters and other secondary flavor and aroma products, and the result is a beer with slightly "fruity" compounds resembling but not limited to apple, pear, pineapple, banana, plum, or prune. Lager ferment between 30 and 40 °F or even colder.

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Stylistic Difference to Lager

Stylistic differences between some ales and lagers can be challenging to categorize. Steam beer, Kölsch, and some modern British Golden Summer Beers are hybrids, using both lager and ale production elements. While Baltic Porter and Bière de Garde may be produced by either lager or ale methods or a combination of both. However, lager is commonly perceived to be cleaner tasting, dryer, and lighter in the mouth than ale.

Lager: Lagers are the most consumed category of beer in the world. They are of Central European origin, taking their name from the German lagern ("to store"). Lager yeast is a bottom-fermenting yeast, and typically undergoes primary fermentation at (45-55°F) (the "fermentation phase"), and then is given a long secondary fermentation at (30-40°F) (the "lagering phase"). During the secondary stage, the lager clears and mellows. The cooler conditions also inhibit esters and other byproducts' natural production, resulting in a "crisper" tasting beer.

Modern methods of producing lager were pioneered by Gabriel Sedlmayr, the Younger, who perfected dark brown lagers at the Spaten Brewery in Bavaria, and Anton Dreher, who began brewing a lager, probably of amber-red color, in Vienna in 1840–1841. With modern improved fermentation control, most lager breweries use only short periods of cold storage, typically 1–3 weeks.

In terms of volume, most of today's lager is based on the Pilsner style, pioneered in 1842 in Pilzen, in the region of Bohemia, in the Czech Republic. The modern Pilsner lager is light in color and high in carbonation, with a strong hop flavor and an alcohol content of 3–6% by volume. The Pilsner Urquell is the most famous, and Heineken is another example of pilsner-style beer.

Spontaneous Fermentation

These are beers that use wild yeasts rather than cultivated ones. All beers before the cultivation of yeast in the 19th century were closer to this style, characterized by their sour flavors.

Hybrid Beers

Hybrid or mixed style beers use modern techniques and materials instead of, or in addition to, traditional aspects of brewing. Although there is some variation among sources, mixed beers generally fall into the fruit beers and vegetable beers categories:

Herb and spiced beers add herbs or spices derived from roots, seeds, fruits, vegetables, or flowers instead of, or in addition to hops. Wood-aged beers are any traditional or experimental beer that has been aged in a wooden barrel or have been in contact with wood (in the form of chips, cubes, or "beans") for some time (Oak is the most common). Frequently, the barrel or wood is treated first with various spirits or other alcoholic beverages such as bourbon, scotch, and sherry. Smoked beers are any beer whose malt has been smoked. A smoky aroma and flavor are usually present. The most classic examples of this style are the Rauchbiers of Bamberg, Germany. However, many brewers outside of Germany and most notably American craft brewers have been adding smoked malt to porters, Scotch ale, and various other styles. Specialty beers are a catch-all category used to describe any beers brewed using unusual fermentable sugars, grains, and starches.

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Draft or Draught? And keg Beers

Draft is a US term, and Draught is a British English term. Draft beer from a pressurized keg is the most common dispense method in bars around the world. A metal keg is pressurized with carbon dioxide (CO2) gas, which drives the beer to the dispensing tap or faucet. Some stouts, such as Guinness, may be served with a nitrogen/carbon dioxide mixture, rather than standard carbon dioxide, to obtain a creamier mouthfeel. These beers will be poured in two stages, with a pause to allow settling of the foam. In the 1980s, Guinness introduced the beer widget a pressurized nitrogen ball inside a can that imitates the foamy head created by draught beer. Other breweries followed, using the words "draft" and "draught" as marketing terms to describe such canned or bottled beers containing a beer widget. Most draft beer is unpasteurized and has an average shelf life of about 30 days if refrigerated.

Bottle Conditioned Beers

Bottle-conditioned beers are unfiltered and unpasteurized, meaning that the yeast in the bottle is still active. It is usually recommended that the beer is poured slowly, leaving any yeast sediment at the bottle's bottom. However, some drinkers prefer to pour in the yeast, and this practice is customary with wheat beers. Typically, when serving a hefeweizen, 90% of the content is poured, and the remainder swirled to dissolve the sediment before pouring it into the glass. Because of the active yeast, this type of beer is served with a wedge of lemon to neutralize the off odor; however, some hefeweizen lovers use the lemon in the beer glass to reduce the high carbonation.

Beer Culture-Beer in a Social Context

Beer is a social beverage in many societies. Various social traditions and activities are associated with beer drinking, such as Frühshoppe (drinking with buddies before the meal is served), buying around, pub crawling, rating beer, or drinking a yard of ale. Consumption in isolation and excess may be associated with people "drowning their sorrows," while drinking in excess in the company of others may be associated with binge drinking. Beer is consumed in countries worldwide, including in Middle Eastern countries such as Iraq and Syria, as well as African countries and others as far as Mongolia.

Beer Serving Etiquette

Temperature: Generally, beer is consumed "Cool" and never cold. In America, however, people prefer to drink beer extremely cold and served in a frozen mug or glass. Colder temperatures inhibit the tongue and throat's chemical senses, which narrow down the flavor profile of a beer, allowing delicate beers such as Pilsners and Pale lagers to be appreciated for their crispness, but preventing the more rounded flavors of ale or stout to be perceived. While there are no general agreements, a practical approach is that lighter colored beers, such as Pale lagers, are best served cold (40-45F), while dark, strong beers such as Imperial Stouts should be served at cellar temperature (54-60F) and then allowed to warm up in the room to individual taste. Glassware: An appropriate glass or mug is appreciated by beer drinkers, although in the U.S., it has become a common practice to drink straight from the bottle or can unless

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they patronize an upscale bar or restaurant. Drinking out of a bottle, however, inhibits aromas usually sensed by the nose. As with wine, there are specialized glassware styles for some beer styles, and some breweries even produce glassware intended for their beers. One crucial factor to consider in beer service is that although glassware is entirely non-porous, its surface can retain oil from the skin, aerosolized oil from nearby cooking, and fat traces from food. This is very much the case in pizza restaurants and other fast-food restaurants with many fried dishes on the menu. When these oil residues come into contact with the beer, it reduces the carbonation and the building up of the head (foam.) It means that because the carbonation bubbles will stick to the glass side where the fat is rather than rising to the surface as normal. In technical terms, this beer is considered "Flat" or no carbonation.

Pouring: The pouring process influences a beer's presentation. Estimate the rate of beer flow from the tap of a draft beer dispenser or from the bottle. Then, tilt the glass and position the dispenser or bottleneck in the center or down the side into the glass and pour. Heavily carbonated beers such as German pilsners or Weissbiers may need settling time before serving, however many Weissbiers are served with the addition of the remaining yeast at the bottom of the bottle to add both flavor and color.

Germany produces one of the largest selections of beer types and styles, each with a distinctive character. Table 5 below shows 62 different types of beers produced in Germany.

Serving Beer

Beer should be served at the correct temperature for maximum enjoyment.

1. Lager beers should be kept in the refrigerator before serving at 48°F or cooler
2. The light American and Australian lagers should be served at a lower temperature of 42°F or even cooler
3. Ales should never be over-chilled, or it will develop a haze and lose its fruity-flavors; the recommended serving temperature is between 54-56°F.
4. Very strong ales should be served at room temperature.
5. Never store a bottle-conditioned beer in the refrigerator but keep them cool and standing for several hours before serving to allow the sediment to clear.

Beer Glossary

Abbey: Commercial Belgian beers. Abbey beers ("Bières d'Abbaye" or "Abdijbier") are made by commercial breweries, or brewed under license from an existing abbey, or branded with the name of an abbey ruin or some other religious connection, such as a local saint.

Adjuncts: Materials, like rice, corn, and brewing sugar, used in place of traditional grains for cheapness or lightness of flavor.

Ale: The oldest beer style in the world. It is produced by warm or top fermentation.

Alt: Dark brown top-fermenting beer from Düsseldorf.

Alpha acid: The main component of the bittering agent in the hop flower.

Attenuation: The extent to which brewing sugars turn to alcohol and carbon dioxide.

Beer: Generic term for an alcoholic drink made from grain. Includes both ale and lager.

Bitter: British term for the pale, amber, or copper-colored beers that developed from the pale ales in the 19th century.

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Table 5. Most popular beer types and styles produced in Germany

1.	Alkoholfreies (Non-Alcoholic beer)	32.	Kristallweizen
2.	Altbier	33.	Lagerbier
3.	Alsterwasser	34.	Landbier
4.	Berliner Weisse	35.	Latzenbier
5.	Biobier	36.	Leichtbier/Light
6.	Bockbier	37.	Maibock
7.	Dampfbier	38.	Malzbier
8.	Diätbier/"Diet Beer"	39.	Märzen
9.	Dinkelbier	40.	Mumme
10.	Doppelbock	41.	Ökobier
11.	Doppelsticke	42.	Oktoberfestbier
12.	Dortmunder	43.	Pils/Pilsener
13.	Dunkel	44.	Porter
14.	Dunkelweizen	45.	Radlermass
15.	Dünnbier	46.	Rauchbier
16.	Einfachbier	47.	Roggenbier
17.	Eisbier	48.	Russ
18.	Eisbock	49.	Schankbier
19.	Emmerbier	50.	Schwarzbier
20.	Erntebier	51.	Starkbier
21.	Export	52.	Steinbier
22.	Festbier	53.	Sticke Alt
23.	G'frorns	54.	Urbock
24.	Gose (Leipziger)	55.	Vollbier
25.	Gruitbier	56.	Weihnachtsbier
26.	Hefeweizen	57.	Weissbier
27.	Helles	58.	Weissbierpils
28.	Helles Bock	59.	Weizenbier
29.	Kellerbier	60.	Weizenbock
30.	Kölsch	61.	Weizendoppelbock
31.	Kräusenbier	62.	Weizeneisbock

Bock or Bok: Strong beer style of The Netherlands and Germany.

Bottle-conditioned: Beer that undergoes a secondary fermentation in the bottle.

Brew kettle: See Copper

Cask-conditioned: Beer that undergoes a secondary fermentation in the cask. Known as "real ale", closely identified with British beers.

Copper: Vessel used to boil the sugary wort with hops.

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Table 6. Some of the most popular beers in the world

Beer name	Country	Type	Style
1698 Celebration Ale NRB	England	Ale	Brown
Abbot Ale can	England	Ale	Brown
Amstel bottle	Holland	Lager	Blond
Amsterdam mariner	Holland	Lager	Blond
Baltika Beer	Russia	Lager	Blond
Bass Pale Ale	England	Ale	Blond
Becks	Germany	Lager	Blond
Belhaven Best	Scotland	Ale	Brown
Big Chouffe	Belgium	Ale	Blond
Bishops Finger	England	Ale	Brown
Black Wych Ale	England	Stout	Dark
Blanche de Namur	Belgium	Whitebeer	Blond
Boddingtons	England	Ale	Brown
Brahma	Brazil	Lager	Blond
Budejovicky Budvar	Czech	Lager	Blond
Budweiser	USA	Lager	Blond
Bush de Noel Valissete	Belgium	Ale	Dark
Caffreys Irish ale	Ireland	Ale	Dark
Carling lager	England	Lager	Blond
Carlsberg	Denmark	Lager	Blond
Castle	Africa	Lager	Blond
Chimay	Belgium	Ale	Dark
Cobra	India	Lager	Blond
Corona	Mexico	Lager	Blond
Delirium Tremens 33	Belgium	Ale	Brown
Deus Brut des Flandres	Belgium	Champ	Blond
Dos Equis	Mexico	Lager	Dark
Duvel	Belgium	Ale	Blond
Early Bird	England	Ale	Brown
Erdinger	Germany	Weissbier	Blond
Fiddler's Elbow Ale	England	Ale	Dark
Fosters bottle	Australia	Lager	Blond
Fransiskaner Weiss Bier	Germany	Weissbier	Blond
Fullers London Pride	England	Ale	Dark
Goliath Ale	England	Ale	Dark
Green King IPA	England	Ale	Brown
Grimbergen Dark	Belgium	Ale	Dark
Grolsch	Holland	Lager	Blond
Heineken	Holland	Lager	Blond
Hen's Tooth	England	Ale	Brown
Hobgoblin Ale	England	Ale	Dark
Hoegaarden wit	Belgium	White Beer	Blond
John smiths	England	Ale	Brown
Keo bottle	Cyprus	Lager	Blond
Kingfisher lager	India	Lager	Blond
Konig Ludwig Weiss	Germany	Weissbier	Blond
Konig Pilsener	Germany	Pilsner	Blond
Kriek Jacobins	Belgium	Fruit Beer	Red
Kronenbourg bottle	France	Lager	Blond
Leffe radiuse btl	Belgium	Ale	Red
Lieffmans Kriek	Belgium	Fruit Beer	Red
Lindemans Faro	Belgium	Lambic	Brown
Lucifer blonde	Belgium	Ale	Blond
Maisels weisse beer	Germany	Weissbier	Blond
Maredsous brune	Belgium	Ale	Dark
Master Brew Kentish ale	England	Ale	Brown
Mc Chouffe	Belgium	Ale	Dark
Miller draft	USA	Lager	Blond
Moretti bottle	Italy	Lager	Blond
Murphy's Irish stout	Ireland	Stout	Dark
Mythos	Greece	Lager	Blond

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Table 6. Continued

Beer name	Country	Type	Style
Old Speckled Hen	England	Ale	Brown
Orval	Belgium	Ale	Dark
Paulaner	Germany	Weissbier	Blond
Pauwel Kwak	Belgium	Ale	Brown
Pilsner urguel	Czech	Pilsner	Blond
Primus	Belgium	Lager	Blond
Quinness	Ireland	Stout	Dark
Raddles County	England	Ale	Brown
Ramée	Belgium	Ale	Blond
Regal	Belgium	Ale	Dark
Rochefort	Belgium	Ale	Dark
Rodenbach grand cru	Belgium	Ale	Brown
Samuel Adams Boston lager	USA	Lager	Brown
San Miquel	Filipines	Lager	Blond
Sapporo premium lager	Japan	Lager	Blond
Sol Mexican	Mexico	Lager	Blond
Spitfire premium ale	England	Ale	Brown
Srong Suffolk	England	Ale	Brown
St.Bernardus	Belgium	Ale	Dark
St.Paul	Belgium	Ale	Blond
St.Sebastiaan	Belgium	Ale	Blond
Staropramen	Czech	Lager	Blond
Stella Artois	Belgium	Lager	Blond
Tennents lager	Scotland	Lager	Blond
Tiger beer	Singapore	Lager	Blond
Tripple Karmeliette	Belgium	Ale	Blond
Tsingt tao	China	Lager	Blond
Veltins beer	Germany	Pilsner	Blond
Warsteiner	Germany	Lager	Blond
Weltenburger	Germany	Pilsner	Blond
Westmalle tripple	Belgium	Ale	Dark
Whitstable Bay Organic ale	England	Ale	Brown
Zywiec	Poland	Lager	Blond

Decoction mashing: A system mainly used in lager brewing in which portions of the wort are removed from the vessel, heated to a higher temperature, and then returned. Improves enzyme activity and the conversion of starch to sugar in poorly modified malts.

Dry hopping: The addition of a small amount of hops to a cask of beer to improve aroma and bitterness.

Dunkel: A dark lager beer in Germany, a Bavarian specialty that predates the first pale lagers.

Entire: The earliest form of porter, short for "entire butt."

Ester: Flavor compounds produced by the action of the yeast turning sugars into alcohol and carbon dioxide. Esters may be fruity or spicy.

Fining: Substance that clarifies beer, usually made from the swim bladder of sturgeon fish; also known as isinglass.

Framboise or Frambozen: Raspberry-flavored lambic beer.

Grist: The coarse powder derived from the malt that has been milled or "cracked" in the brewery prior to mashing.

Gueuze: A blend of Belgian lambic beers.

Helles or Hell: A pale Bavarian lager beer.

Hop (Lat: Humulus Lupulus): Herb used when brewing to add aroma and bitterness.

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International Bitterness Units. An internationally agreed scale for measuring the bitterness of a beer. A "lite" American lager may have around 10 IBU's, an English mild ale around 20 units, an India Pale Ale 40 or higher, an Irish stout 55 to 60, and barley wine 65.

Infusion: Method of mashing used mainly in ale-brewing where the grains are left to soak with pure water while starches convert to sugar, usually carried out at a constant temperature.

Kölsch: Top-fermenting golden beer from Cologne.

Kräusen: The addition of partially fermented wort during lagering to encourage a strong secondary fermentation.

Kriek: Cherry-flavored lambic beer.

Lager: The cold-conditioning of beer at around 0 degrees Centigrade to encourage the yeast to settle out, increase carbonation, and produce a smooth, clean-tasting beer. From the German meaning "to store."

Lambic: Belgian beer made by spontaneous fermentation.

Lauter tun: Vessel used to clarify the wort after the mashing stage.

Light: A beer whose main ingredient consists of rice or grits

Malt: Barley or other cereals that have been partially germinated to allow starches to be converted into fermentable sugars.

Mash: First stage of the brewing process, when the malt is mixed with pure hot water to extract the sugars.

Märzen: Traditional Bavarian lager brewed in March and stored until autumn for the Munich Oktoberfest.

Mild: Dark brown (occasionally pale) English and Welsh beer, lightly hopped. The oldest style of beer that once derived its color from malt cured over wood fires—one of the components of the first porters.

Milk stout: Stout made with the addition of lactose, which is unfermentable, producing a beer low in alcohol with a creamy, slightly sweet character.

Pilsner or Pilsener or Pils: International brand name for a light-colored lager which originated in Pilzen, in the Czech Republic

Porter: Dark - brown or black - beer originating in London.

Priming: Addition of sugar to encourage a secondary fermentation in beer.

Reinheitsgebot: Bavarian beer law of 1516 (the "Purity Pledge) that lays down that only malted grain hops, yeast, and water can be used in brewing. Now covers the whole of Germany.

Shilling: Ancient method of invoicing beer in Scotland on strength. Beers are called 60, 70, or 80 shillings.

Sparging: From the French esparger, to sprinkle, sprinkling or spraying the spent grains in the mash cask or lauter cask to flush out any remaining malt sugars.

Square: A traditional, open fermenting vessel.

Steam beer: American beer style saved by the Anchor Brewery in San Francisco.

Stout: Once an English generic term for the strongest ("stoutest") beer in a brewery. Now considered a quintessentially Irish style.

Trappist: Ales brewed by monks of the Trappist order in Belgium and The Netherlands.

Ur or Urtyp: German for original.

Weizen or Weisse: German for wheat or white beer.

Wort: Liquid resulting from the mashing process, rich in malt and sugars.

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25. NON-ALCOHOLIC BEVERAGES

Consuming non-alcoholic beverages have become a way of life for many people. In fact, the product offering of many soft drinks companies such as Coca-Cola or PepsiCo now consists of many beverages, including juices and specialty waters such as vitamins enriched waters or flavored waters and energy drinks. People start with the morning tea, regular coffee, espresso, or mixed hot drinks such as cappuccino and continue through the morning and afternoon with other beverages, from carbonated drinks to cold coffee and chocolate drinks and/ or vegetable juices till the end of the day. This aspect of a person's life is fully understood, and hotels and restaurants have taken advantage of these trends by propagating the idea and by offering a variety of drinks, patrons can choose from. However, it is essential to know a little about these beverages to offer these products because they certainly add a sizeable contribution to the establishment's profits.

The non-alcoholic beverage may be classified into three basic categories:

1. Stimulating,
2. Refreshing, and
3. Nourishing.

These are mostly aerated water that comprises a combination of water, carbon dioxide, sugar, and artificial essence. The most popular essences used in these drinks are those extracted from citrus fruit. These essences are found in lemonade and orangeade. Basically, bottles with water and essence are infused with carbon dioxide, and the bottle is sealed immediately. Soda is just purified carbonated water. Mineral water is the original medicinal water from mineral springs. Imitations of mineral water are called Oligo Mineral waters, and they include mineral waters that do not have enough minerals and that have carbonation and flavor added to them, such as Tonic water or bitter lemon in which dosage of quinine is injected. Under the category of refreshing drinks, we find the commercial colas represented by the two most renowned companies, Coca Cola and Pepsi Cola. Most manufacturers have their own formula for the basic flavor or essence. Colas have a generous infusion of carbon dioxide to give the drinks the fizz. Syrups and squashes are concentrates of fruit essences sweetened with concentrated sugar syrup. These are not carbonated. Common syrups and squashes available are strawberry, raspberry, orange, and lemon. Nourishing drinks are very different. We usually associate wholesome drinks with fresh juices or milk. Among the fruit juices are fresh and tinned orange, mango, grapefruit, pineapple, and lime, while tomato juice is from the vegetable family. As regards milk-based nourishing drinks, we have popular cocoa-based drinks like drinking Chocolate, Ovaltine, and Bournvita. These are sweetened powder mixes that dissolve readily in milk to give a rich coca flavor. The markets definition for bottled was consists of:

1. sparkling flavored water
2. sparkling unflavored water
3. still flavored water, and
4. still unflavored water

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Definitions of Waters and Water-Related Terms/Products

- **Approved Laboratory:** Water must be inspected by a competent commercial laboratory (e.g., Environmental Protection Agency (EPA), state-certified, or laboratories acceptable to the government agencies having jurisdiction).
- **Approved Source:** when used about bottled water, the source must be approved whether the water came to be from a spring, artesian well, drilled well, public or community water system, or any other source that has been inspected and analyzed, and according to the agencies having jurisdiction.
- **Artesian Water/Artesian Well Water:** bottled water from a well tapping a confined aquifer in which the water level stands at some height above the top of the aquifer. Artesian water may be collected with the assistance of external force to enhance the natural underground pressure.
- **Bottled Water:** Water that is intended for human consumption and that is sealed in bottles or other containers with no added ingredients except that it may optionally contain safe and suitable antimicrobial agents. Fluoride may be optionally added within the limitations established by law. Bottled water does not include those food ingredients that are declared in ingredient labeling as "water," "carbonated water," "disinfected water," "filtered water," "seltzer water," "soda water," "sparkling water," and "tonic water."
- **Sparkling Bottled Water:** water that, after treatment and possible replacement of carbon dioxide. It contains the same amount of carbon dioxide that it had at the emergence from the source.
- **Demineralized Water:** water which is produced by distillation, deionization, reverse osmosis, or other suitable process and that meets the definition of purified water
- **Deionized Water:** water that has been produced by the process of deionization and that meets the definition of "purified water":
- **Distilled Water:** water that has been produced by the process of distillation and meets the definition of "purified water."
- **Drinking-Water:** water that is intended for human consumption and that is sealed in bottles or other containers with no added ingredients except that it may optionally contain safe and suitable antimicrobial agents. Fluoride may be optionally added within the limitations established by the law. The common or usual name of the resultant product must reflect these additions. The processing and bottling of drinking water must comply with applicable regulations of bottled and purified water.
- **Ground Water:** Water from a subsurface saturated zone that is under pressure equal to or greater than atmospheric pressure. Groundwater must not be under the direct influence of surface water
- **Mineral Water:** means water containing not less than 250 parts per million (ppm) total dissolved solids (TDS), coming from a source tapped at one or more boreholes or springs, originating from a geologically and physically protected underground water source. Mineral water shall be distinguished from other water types by its constant level and relative proportions of minerals and trace elements at the point of emergence from the source. No minerals may be added to this type of water.

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Sample label description of mineral content in Mineral Water

NAME OR PLACE OF SOURCE: SAN PELLEGRINO TERME, ITALY

Laboratory Analysis

1. Gas (CO2), minimal
2. Acidity (PH) 7.7
3. Total Dissolved Solids (TDS) 1109 mg/l
4. Calcium (Ca++) 208 mg/l
5. Magnesium (Mg++) 55.9 mg/l
6. Sodium (Na+) 43.6 mg/l
7. Potassium (K+) 2.7 mg/l
8. Bicarbonate (HCO3-) 135.5 mg/l
9. Chloride (Cl-) 74.3 mg/l
10. Sulphate (SO4-) 549.2 mg/l
11. Fluoride (F-) 0.52 mg/l
12. Nitrate (NO3-) 0.45 mg/l
13. Silica (SiO2) 9 mg/l
14. Lithium (Li+) 0.2 mg/l
15. Hydrobromide (Br-) 0.38 mg/l
16. Strontium (Sr++) 2.7 mg/l
17. Boration (H3BO3) 1.2 mg/l
18. Conductivity 1292 µS/cm

In the U.S. bottled waters are regulated as a food by the Food and Drug Administration. Most water producers are members of "The International Bottled Water Association (IBWA). The IBWA provides a Bottled Water Code of Practice called ("Model Code") as a comprehensive guide for bottled water to meet the technical, regional, and federal regulations. The FDA defines the following types of bottled water:

- **Natural Water:** bottled spring water, mineral water, artesian water, artesian well water, or well water which is derived from an underground formation or water from surface water that only requires minimal processing, is not derived from a municipal system or public water supply, and is unmodified except for limited treatment (e.g., filtration, ozonation or equivalent disinfection process).
- **Purified Water:** bottled water produced by distillation, deionization, reverse osmosis, or another suitable process, and that meets the definition of the purified competent commercial laboratory must inspect water of limited treatment to remove any undesirable element (e.g., bromide, arsenic) from bottled water spring water, mineral water, artesian water, or well water, as appropriate, if all other requirements of the applicable standard of identity are met. If the process alters the water significantly, that fact must be reflected in the Statement of Identity, and the product cannot be labeled natural.

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- **Reverse Osmosis Water:** water that is produced by the process of reverse osmosis that meets the definition of "purified water."
- **Spring Water:** Water is derived from an underground formation from which water flows naturally to the earth's surface. Springwater shall be collected only at the spring or through a borehole tapping the underground formation feeding the spring. There shall be a natural force causing the water to flow to the surface through a natural orifice, and the location of the spring shall be identified and such.
- **Sterilized Water:** water that meets the requirements under Sterility Tests.
- **Well Water:** water from a hole bored, drilled, or otherwise constructed in the ground, which taps the water of an aquifer.

Source: *EPA* https://www.epa.gov/privatewells/protect-your-homes-water#welltestanchor

26. COFFEE

A coffee tree can provide enough coffee beans to fill a one-pound can of ground coffee during each growing season. Coffee beans are the seeds of cherry-sized berries, the fruit of the coffee tree. It takes 3 to 5 years after planting a coffee tree before it can produce marketable coffee beans. The bulk of world coffee production comes from the Western Hemisphere's tropical highlands and in the low, hot areas of Africa and Asia. South and Central America produce most of the coffee traded in world commerce. Coffee is produced in many countries of the tropic of cancer such as Papua New Guinea, Cameroon, Ethiopia, Ivory Coast, Kenya, Madagascar, Uganda, Zaire, Brazil, Columbia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, India, Indonesia, and Vietnam.

However, the world's major coffee producers are Brazil, Vietnam, Colombia, and Indonesia. Brazil and Colombia produce mostly Arabica coffee and together account for more than 40 percent of world coffee production. Vietnam produces Robusta coffee, generally considered a lower quality type of coffee than Arabica; however, it contains more caffeine than Arabica beans. The world produces about 120 to 140 million 60-kilogram bags of coffee per year (one 60-kilo bag equals 132.276 pounds). Coffee production can vary significantly from year to year, depending on whether Arabica coffee trees are in the on-year or the off-year of their biennial production cycle. Simply comparing this year's output to last year's may be misleading for the U.S. coffee futures trader. Most of the coffee trade happens in the UK, and in the U.S., African-grown coffee is traded at the London Commodities Exchange, and Latin America-grown coffee is traded at the New York Coffee Exchange.

Coffee plays an important part in the economies of over 40 producing countries. In value, it is the second-largest commodity in international trade next to oil and exceeds wheat, sugar, and rice as the major agricultural commodity. Earnings from Coffee exports are four times as high as those from tea and cocoa. More than 20 million people are employed in growing and distributing coffee throughout the world.

History of Coffee

Little is known about how coffee was first discovered. The coffee tree probably originated in the province of Kaffa, in the area known today as Ethiopia, and historians remain sure that it originated there more than 1,000 years ago. One day, the best-known legend has it that a herdsman named Kaldi noticed that

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his goats became unusually lively after nibbling at a strange bush covered with red berries. Having tried the berries himself and found them equally stimulating, he told the abbot of a nearby monastery who discovered that the bean tasted even better if roasted and made into an aromatic brew. The result was that all the monks felt more than usually alert at night and could carry out their long sessions of prayers without feeling drowsy. However, they found the brew to be extremely bitter, and after the first trial, they were disappointed and threw the mixture into the fireplace. Once the water had evaporated, the coffee beans began to burn to develop the aroma as it is known today. The first coffee houses were opened in Mecca, where coffee drinking was initially encouraged and quickly spread throughout the Arab world.

Consequently, coffee developed into a beverage and trade. Coffee as a beverage gradually spread from Ethiopia to many parts of the near east. Muslims especially were forbidden alcohol by Mohammed, who proclaimed that only Teetotal Muslims could enter Paradise, welcomed the drink as a stimulating substitute. In fact, the word Coffee is derived from the Arabic "Kaveh," meaning wine. By the middle of the 16th century, Coffee had spread by way of the ancient caravan trade routes to Greece and Turkey. Several Coffee Houses were opened in Constantinople, which was then at the height of its fame as a center of learning. Records show that Venetian traders first brought coffee to Europe in 1615, and 30 years later, a coffee house or 'café' was opened in Venice.

The growth of popular coffee houses, which became favorite meeting places for both social and business purposes, spread from the mid-17th century to other European countries, including Austria, France, Germany, Holland, and England. Furthermore, records show that during the invasion of Europe, the Turkish army left behind large quantities of Coffee after Vienna's siege in the latter part of the 17th century, and so Coffee was further introduced into Europe. The first English Coffee Houses were opened in the early 1650s and soon became centers of social and intellectual activity the same as in Venice.

Many coffee houses attracted their special clientele and became a meeting place for Politicians, Artists, Writers, or Businessmen. Lloyd's of London, the largest insurance market in the world, began life as a coffee house in 1688. In the 1950s, Coffee bars became popular again and provided a fresh stimulus that rapidly increased consumption. Regarding the U.S., coffee came from Europe and was first introduced to Virginia, and the last three hundred years have seen coffee make its way around the world, establishing itself in the economies and lifestyles of the leading trading nations.

Coffee can grow in certain conditions only, and the most important producing areas lie within the tropical belt. It cannot tolerate wide variations of temperature, and frost is fatal to it. Although Coffee must have a warm climate, it does not like too much sunlight and is usually planted in the shade of taller trees. Ample rain is required, and good drainage must be provided. High winds, pests, and diseases are other enemies that make much care necessary to successful cultivation.

Source: Coffee Science Information Centre, additional information available at: http://www.cosic.org/

The coffee plant: There are three types of Coffee plant: *Arabica, Robusta, and Liberica*

Arabica

According to the International Coffee Trade Center in 2010, the Arabica bean production represented 59.7%, and the Robusta represented 40.3% of the total coffee production. *(Other subcategories not included in this statistics).* The Plant is susceptible to growing conditions. It will grow in Volcanic Soil between 3,000- and 5,000-feet altitude at about 62° to 68° Fahrenheit atmospheric temperature without frosts. The plant needs about two hours of sunshine per day, and shade trees usually need to be planted to protect them from hot and direct sunshine. With high humidity, Arabica is also very susceptible to

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disease. All these factors add up to a high producing cost. Because Arabica is grown at higher altitudes where nights are cool, the growth rate of the plant and coffee cherries is slower than Robusta and Liberica, which can be grown at sea level. This results in finer flavors developing in the bean, and the best cupping qualities come from Arabica beans. Of course, there is a wide range of flavors and qualities within the category, but the finest Arabicas are held to be those with good acidity and pointedness with a fine flavor. These characteristics are most often present in. "Strictly Hard Beans" (S.H.B) such as those from Kenya and Costa Rica. Great skills are required in the roasting of these beans to bring optimum results. At the other end of the Arabica, the scale is the S.S. Strictly Soft (S.S.) beans. Santos coffee is famous for these beans, which allows a very even roasting of the beans, giving a beautiful roasted bean appearance. While these sorts lack acidity and pointedness, they do have full flavor, body, and thickness.

Robusta

The most obvious growing need that differs from Arabica is altitude. Robusta also called *Coffea canephora,* will grow below 3,000 feet. It is more resistant to disease and is generally less temperamental than Arabica. Typically, reputable coffee companies very rarely use Robusta beans. If it is used in blending, only superior grades are bought and blended to achieve a particular body according to the Master Trader's specific direction. It is more commonly found in less expensive coffee brands, some even containing 100% Robusta. However, Espresso blends are known to include a large percentage of Robusta beans because it contains more caffeine than the Arabica. The flavor of Robusta on its own is not palatable to a true coffee lover; therefore, it is always blended.

Liberica

Is the most hardy, prolific, and least tasty of all coffee beans. The country of Liberia was the center of origin and diversity of *Coffea liberica*. This coffee species was among the three economic species of coffee discussed here, and in the 1960s, its market share was as high as 5%. Liberia was the major producer and exporter of this coffee type, while a limited amount was also produced by Java, Malaysia, and the Philippines. Its export was discontinued because of less demand due to its relatively lower quality and price than Robusta and Arabica coffees. The Liberica coffee tree grows up to 5 - 20 meters, about 16 to 64 feet in height, producing larger cherries than Arabica and Robusta species. This coffee is produced almost exclusively in Malaysia, and about 95% of Malaysia's coffee beans come from Liberia plants. The average production of this kind of coffee in Malaysia is only about 160,000 bags or 10,000 tons a year, about 0.01% of the world's coffee trading. The lack of production makes this coffee rare and hard to find ad a coffee commodity, and if available, it is generally used in producing instant coffee and is never used by high-quality coffee blends.

Peaberry

A rounded bean from an occasional coffee cherry that contains one seed instead of the usual flat-sided pair. This is due to the non-development of one of the ovules - an abortion most common in "Arabic coffees. These round beans were formerly called "gragé coffee," but now are more commonly known as a peaberry or male berry. Peaberry is widely exported from Tanzania but also produced in Kenya, Brazil, and Hawaii. During the growth process, about 3 to 5% of coffee cherries will hold just one small

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oval-shaped bean called "peaberry." Typically, but not always, they produce a brighter, more acidy, but lighter-bodied cup than normal beans from the same crop. This variety of coffee beans is a by-product of Arabica other coffee cherries, is less expensive; however, it is marketed as a costly one due to the lack of familiarity by coffee resellers and consumers.

Roasting

Carefully selected green beans are purchased in sacks from the various countries of origin. The green beans can be stored in controlled environments indefinitely. This allows price control and/or manipulation since the green beans are a "non-perishable product." The end flavors of roasted coffee will depend on which country, plantation, and altitude the beans came from, and from which grade, and which type, i.e., Arabica, Robusta, and Liberica. The green beans are roasted for varying lengths of time, depending on how dark the beans are intended to be. This is referred to as "Depth of Roast." The varying depths of roast influence the "Bite" flavor aspects. The general flavor aspects may, therefore, be assessed from the color of the roasted beans. Moisture is evaporated during roasting, which results in light-colored beans that have been roasted for a shorter period and will weigh more than the darker roasts. Also, the longer the beans are roasted, the more etheric oils and sugars are brought to the bean's surface. Once the coffee beans have been roasted, they must either be vacuum packed or used for brewing fast because the quality and freshness deteriorate rapidly if they are not stored in airtight, oxygen-free, moisture-free, and cool conditions.

Blending

Once the coffee has been roasted, it is often blended with either roast of similar depth (usually in the medium or mid-range) or with roasts that give more flavor contrasts. Examples of blends incorporating Italian roast could be Arabica, Mocha Turkish, etc. Naming the coffee blends is like naming children, endless choices. According to the name given, the blends are the coffee roasting company's own creation and are therefore their own interpretation of what the coffee should taste like. Blending can be likened to mixing a good cocktail. An experienced person can bring out unique flavors through their mixing ability. In Italy, for example, many baristas have developed their own blends.

Grinding

Once the beans have been ground, the flavor and aroma are quickly lost in the air, and the beans are ground according to the coffee-making equipment used. It is crucial for grinding to adjust the grinder's correct grind to ensure it suits the equipment it is used with. However, the water, altitude, and other factors also play a role in the final brewing process; therefore, accurate grinding becomes extremely important.

Storage

Once the green beans are roasted, deterioration starts fast. Once the roasted beans are ground, deterioration is accelerated. Therefore, coffee must be kept airtight, sealed, and cool, but not in the fridge and never frozen. Coffee beans or ground coffee that has been previously frozen will lose the quality and even fragrance once defrosted due to condensation. Coffee bars and other foodservice businesses often

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make the mistake of opening the airtight coffee containers and fill paper filers with ground coffee, so they are ready to be used for brewing. Stacking filter papers with coffee (even if stacked in an airtight container, will cause ground coffee to stick to the lower side of the paper and consequently be washed into the coffee bowl when brewed. Most importantly, ground coffee will lose volatile flavors.

Falsification of Coffee

Some brands sold are mixtures of coffee with Chicory, roasted grape seeds, or Fig. They, too, have a distinctive flavor of their own and are stronger and darker in liquor than pure coffee. Coffee and Chicory mixtures are often sold as French Coffee. Chicory has been used as an additive to coffee for over 200 years and is grown in India, Poland, parts of Western Europe, and in England. The plant's root, which looks like Sugar Beet is cut, dried, roasted, and ground before being mixed with coffee. The liquor is rather harsh and very strong. Figs commonly imported from Turkey, Greece, and Spain are prepared for mixing in much the same way and give smooth liquor. Coffee and Fig mixtures are often sold as Viennese Coffee. Rapeseeds from Italy are also prepared the same way and mixed with coffee, although this is rare to find it on the market. Grape seeds as a coffee substitute are readily available on the market, and it is used for people who do not wish to have caffeine.

Instant Coffee

Instant coffee was invented in 1901 by Satori Kato, a Japanese scientist working in Chicago. Kato introduced the powdered substance in Buffalo, New York, at the Pan-American Exposition. George Constant Louis Washington developed his instant coffee process shortly thereafter, and first marketed it commercially in 1910. The Nescafé brand, which introduced a more advanced coffee refining process, was launched in 1938. This type of ready-to-use coffee was introduced after many attempts to find a quick, easy, and convenient way to brew coffee was experimented with by previous inventors cited above.

Instant Coffee is pure coffee in soluble form and is made by brewing freshly blended, roasted, and ground coffee in large extractors where a very strong concentrate is produced. The liquid is dispersed into small droplets through an atomizing spray and allowed to fall in a heated air stream where the water evaporates, leaving a powder of pure coffee. Recent developments and improvements in manufacturing techniques have led to the production of soluble powders with something of the appearance of ordinary ground coffee.

Types of Roasts

Each country buys the dried coffee beans of any kind and produces roasted coffee according to the people's taste and demand; therefore, there are numerous grades or roasts.

1. Light roasts
2. Medium roasts
3. Dark roasts
4. After dinner roasts
5. Very dark roasts
6. Espresso roasts

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7. Decaffeinated roasts
8. Many other roasts

Coffee Terminology

The Body, Acidity, and Bite of coffee can be assessed on a scale basis. There are some **"key"** words which are essential to understand when choosing coffees:

1. **Aroma:** All fresh coffee is aromatic. The aroma varies according to the roasts and coffee types. Thus, by smelling the coffee, freshness, acidity, body, and roast can be assessed.
2. **Acidity:** Is an integral part of most coffees. It will vary according to the roast and country of origin.
3. **Bite:** Is the sharp taste usually experienced with dark roast
4. **Body:** Is the sensation of texture, weights, and fullness in the mouth
5. **Flavor:** Is the combination of aroma and body
6. **Strength:** "Strong Coffee" does not refer to the flavor or roasting of the beans, but to the ratio of coffee solids to water in the cup, i.e., Strong coffee would be brewed from a weight of ground coffee exceeding 6 grams per cup and weak coffee less than 5 grams per cup.

Coffee Tasting Also Called "Coffee Cupping."

Coffee cupping is the process used by cuppers (professional coffee tasters) to objectively assess and evaluate the quality of the coffee. Cuppers analyze all the basic coffee flavor characteristics and taste sensations, including the coffee's body, fragrance, aroma, acidity, bitterness, sweetness, and aftertaste finish to analyze the complete flavor profile of the coffee. Proper cupping is performed in an environment that is free of any strong smells such as perfumes because premium gourmet coffees have many subtle nuances in their flavors and aromas, which are evaluated by cuppers.

A coffee cupping involves first properly grinding the coffee to be evaluated. About two tablespoons are typically ground using a conical burr grinder and then placed into a small cup to evaluate the fragrance. Next near-boiling water is poured onto the coffee and allowed to steep for about four minutes as the grinds rise to the top, where they form a thick crust. Next, they check for any off-smells and then gently break the crust with a spoon. Then the grinds are pushed back so the cupper may inhale the aromatic bouquet and evaluate the aroma. The cupper also analyzes the "crema", the layer of fine-celled foam atop the coffee. The grinds are then removed, and the cupper uses a spoon to slurp the coffee so it mixes with air and disperses around the inside of their mouth.

The cupper swirls the coffee around to discern its flavors, body, and acidity. Also evaluated is the coffee's nose as vapors and gases, volatile organic compounds, and release in the mouth. The cupper may also use a vigorous sucking motion that sprays the coffee evenly across the tongue and palate, the same as it is done in wine tasting.

This cupping technique is known as aspiration and provides the optimal sensory evaluation opportunity for the brewed coffee. Finally, the cupper either swallows or spits out the coffee and then evaluates the coffee's finish aftertaste. Once the cupping is completed, the professional coffee taster tries to conclude about the merits and/or flaws of the coffee, including its body, aroma, acidity, sweetness or bitterness, aftertaste, finish, and overall aromatic profile. A coffee's taste, or flavor, is the overall description and combined sensations and perceptions of the coffee's distinctive aromatic and flavor characteristics, the

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fusion of body, acidity, aroma, and aftertaste. A well-balanced coffee is one in which no single taste characteristic dominates and/or overpowers/overwhelms the others. The water-soluble taste and aromatic compounds of coffee are perceived primarily through smell, the olfactory membranes, and taste buds, nerve endings on the tongue.

Coffee cuppers often distinguish the coffee's taste from its acidity, aroma, and body. According to coffee experts, the primary coffee taste sensations are sour taste, sharp, mellow, acidy, winey, and bland. Secondary tastes are qualities noticed in a cup of brewed coffee, which are not primary flavors, taste, and qualities but instead supplemental or secondary. These secondary coffee flavor characteristics include a variety of tastes, including tart, tangy, delicate, piquant, neutral, rough, astringent, acrid, alkaline, and hard and soft.

Low Acid-Treated Coffee

The "Low Acid" coffee is steam treated to remove aspects of the coffee which may produce an adverse digestive reaction.

Decaffeinated Coffee

Decaffeination is the process of removing caffeine from coffee beans but also from cocoa, tea leaves, and other caffeine-containing materials. Despite caffeine's removal, decaffeinated coffee still contains between 1 and 3% of the original caffeine. There are various decaffeination methods. The most popular method is commonly known as the "Swiss Water process." The process is usually performed using raw beans, starting with steaming of the beans. They are then rinsed with a solvent that extracts the caffeine while leaving the other essential chemicals in the coffee beans. The process is repeated anywhere from 8 to 12 times until it meets either the international standard of removing 97% of the caffeine in the beans or the EU standard of having the beans 99.9% caffeine-free by mass. Other processes are called direct, indirect, CO_2, and triglyceride processes.

Brewing Coffee

- Coffee can be brewed, filtered, or extracted through roasted and ground coffee blend.
- The grinding must be correctly set
- The recommended quantity of coffee for the type of equipment in place must be measured
- Coffee should never be boiled with water; instead of boiling, water should drip through the coffee
- All equipment to be kept fresh and free from oils and residues from coffee
- Brewed coffee should be kept on warmers up to a maximum of 30 minutes or less
- Coffee must never be reheated

Preparing Coffee With an Espresso Machine

1. Use Fine or slightly coarser grind.
2. Use between 4 to 6 grams of espresso blend per cup
3. The water must have the right pressure
4. Extraction time not to exceed 30 seconds for each single brew

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5. Choose the filter basket for the number of cups required
6. Measure the ground coffee into the basket
7. Press the grinds down using a handheld tamper or the tamper fixed to the dispenser grinder. They should be just covering the indented ring in the basket.
8. Wipe over the rim of the filter holder to remove any grinds which act as an abrasive on the head seal.
9. Lock the holder into position without using force so that it is firm.
10. Place cup or cups beneath the filter holder outlet (s).
11. Operate the lever, button or switch to draw the hot water through the head-depending on the make or model of the machine.
12. Stop the water flow before the cup is half full - 1/3 full is ideal, giving sweet coffee “essence”.
13. Always use a demitasse.
14. Remove the filter holder and knock out the grinds and rinse.

Preparing a Cappuccino

1. Follow instructions for Espresso Coffee
2. While the coffee is running into the cup, pour about 3/4 cup of cold milk into a jug.
3. If the steam jet has not been used over the last 3 minutes, leave the jet facing the draining tray and turn it on to expel any excess moisture which may have condensate in the pipe.
4. Bring the steam jet up and turn the knob to produce a slight jet of steam -this is to stop the cold milk traveling up the pipe and baking on the inside
5. Insert the nozzle into the milk and, at the same time, turn the steam jet on stronger. The aim is to spin the milk with the force of the steam jet while at the same time heating it. The art is to raise ahead of froth before the milk boils.
6. Pour the foamed milk into the Espresso Coffee, spoon the froth on so that it stands up above the rim of the cup.
7. Serve sprinkled with grated chocolate or chocolate powder.
8. If the foam does not rise or it rises and then falls, the milk has likely boiled, or the fat content is too low. In this case, do not serve. Discard the milk, rinse the jug and start again

Standard Espresso Portion Size

1. **Espresso short:** 1/3 standard cup Espresso Coffee served black, usually in a (Ristretto) demitasse (small)
2. **Espresso long:** Max. 2/3 cup Espresso Coffee served black, made single strength (Lungo) using a fresh measure of coffee for each 1/3 cup.
3. **Cappuccino:** 1/3 cup Espresso Coffee double strength, 1/3 cup Hot Milk, 1/3 cup Foamed Milk

Note: For other espresso-based drinks, one should consult the recipe booklet in the machines’ operating manual.

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27. TEA

History of Tea

According to historical records, tea is nearly 5,000 years old and was discovered in China by an emperor when some tea leaves accidentally blew into a boiling water pot. In the 1600s, tea became popular throughout Europe and the American colonies. Since colonial days, tea has played a role in American culture and customs. During this century, two major American contributions to the tea industry occurred.

Tea is broken down into three basic types: ***black, green, and oolong***. In the U.S., over 90 percent of the tea consumed is black tea, which has been fully oxidized or fermented and yields a hearty-flavored, amber brew. Some of the popular black teas include English Breakfast, Darjeeling (a blend of Himalayan teas with a flowery bouquet suited for lunch), and Orange Pekoe (a blend of Ceylon teas that is the most widely used of the tea blends).

Green tea is not oxidized. It has a more delicate taste and is light green/golden in color. Green tea, a staple in the Orient, is gaining popularity in the U.S. due in part to recent scientific studies linking green tea drinking with reduced cancer risk.

Oolong tea, popular in China, is partly oxidized and is a cross between black and green tea in color and taste.

Flavored Tea and Herbal tea. While flavored teas evolve from these three basic teas, ***herbal teas*** contain no true tea leaves. Herbal and "medicinal" teas are created from the flowers, berries, peels, seeds, leaves, and roots of many different plants.

Tea Processing

The leaves are harvested and carried to the factory in wicker baskets. They are sorted out and dried by hot air. During a period of 12 to 18 hours, the tea leaves lose up to 50% of water. After the drying process, the leaves should bend but should not break. Expert workers roll the tea leaves to break the cells to allow better fermentation and extraction of tea flavor. The tea leaves can be rolled by hand or by machines. They are then transported to silos, where they are layered on the floor at 50 mm (or 2 inches) distance from the soil. They will ferment for about 3 to 4 hours. During this fermentation, the tea leaves change in color, the bitter flavor is eliminated, and the tea activates the aromatic cells. For a good quality, the fermentation must stop at the right moment. The roasting follows the fermentation. At a temperature of 220 °F, the moist leaves are dried to preserve them for a longer period. The cooled tea becomes darker, and the weight is then reduced to 25%. When the leaves have been fully dried, experts sort them out, eliminating dust and stems. At this point, it is decided what quality of tea the leaves belong to. The following criteria are used to evaluate the quality of tea: climate, location, soil, harvesting time, type of leaves, how they have been rolled, young leaves, old leaves, etc.

Types of Tea

The is harvested and marketed according to two classifications

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1st Classification:

1. **Flowery Orange Pekoe:** Best quality, small leaves, very aromatic, very smooth taste, only top leaves.
2. **Orange Pekoe:** Only the top leaves. Slightly bigger than the Flowery Orange Pekoe.
3. **Pekoe:** Second and third leaves
4. **Pekoe Souckon:** Wider and longer leaves
5. **Sou Chon:** The lowest and biggest leaves

2nd Classification

These types of leaves are selected among the rejected leaves when selecting the 1st classification.

In the second classification, all leaves are broken.

1. **Flowery Broken Orange Pekoe:** Dark color, good aroma.
2. **Broken Orange Pekoe:** One of the best and most common tea.
3. **Broken Pekoe:** Sou Chang.
4. **Fannings:** Strong broken leaves.
5. **Dust:** Broken leaf dust collected after selection of the 1st and 2nd classification

Number 4 and 5, ***fannings*** and ***dust*** are solely used for tea bags and represent the poorest quality. Another type of well-renowned tea is the Green Tea from China and Japan. 'The best available on the markets are known as "***Young Myson***" or "***Young Ching Cha***".

Other types of teas classified according to the country of origin:

1. **Darjeeling Tea:** Produced in India, a black tea. It is thin-bodied, light-colored liquor with a floral aroma with a tinge of astringent tannic characteristics, and a musky spiciness.
2. **Assam Tea:** From India, produced in different blends with a typical malt aroma.
3. **Ceylon Tea:** From Sri Lanka, powerful in flavor and very dry
4. **Indonesian Tea:** Different blends from Java and Sumatra.
5. **China Tea:** Mild tea produced in different sorts. The best is the "Oolangtee" tea. Half fermented, very dark outside and green inside
6. **Russian Tea:** Famous in mid-Europe, produced mainly in the Highland
7. **English blend:** Purchased from all countries and blended in England. It can consist of Darjeeling, Assam, Ceylon, and eventually Japan
8. **Jasmin Tea, Rose Tea Citrus Tea, etc.** These types of teas, like many others, follow under the classification of infusions. Any essence extracted from flowers or leaves that not originated from the tea tree should be called infusion, herbal tea, tisane, etc.
9. **Other types of tea** are introduced frequently by tea manufacturers in response to consumers' demand for customized teas

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Afternoon Tea Today in the U.S.

Today tea is more popular than it has ever been. There is currently a reawakening of interest in tea, as many customers seek a more positive, healthy lifestyle. Fine hotels and restaurants feature a variety of teas in their menus. There are several major reasons for the revived popularity of afternoon tea:

1. Attracts an upscale clientele to the property
2. Generates additional PR for the hotel or restaurant
3. Provides an additional format to conduct business in
4. Utilizes existing space to generate increased profits
5. Prompts a high return rate for guests to return to use other hotel services, such as rooms, catering, etc.

How to Serve Tea

1. Fill the teapot with hot tap water to warm it up prior to adding tea leaves and boiling water.
2. Fill a tea kettle with fresh, cold, non-distilled water.
3. Place the kettle on the stove and bring to boil.
4. Just before the kettle begins to boil, pour water from the teapot and add one teaspoon of tea leaves per cup to the pot, plus an additional teaspoon 'for the pot.'
5. Remove kettle from heat right after it comes to a boil and pour 6 ounces per cup into the teapot.
6. Let tea steep 3 - 7 minutes depending on desired strength before serving.
7. Offer cold, whole milk, or lemon to teacups depending on the preference of guests.
8. Pour tea into cups using a strainer to catch loose tea

28. COCOA

Cocoa is being produced in several countries in the world; however, the largest producing countries are Ivory Coast, and Ghana and the less producing ones are Mexico, India, Sri Lanka, Togo, and a few other Latin American Countries, Kamerum, Nigeria, and others. The Cocoa Tree, called Theobroma, is a plant that grows up to five meters, about 15 feet in height. As a wild plant, it can achieve a height of up to 45 feet. The tree produces pods all year round, and each tree can bring up to 100,000 blossoms a year. The fruit is like a cucumber with a maximum length of 4 inches and a maximum diameter of 5 inches. Each fruit contains up to 40 cocoa beans like an almond. Their size is up to 3 inches in length and 1.5 inches in diameter. During the early 16th century, and until in the late 17th century, the Spanish imported the Cocoa to Europe, and due to the high demand, the import increased, and they kept the Cocoa monopoly for about 200 years. In 1657 a French man opened the first Chocolate House in Bishops street in London. Then during the 18th century, chocolates were very fashionable everywhere. The clientele of different statuses, culture, and nature of business met at a chocolate house, and each one had literary, political, and gambling groups. Chocolate drinks became famous in America too, and in 1780 Dr. James Baker founded the 1st chocolate factory; however, there is no record of when the first chocolate container or chocolate bar was sold in the market.

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Harvest and Process

When the fruits are harvested, they are cut in half and using a wooden spoon, and the beans are taken out and collected on the soil. They are then covered with banana leaves or palm tree leaves where they are fermented from 2 to 6 days. This fermentation process reduces the bitterness and develops the aroma. When the fermentation is over, the beans are layered out in the sun until they are completely dry. Only well-dried beans can be preserved and processed to Cocoa powder.

The beans are brushed and cleaned under high pressured air. Then they are roasted for 15 to 20 minutes at a temperature of 310 Fahrenheit using an aerothermal method. After the roasting, the beans are cleaned again and crushed three times until it becomes like a marzipan paste, which consists of at least 50% Cocoa butter. The total fat content is reduced to a maximum of 20%. The extracted butter is used in the production of chocolates and pralines. A good quality Cocoa must consist of at least 20% Cocoa butter. The low-fat content Cocoa must consist of at least 10% Cocoa butter.

A Cocoa bean consists of approximately:

55% Fat
25% Proteins
13% Amino acids and organic acids
1.5% Theobromine (stimulating substance like Caffeine)
4.5% Calcium, Calcium, Magnesium, Color, Vitamins A, B1, B2, B6.

Cocoa should always be stored sealed, dry, and in odorless places. Cocoa cannot be stored in humid places. If the storage place is too hot, the powder will deteriorate.

How to Prepare Cocoa Drinks

Cocoa

For a serving, one needs about 25 g or ¾ of an ounce of Cocoa powder. To avoid clumps, one should first mix the powder with two soup spoons of milk until a fine paste is achieved, then add sugar and hot milk.

Chocolate

The name chocolate is given to Cocoa powder already mixed with sugar. This mix usually has the same selling price of a pure chocolate powder but with less Cocoa content because the quantity is substitute by the sugar. One prepares the drink only with the addition of cold or hot milk. In Europe, people prefer hot chocolate with the addition of whipped cream, which does not upgrade the flavor; instead, it reduces the aroma. The chocolate is not recommended for children because of the high Theobromine content, which makes them hyperactive.

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APPENDIX

Restaurant equipment supplies website resources:

- Webrestaurantstore: https://www.webstaurantstore.com/3683/glassware.html;
- Riedel https://www.riedel.com/en-us,
- Katom https://www.katom.com/cat/tabletop.html,
- Glass of Venice website https://www.glassofvenice.com/,
- Restaurant supplies https://www.restaurantsupply.com/glassware.

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Chapter 7
Food Safety, Food and Beverage Preparation, Menu and Beverage List Development, Service, and Current and Future Challenges

ABSTRACT

This chapter discusses the importance of safety and sanitation in food preparation and service and the integration into the menu and beverage list development. Specifically, it discusses the current safety and sanitation requirements for foodservice facilities, including the HACCP 7 step process (hazard analysis critical control point). It introduces nutrition basics in a foodservice setting and the basics of food and beverage preservation and preparation methods. Consequently, it demonstrates how to develop menus and beverage lists and the various foodservice style and service techniques.

1. FOOD SAFETY, PRESERVATION, SANITATION, AND HYGIENE

All food and beverage operations are legally responsible for doing so safely and hygienically. An Important requirement of the regulations is the necessity for food businesses to focus on the critical activities to food safety and find ways of controlling those activities. A way of controlling these activities is to have all staff involved with food preparation and service well trained and continuously retrained with updated information and the tools necessary to perform their task. In the U.S., there are several certifications on Food Safety and implementation of the Hazard Analysis and Critical Control Point (HACCP, 2021). The HACCP consists of seven principles plus a verification process by the authorities; they are:

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1. Conduct a Hazard Analysis
2. Determine Critical Control Points
3. Establish Critical Limits
4. Establish Monitoring Procedures
5. Establish Corrective Actions
6. Establish Record-keeping Procedures
7. Establish Verification Procedures

Principle 1: Conduct a Hazard Analysis

Plans determine the food safety hazards and identify the preventive measures the plan can apply to control these hazards. A food safety hazard is any biological, chemical, or physical property that may cause a food to be unsafe for human consumption.

Principle 2 Identify Critical Control Points

A Critical Control Point (CCP) is a point, step, or procedure in a food manufacturing process at which control can be applied and, as a result, a food safety hazard can be prevented, eliminated, or reduced to an acceptable level.

Principle 3: Establish Critical Limits for Each Critical Control Point

A critical limit is the maximum or minimum value to which a physical, biological, or chemical hazard must be controlled at a critical control point to prevent, eliminate, or reduce to an acceptable level.

Principle 4: Establish Critical Control Point Monitoring Requirements

Monitoring activities are necessary to ensure that the process is under control at each critical control point. In the United States, the Food Safety Inspection Service is requiring that each monitoring procedure and its frequency be listed in the HACCP plan.

Principle 5: Establish Corrective Actions

These are actions to be taken when monitoring indicates a deviation from an established critical limit. The final rule requires an operation's HACCP plan to identify the corrective actions to be taken if a critical threshold is not met. Corrective actions are intended to ensure that no product injurious to health or otherwise adulterated because of the deviation enters commerce.

Principle 6: Establish Record-Keeping Procedures

The HACCP regulation requires that all plants maintain certain documents, including its hazard analysis and written HACCP plan, and records documenting the monitoring of critical control points, critical limits, verification activities, and handling processing deviations.

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Principle 7: Establish Procedures for Ensuring the HACCP System is Working as Intended

Validation ensures that the plants do what they were designed to do; that is, they are successful in ensuring the production of a safe product. Plants will be required to validate their own HACCP plans. The Food Safety Inspection Service will not approve HACCP plans but will review them for conformance with the final rule.

Verification ensures the HACCP plan is adequate, that is, working as intended. Verification procedures may include reviewing HACCP plans, CCP records, critical limits, and microbial sampling and analysis. The Food Safety Inspection Service requires that the HACCP plan include verification tasks to be performed by foodservice personnel. FSIS inspectors would also perform verification tasks. Both FSIS and industry will undertake microbial testing as one of several verification activities. Verification also includes 'validation' - the process of finding evidence for the accuracy of the HACCP system (e.g., scientific evidence for critical limitations).

To open a foodservice facility, the owner/operator must be fully licensed at the local, county, regional, and federal levels. Besides, the health department will issue a certificate authorizing the facility to operate a foodservice business if it has complied with all requirements necessary for obtaining such a license. These regulations exist not only in the U.S. but also in Europe and other continents. They are meant to reduce food contamination, poisoning, and often death derived from such events. Clean and sanitized food preparation areas can save foodservice operations loss of unnecessary headaches and money.

Cleanliness not only protects patrons, but it also protects staff in general. Most countries in the world subject foodservice facilities to regular inspections, which are directly related to the business volume and the business's viability. In tourism destinations, travel/tour operators request that the reports be kept ready for them to inspect during familiarization tours long before they send tourists to any destination.

Meeting planners and third-party convention organizers now insist on inspecting facilities in the front and back of the house to ensure that their clients will not be subject to potential health hazards.

It is, therefore, the responsibility of the Food and Beverage Director but also of the management team below him/her: Executive Chef, Executive Sous-Chef and Chief Steward, Restaurant Manager, Banquet Manager, Room Service Manager, and especially the Pool Restaurant of Bar manager because of the hot temperature they are exposed to when serving food and beverage products.

International companies require the management to sign documents related to food safety and employees' and guests' welfare. No one can appreciate preventive measures than a manager who has experienced food poisoning for a large banquet. Food items can be contaminated in any place, at any level, at any point in time in the food supply chain; therefore, proper training and documentation is required to prevent a disaster from happening.

These efforts are organized and monitored together with the Loss Prevention Department (LPSD) in large organizations. Today, many companies have policies in place even with food suppliers and visitors, stating that whoever enters the kitchen and must wear protective clothing. They are made aware of the essentials of good food hygiene in writing, and if they do not comply, they may not do business with the hotel-restaurant company.

This chapter summarizes the importance of proper food safety and hygiene in a brief description and recommendation. Because safety standards regulations and enforcement are different from city to city and county to county, it would be unwise and time-worthy to list regulations that may not apply across States and foreign countries. In addition, the laws and regulations change frequently.

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Therefore, it is recommended that the FBD (Food and Beverage Department) or owner operator be aware of the health department regulations in the city of the business and that all staff is well trained and in compliance with the law (CDC, 2021; FSIS, 2021; HACCP, 2021; HHS, 2021).

In sum, a hazard is anything that can cause harm to guests, visitors, and employees. Three main hazards can arise with the food served in the food and beverage department and are caused by:

1. Bacteria or other micro-organisms that may cause food poisoning (biological hazard)
2. Foreign material such as glass, plastic, metal and so on (physical hazard)
3. Chemicals, for example, cleaning chemicals or pest baits (chemical hazard)

These hazards can arise during the handling, storing, and preparing of food in the food and beverage facilities. The most known hazard is bacteria or other microorganisms that may contaminate and grow in food through cross-contamination. Because the food processed and served in foodservice facilities passes through many stages during production, hazards can occur at these stages, including at the delivery when food is not stored away immediately. Ina well-organized operation with a (HACCP) procedure in place, the "Food Flow Critical Point (C.P.) Recognition" chart identifies the stages. Therefore, control measures must be in place at any stage wherever the food moves from and to; in this way, the hazard may not only be minimized but also eliminated.

Depending on the food being prepared and on the stage in production, some Control measures are more important in food safety than others. It is essential to decide which control measures are critical. The Critical Point must be identified as this is the only prevention to avoid food poisoning through food contamination. When preparing cooking recipes, each item on the menu should be identified with Critical Points (C.P.) record attached to it. Of course, relying upon who does what at what point in the food processing stages is not sufficient; one must have a monitoring system in place to ensure due diligence, check the effectiveness of procedures, and comply with the company policies and procedures, which ultimately adhere to the Department of Health regulations.

Monitoring involves many activities, including temperature and use by date First In – First Out (Fifo) records for food delivery and storage; temperature records for cooking and displaying food, cleaning schedules; chemicals used if applicable, pest control records, and training logs. A Food Safety Procedures Manual should include all details about the Monitoring System in place. For example, the Executive chef orders the Grill chef to prepare 300 filets mignon for a banquet dinner.

Typically, these filets may be "marked" in advance to save time. In the past, this was a normal cooking practice without any record being kept. Today this cooking method is either no longer a common practice or is continuously monitored to ensure safety. In this case, the filets should be refrigerated again soon after marking them. The monitoring of the entire process begins with food purchasing and moves on to receiving, storing, issuing, preparing, processing, cooking, cooling, reheating, holding, and serving. Again, at any of these stages, the food can be cross-contaminated (CDC, 2021; FSIS, 2021; HACCP, 2021; HHS, 2021).

Following is a sample of a C.P. Monitoring procedure:

1. Read the manufacturer's instructions for proper storage
2. Ensure good stock rotation: first in – first out
3. Use food labels, if food is transferred from original packaging, transfer the date with it
4. Dry foods should be checked regularly to monitor the infestation

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5. Discard all foods whose date has expired
6. Protect stored food from contamination at all time
7. Transfer food from an open tin can immediately to a clean container with lid and date it
8. Do not store food next to chemicals or food equipment not being used for that purpose
9. Do not store food or food containers on the floor
10. Take note and report any problem immediately to the supervisor on duty
11. Keep refrigerator and freezers at the proper temperature
12. Place processed food over raw food and not vice versa
13. Store meats, dairy, produce, fish, and other foods separately
14. Remove original outer packaging wherever possible
15. Do not overload the refrigerator and never leave the door open

Other Monitoring Procedures Involve

1. Regular cleaning of grease traps
2. Sighting of any pests such as flies, cockroaches, rats, mice, birds, ants, etc.
3. The temperature of fridges and freezers
4. Sanitation of surfaces and equipment
5. Thawing or raw meat, fish, and seafood
6. Proper handling and usage of eggs and other dairy products
7. Proper use of chemicals in compliance with the Material Safety Data Sheet (MSDS)
8. Proper monitor of staff personal hygiene and health conditions
9. Record keeping of food taken out by patrons after the meal (doggy bags)
10. Proper documentation of food brought in by guests and reasons why?

Finally, anything can be prevented if there are clearly written procedures in place and if everyone involved works responsibly.

Food Safety in Food Preservation

Many contemporary chefs nowadays prefer to process as much food as possible on the premises, including the curing of meats and fish, canning, drying, and other food preservation methods. One should note that any such process can become a hazard in the supply chain as well if not done properly. These processes require knowledge of food science; even chefs have been trained at professional cooking institutions. The problem lies in the production and storage process, especially when the expiration date cannot be established. Other chefs use creativity and curiosity in creating new dishes, especially those prepared with exotic raw foods. For example, eating life cockroaches or lightly poached quail's eggs could present a danger of diseases. Therefore experimental foods and food preservation should be done with caution; probably, a lab analysis may provide data on whether a food preserved on promises may cause harm.

Because food is what makes a restaurant, it must be safe to be consumed if it is preserved on-premises. Food preservation for later use is one of the oldest technologies used by man, and it will continue to play a role, including in the restaurant of the future. Therefore, for a chef to know the various preservation processes and to preserve foods according to the country's health regulations becomes very important in

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terms of liability should anything go wrong in the process. Different food preservation techniques include those commonly used in restaurants of butcheries and commercial food manufacturing establishments.

Methods Used in Restaurants

1. Refrigeration (any products)
2. Freezing and blast freezing (meats, fish, processes products)
3. Canning (Meats, fish, vegetables, fruit)
4. Dehydration (vegetables, fruit, herbs, spices)
5. Salting (Meats, fish, vegetables)
6. Pickling (Meats, fish, vegetables, fruit)
7. Pasteurizing (all canned foods are pasteurized)
8. Cheese-making (fresh milk coagulated through caseinazation)
9. Freeze drying (fruit, juices, ice cream)
10. Fermentation (juices, breads, beer, wine)
11. Sugar preservation (fruit in its original state or processes as marmalade or jelly)
12. Vacuum (any foods; some foods must be refrigerated or frozen)
13. Alcohol (mostly fruit, but also other types of foods)
14. Smoking (it is the further processing of salting or marinating, usually used in meat and fish processing)

Methods Used in Manufacturing Establishments

1. Irradiation (meats, imported spices, and herbs)
2. Carbonation (addition of CO_2)
3. Chemical preservation (sodium benzoate, nitrite, nitrate, sulfur dioxide

Figure 1. Steps to prevent food spoilage and contamination
Sources: *https://www.foodsafety.gov/ Gateway to Food Safety Information. Additional readings in 15 languages: https://www.foodsafety.gov/food-safety-charts. Additional educational material is available on the* United States Department of Agriculture website



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The basic criteria behind all forms of food preservation are to slow down disease-causing bacteria, kill the bacteria altogether, or to a certain extent, make food taste differently, such as dry curing and/or smoking. However, the goal is to preserve food to become sterile, meaning that it contains no bacteria. Unless sterilized and sealed, all food contains bacteria. For example, bacteria naturally living in milk will spoil the milk in two or three hours if the milk is left open in the kitchen at room temperature. Refrigeration will extend the shelf-life, meaning that bacteria are not eliminated, but the spoilage process is slowed down. Four simple steps can help prevent food spoilage and contamination.

Hygiene

Hygiene is one of the most important matters in food and beverage operations, and especially in preparation areas such as the kitchen. If the prepared food is safe but not prepared properly and cleanly, restaurant guests can get sick. Consequently, the guest may not return to the restaurant again, could sue for damage if the illness is serious, and the health department could shut down the operation and revoke the license. Therefore, working in a clean environment is very important and beneficial in food preparation.

Working in a clean environment is more pleasant. Statistics show that food poisoning is still a widespread event in hotels and restaurants, and it happens, in most cases, because of the dirty workplace and public areas, poor personal hygiene, or spoiled ingredients. Therefore, maintaining a clean and safe working environment through work and personal hygiene is key in preventing foodborne illnesses. Our living and working environment, including clothes or uniform, must be clean all the time.

To care for other people's health is also very important, especially when preparing food and meals. Food is the ideal means for bacteria to breed, causing decease in humans. That is why proper food processing is vital in illness prevention in foodservice establishments. Nowadays, restaurant guests are well educated about food and hygiene, and in most countries, it is a part of the people's general education. Therefore, the person preparing the food needs to work very carefully, respect policies and procedures, and exercise proper personal hygiene and work hygiene. Hence working areas, material, and equipment need to be clean all the time to prevent infection or food poisoning (CDC, 2021; FSIS, 2021; HACCP, 2021; HHS, 2021).

2. NUTRITION

Nutrition in foodservice operations has received considerable attention from all sources, customers, government agencies at the local and regional levels, and naturally, educational institutions. Most culinary arts programs include nutrition courses in their curriculum. Understandably today's chef must be prepared to cater to a well-educated guest that is conscious about nutrition and health and therefore demands that food served in restaurants reflects his/her expectations.

Therefore, culinary professionals must know nutrition and how to prepare nutritional meals. Besides, there are more expectations, especially for a chef working in a hospital; he/she must be capable of preparing meals for diabetics, people with heart problems, etc. (FDA, 2021).

In luxury resorts with large sports facilities such as golf, ski, tennis, etc., the chef must also cater to the most conscious sport professionals. Menus in hotels worldwide now include healthy eating for all meal periods, from breakfast to dinner.

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These menus cater to vegetarians, vegans, fruitarians, and others such as Pesco-Ovo-Lacto-Vegetarians, who may have dietary restrictions due to health-related reasons, by own choice, or for religious purposes. Thus, the question is not if a foodservice facility should deal with nutritional issues; instead, it is how much it should benefit from it by catering to the most demanding guest by offering what it is expected. Guests may have personalized demands as well, E.g., the need for

1. Adequate diet provides enough calories, essential nutrients, and fiber to keep a person healthy.
2. Balanced diet offers more servings of nutrient-dense foods.
3. Moderate diet, which avoids excess amounts of calories or any food or nutrient.
4. A varied diet, which represents a wide selection of foods are chosen to get necessary nutrients.

Therefore, chefs must understand nutrition and how to prepare nutritious meals, and then the facilities must be adequately equipped to cater to such a demanding clientele. Foods include major nutrients that are vital to support life. In cooking, every effort must be made that such nutrients are not destroyed in the process. To achieve this objective, chefs must respect proper processing methods and allow the food to retain the most nutrients. Food provides many nutrients and non-nutrient that work together to regulate and maintain body processes. There are six classes of nutrients: *carbohydrates, protein, fats, vitamins, minerals, and water*. Many factors, such as taste, culture, social reasons, trends, cost, time, convenience, habits, and emotions, affect food choices (FDA, 2021).

Nutrition is the science of how nutrients in food nourish and affect human health. Good nutrition plays a role in reducing the risk of four of the top ten leading causes of death in the United States alone and many other diseases and conditions. For our bodies to function correctly, the six classes of nutrients are needed daily in various amounts. Carbohydrates, lipids, and proteins are macronutrients because higher amounts of them are needed in the diet. They provide energy, which is measured in calories. Vitamins and minerals are micronutrients because they are needed in smaller amounts.

Vitamins and minerals are essential for metabolism because they play a role in many chemical reactions and body processes. Water is part of the medium inside and outside of cells that carries nutrients and waste products to and from your cells. The best way to meet nutrient needs is through a well-balanced diet. In addition to nutrients, foods provide other dietary compounds such as phytochemicals and fiber. People who cannot meet all their nutrient needs from food alone may benefit from taking a supplement.

The Major Group of Nutrients

Nutrients provide energy and promote the growth and maintenance of the body, and/or regulate body processes. There are about 50 nutrients in these six classes of nutrients:

1. **Carbohydrates:** A large class of nutrients, including sugars, starch, and fibers, that functions as the body's primary source of energy.
2. Fats (Lipids): A group of fatty substances, including triglycerides and cholesterol, that are soluble in fat, not water, and that provide a rich source of energy and structure to cells.

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3. **Proteins:** are major structural parts of the body's cells that consist of nitrogen-containing amino acids assembled in chains, particularly rich in animal foods. Amino acids, 20 in total, are the basic structural building units of proteins and are needed to repair and maintain body tissues.
4. **Vitamins:** Noncaloric, organic nutrients found in a wide variety of foods that are essential in small quantities to regulate body processes, maintain the body, and allow growth and reproduction.
5. **Minerals:** Noncaloric, inorganic chemical substances found in a wide variety of foods; needed to regulate body processes, maintain the body, and allow growth and reproduction.
6. **Water:** Non-caloric nutrient essential to support life and a necessary source of fluoride

Foods that are sources of essential nutrients:

1. Whole foods: foods as we get them from nature (for example, eggs, fruits, vegetables)
2. Fresh foods: foods that have not been frozen, processed, heated, or contain any preservatives.
3. Processed foods: foods that have been prepared using a certain procedure: cooking, freezing, canning, dehydrating, milling, culturing with bacteria, or adding nutrients.
4. Enriched foods are foods in which nutrients are added to it to replace the same nutrients that were lost in processing. A fortified food has nutrients added to it that were not present originally.
5. Organic foods: foods that have been grown without synthetic pesticides, fertilizers, herbicides, antibiotics, hormones, and without genetic engineering or irradiation.

Today many restaurants claim they serve organic foods, with zero carbon footprints, locally grown, and within a short distance from the restaurant. These claims make the guest think if all of this is true. As a result, the topic of organic food has attracted many critics, including scholars, scientists, chefs, and many more. Therefore, one must be informed and ready to educate the guests, especially when making health benefits claims that may not be supported.

Organic food is produced by farmers who emphasize using renewable resources and the conservation of soil and water to enhance environmental quality for future generations. Organic meat, poultry, eggs, and dairy products come from animals that are given no antibiotics or growth hormones.

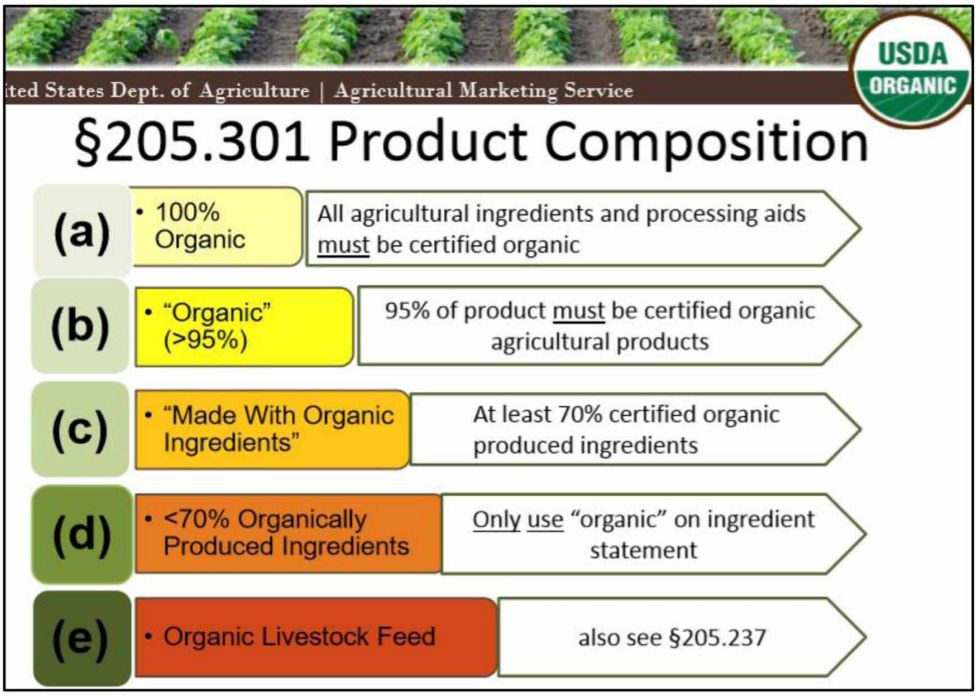
Organic food is produced without using most conventional pesticides, petroleum-based fertilizers or sewage sludge-based fertilizers, bioengineering (also called biotechnology), or ionizing radiation (also called irradiation). Before a product can be labeled "organic," a government-approved certifier inspects the farm where the food is grown to ensure the farmer is following all the rules necessary to meet the U.S. Department of Agriculture (USDA) organic standards (USDA, 2021). The organic farmland has had a dynamic expansion over the last decades. Organic foods come in different categories that are labeled differently. The code of federal regulations is continuously updated.

The data reported herein is obtained from the Electronic Code of Federal Regulations website. The e-CFR data are current as of March 12, 2021. Additional and current information is available at Government Publishing Office Website: https://www.ecfr.gov/ and at the U.S. Department of Agriculture – Agricultural Marketing Services – Organic Labeling

https://www.ams.usda.gov/rulesregulations/organic/labeling.

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Figure 2. Organic Food Labelling Regulations at a Glance
Source: *U.S. Department of Agriculture – Agricultural Marketing Services – Organic Labeling https://www.ams.usda.gov/rulesregulations/organic/labeling*



CURRENT ORGANIC FOOD LABELLING REGULATIONS

§205.301 Organic Product Composition

1. *Products sold, labeled, or represented as "100 percent organic."* A raw or processed agricultural product sold, labeled, or represented as "100 percent organic" must contain (by weight or fluid volume, excluding water and salt) 100 percent organically produced ingredients. If labeled as organically produced, such a product must be labeled pursuant to §205.303.
2. *Products sold, labeled, or represented as "organic."* A raw or processed agricultural product sold, labeled, or represented as "organic" must contain (by weight or fluid volume, excluding water and salt) not less than 95 percent organically produced raw or processed agricultural products. Any remaining product ingredients must be organically produced, unless not commercially available in organic form, or must be nonagricultural substances or nonorganically produced agricultural products produced consistent with the National List in subpart G of this part. If labeled as organically produced, such a product must be labeled pursuant to §205.303.
3. *Products sold, labeled, or represented as "made with organic (specified ingredients or food group(s))."* Multi-ingredient agricultural product sold, labeled, or represented as "made with organic (specified ingredients or food group(s))" must contain (by weight or fluid volume, excluding water and salt) at least 70 percent organically produced ingredients which are produced and handled pursuant to

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requirements in subpart C of this part. No ingredients may be produced using prohibited practices specified in paragraphs (f)(1), (2), and (3) of §205.301. Nonorganic ingredients may be produced without regard to paragraphs (f)(4), (5), (6), and (7) of §205.301. If labeled as containing organically produced ingredients or food groups, such a product must be labeled pursuant to §205.304.

4. *Products with less than 70 percent organically produced ingredients.* The organic ingredients in multi-ingredient agricultural products containing less than 70 percent organically produced ingredients (by weight or fluid volume, excluding water and salt) must be produced and handled pursuant to requirements in subpart C of this part. The nonorganic ingredients may be produced and handled without regard to the requirements of this part. Multi-ingredient agricultural product containing less than 70 percent organically produced ingredients may represent the organic nature of the product only as provided in §205.305

Considering that we live in an era where anyone can get information over the internet and from Internet Word-of-Mouth (IWOM) through social networks, one must be cautious about making false claims. Furthermore, local governments in many States have been pushing for menu regulations, food labels transparency, limitation on the use of salt, certain fats, and other so-called harmful nutrients. Considering the foregoing, the FBD will be the person endorsing what is being promoted and how it is promoted regarding special foods, health benefits' claims, etc. Although a chef working in a hospital may seek the help of a nutritionist, a DFB in a hotel operation may not have this luxury. There are, however, nutritional analysis software available at a very reasonable price that can analyze menu items, print food labels, and even prepare a diet plan for individual guests.

3. THE SCIENCE OF FOOD AND BEVERAGE PREPARATION

Cooking Methods

Understanding the cooking methods enables the chef to choose the correct method for specific foods because the various cooking methods have a direct impact on the outcome of the finished dish. Thus, choosing the proper method affects not only the flavor of foods but also texture and appearance. For example, most dry-heat cooking methods are categorized as quick-cooking processes adding crispness and flavor to food; however, they do not promote the meats' tenderization in the process. Therefore, it is essential to choose the appropriate product to be cooked in this way, tender, thin or small, etc. Cooking with moisture technique and combination-heat methods, especially braising and stewing, can break down cuts of meat which are muscles intensive because of the long, slow cooking period. So, in these methods, it would be more appropriate to choose less expensive cuts of meat, poultry, or seafood. In commercial foodservice operations, we recognize three categories of cooking:

1. ***Dry-heat methods*** are used for cooking foods with hot air and/or fat such as sautéing, pan-frying, deep-frying, grilling, broiling, roasting, and baking. The types of food suited for dry heat cooking methods include:
    a. Thin, tender cuts of meat such as chops, steaks, or cutlets
    b. Ground meats
    c. Most fish and seafood

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   d. Most watery vegetables but not starchy vegetables
2. ***Moist-heat cooking methods*** are used for cooking the food with a liquid, usually water, stock, or steam, and include poaching, simmering, boiling, and steaming. The types of food suited for moist-heat cooking methods include:
   a. Most seafood
   b. Most vegetables, including starchy vegetables
   c. Tender cuts of poultry, such as chicken breasts
   d. Exotic meats such as rabbits
   e. Some fruits
   f. Starches and pasta
3. ***Combination cooking methods*** are used for cooking food using dry heat and moist heat methods such as braising or stewing. The types of food suited for combination-heat cooking methods include:
   a. Tough, not prime cuts of meat, such as beef round or pork shoulder.
   b. Certain firm-fleshed seafood, such as swordfish, tuna or monkfish, and crustaceans
   c. Some vegetables

Similarities in Various Cooking Processes

Although each cooking method may be considered unique, there are similarities among them. What methods to use for what kind of food is very much the chef's choice, since many foods can be processed in several ways applying various methods. The following is a brief description of the similarities among the various cooking methods and processes.

1. The main similarity between ***sautéing, pan-frying, and deep-frying*** is the amount of fat used in the process.
   a. **Sautéing:** uses a thin coating of fat in the pan.
   b. **Pan-frying:** uses more fat than Sautéing; the exact amount depends on the amount of food being placed in the Sauté pan. However, the food should be partially submerged in fat so that the fat covers approximately 1/3 to 1/2 of the product being cooked.
   c. **Deep-frying:** this method requires that the entire food be submerged in hot fat.
2. The main similarity between ***Grilling and Broiling*** is the way the heat is transferred onto the food. Even though both terms are used interchangeably, they differ in the process: The heat transfer for grilling occurs from below the food, whereas the heat transfer for broiling occurs from above the food.
3. The main similarity between ***Roasting and Baking*** is simply in the terminology. The heat transfer for roasting and baking is the same. We refer to roasting when we process meats, poultry, large fish, and vegetables. At the same time, we refer to baking when we bake bread, pastries, and other sweet confections. In both methods, heat is transferred through the convection of hot air that circulates around the food penetrating it and processing it to doneness.
4. The main similarity between ***Poaching, Simmering, Boiling, and Steaming*** is the temperature applied to the liquid and/or the steam.

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a. **Poaching:** the correct liquid temperature should be between 160-180°F. Poaching is not boiling; instead, the liquid will tremble slightly; however, it is not allowed to bubble since that would reach the boiling point.
b. **Simmering:** The temperature of the liquid is between 185-205°F. Since the highest point is still below the boiling point of 212°F, the liquid should be moved by only small bubbles breaking upon the liquid's surface.
c. **Boiling:** happens when the degree of the liquid temperature reaches **212**°F **A**t sea level. When the liquid boils, it moves large bubbles, allowing a large amount of water to evaporate. When boiling, the amount of liquid originally set in the pan must be continuously monitored.
d. **Steaming: steam is generated when** water boils and usually exceeds 212°F temperature. With this method, food is in contact with the steam only and is cooked by the steam. If food is submerged into the liquid, the cooking methods would consider poaching, simmering, or boiling. Steaming is preferred when cooking delicate meals to retain most nutrients.

5. ***Braising and Stewing*** are very similar because, in the cooking process, food is subject to the same treatment using the same techniques. Both methods call for sautéing first, then adding m a liquid and then simmering. Like baking and roasting, the main difference between the two methods is the terminology used. However, foods that are processed in small pieces such as cubed lamb, beef, or veal are usually referred to as a "stew," while large food items such as poultry cuts of meats, chops, pot roast, etc., are referred to as "braised."

Stocks

Stocks are flavored and nutritious liquids used as foundations for sauces, soups, stews, gravies, etc. There are two basic stocks: ***white and brown***.

White Stock

The type of stock is determined by the source of meat and bones used in the process, such as chicken stock, beef stock, veal stock, fish stock. To make stocks, bones, and cartilage either as by-products or purchased for that purpose are used. Bones are rich in albumen and gelatin; however, for a good stock, flavoring ingredients such as carrots, celeriac, onions, leeks, bay leaf, parsley, and thyme are usually added to the liquid. It is important that stocks are prepared by setting all ingredients on fire at the same time with sufficient ***cold water*** to submerge all the bones. The liquid must first reach the boiling point before allowing it to simmer for at least six hours.

Brown Stock

The process to prepare brown stock is the same as for white stock, with the exception that the bones are first roasted until they reach a dark brown color (the Maillard reaction). The bones used to make brown stocks are from beef, lamb or mutton, veal stock, game, and exotic meats.

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Sauces: Liquid Accompaniments used for various applications

1. Enhance flavor
2. Give color
3. Help with digestion
4. Moisten dry food
5. Enhance nutritionally
6. Lend a name to a dish, e.g., Lobster Cardinal
7. Give a balanced taste

Sauce preparation in terms of ingredients being used and concept's definition has changed over the last decades. Chefs and food laboratories continuously improve taste, reduce preparation time, retain nutrients, and create new and complex flavors by simplifying the processes. Sauces derive from white or brown stock or non-stock:

1. Béchamel (white sauce)
2. Espagnole (brown sauce)
3. Velouté
4. Tomato
5. Mayonnaise
6. Hollandaise

Although there are tens of sauces in every cuisine, commercial cooking continues to base its menu preparations on classic sauces. The preparation of many sauces requires thickening agents to achieve smoothness, velvety consistency, a specific thickness, and the desired viscosity according to the items served with. *The main thickening agents or compounds include:*

Roux: Cooking of flour and butter using a 1:1 ratio; one part butter and one part flour. The degree to which it is browned, i.e., white, blond, or brown, determines the color of the sauce it will be added to.

Note: When the roux is added to a liquid, one of the two components, either the roux or the liquid, must be of cold temperature; otherwise, lumps may build-up, and the sauce loses its value.

Starch: Items such as corn flour, arrowroot, agar-agar, tapioca, etc., are added to a liquid to give the desired thickness

Beurre Manié: Flour and butter are kneaded in the proportion of 1:1 and added a little at a time to a boiling liquid and stirred to form a smooth consistency. *Beurre manié* is widely used in the preparation of fish sauces.

Yolks of Eggs/Cream: These thickening agents, which create the smoothest liaison (the binding of 2 or more items) are added as a finishing ingredient. When added to a liquid, it should never boil. This mixture is usually used as a thickening agent to thicken cream soups and volutes such as chicken, asparagus, etc.

Blood: is used to give natural flavors, especially in-game cooking. It is also rich in protein, which helps the coagulation of sauces and enhances the flavor and character of the finished product.

The basic sauces include warm and cold sauces.

Basic mixing concept in sauce preparation:

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1. Principal ingredients: Fonds (stocks), water or jus + roux = sauce
2. Béchamel: roux blanc + milk
3. Sauce Blanche légère (light white sauce): roux blanc and water
4. Velouté de veau (Veal Velouté): Veal stock + roux blond
5. Velouté de volaille (Chicken Velouté): Chicken stock + roux blond
6. Velouté de poisson (Fish Velouté): Fish fumet (stock) + roux blond
7. Sauce espagnole: Mirepoix of vegetables, lard, red wine, brown stock + roux brun,
8. Always add a "Bouquet Garni": cook for about 20 minutes and strain through a fine sieve or chinois.

Warm Sauces Include White, Brown, Tomato

Bechamel: This sauce is prepared by making a white roux out of flour and butter in equal proportions until it reaches a slightly grainy texture. Milk is added slowly and stirred to avoid building up of lumps. An onion with one clove is added for flavor. Seasoning is added for taste. The product is then passed through a fine strainer and is used as a base for many sauces such as those used in pasta dishes or cheese sauces such as Sauce Morney.

Espagnole: This is prepared by making a brown roux of flour and butter. Tomato puree is added and stirred to avoid lumps. Brown stock is added vigorously to blend with the roux, on a gentle fire. Mirepoix, a mixture consisting of onion, carrots, bacon trimmings, bay leaf, thyme, and peppercorns, are added to enhance the flavor along with sautéed vegetables. The final product is simmered gently for 4 or 6 hours and then strained.

Sauce Tomate: Tomatoes are cooked with bacon, carrots, chopped onions, and garlic in stock and passed through a sieve. Light brown roux is added as a thickening agent.

Veloutés: These are made by adding stock to light brown (blond) roux. The type of volute is determined by the type of stock added, e.g., fish Volute, chicken Volute, etc.

Hollandaise: is a warm sauce served over grilled or baked fish, vegetables, and eggs. It is prepared by first reducing peppercorn and vinegar and adding egg yolks, which are whisked to a thick consistency. Melted butter is added until it blends smoothly.

Cold sauces include emulsified, non-emulsified

Mayonnaise: It is a cold sauce consisting of egg yolk, lemon juice or vinegar, a little mustard, salt, and white pepper. It is a basic cold sauce used for cold fish accompaniment, but in the U.S., it is widely used as salad dressings and in the preparation of hors d'oeuvres.

Vinaigrette: it is a cold sauce consisting of a 3:1 ratio of oil to vinegar, plus Dijon mustard, salt, and pepper. It is used mainly in salads but also as a base for many other sauces.

Soups

Soups are wholesome, nutritious liquid food made from meat, poultry, seafood, vegetables, or cereals. Soups are found in all cuisines of the world, and some of the most famous are the seafood soups such as "bouillabaisse," which were created in every port city where fishermen traded fish. Most fish that were not sold were added to a soup kettle, and the soup was eaten the following day. In France, a soup is the second course in a classical menu, though it is the first course in many meals and is also served as an appetizer. Soups can be served hot or cold, clear or creamy, with or without ingredients.

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The Soup Category Includes

Consommé: is a richly flavored, clear soup. The base is a stock of beef, mutton, or chicken, to which raw, lean - minced meat is added along with finely diced or chopped carrots, onions, celery seasoning, and egg whites. It is brought to a boil and then simmered. The protein in the egg white and meat coagulate and bind most of the cloudy material. The soup is strained through a muslin (cheese) cloth.

Broth: Broth is a cloudy soup that contains a mixture of vegetables, meat, chicken, etc. These ingredients are usually cut into regular shapes. Bouillon is the same except that it is clearer and has a strong meaty flavor made either from chicken or beef.

Soup garnishes: In luxury hotels where the restaurant manager still prepares dishes tableside, many soups are either totally prepared or finished at the guest's tableside. Whichever the case, a garnish is an essential aspect of soup preparation and presentation. It enhances flavor, color, and wholesomeness. A garnish is usually added to a prepared soup just before serving.

1. **Cereals:** Boiled rice, e.g., with mulligatawny soup
2. **Croutons:** Dices or other even shaped bread or toast, e.g., with cream soups like cream of asparagus soup
3. **Cheese:** Grated Parmesan cheese grilled on croutons, e.g., with French onion soup; cottage cheese diced, e.g., with consommés
4. **Cream:** Unsweetened whipped cream or sour cream, e.g., cream of mushroom, cream of tomato soup
5. **Meats, Poultry, Seafood:** Diced into small pieces or juliennes, e.g., Cream of chicken soup, Bisque d'Homard (lobster bisque).
6. **Pasta:** Noodles of any size and shape such as orzo shaped pasta with minestrone soup
7. **Vegetables:** Cut in various shapes and sizes such as juliennes, rounds, dices, etc. as in mixed vegetable soup.

Recommendations for Proper Soup Service

1. Garnishing must be small, light and easily edible
2. Light soups should precede heavy dishes
3. Heavy soups should be served in small quantities
4. Hot soup must follow cold appetizers
5. Cold soup must precede hot menu items
6. Hot soups must be served very hot, and cold soups chilled
7. Clear soups must be just that, enable the guest to see clarity to the bottom of the bowl
8. Soup accompaniments to hot soups such as are toasts, breadsticks, cheese croutons, etc. must be hot and crisp
9. Consommés are served either hot or cold and are served clear in a cup with 2 handles. A bouillon spoon is served if the consommé has small garnishes in it
10. One should never serve beverages such as wine or beer to a soup. Some cream soups with heavy garnishes may be served with a liquid, e.g., Cream of Mushroom soup with mushroom as a garnish

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11. Specific soups such as a bouillabaisse must be served with accompanying ingredients on the side, an empty side dish for the carcasses, a bib for the guest, and a finger bowl with lemon slice and an extra napkin.

4. MENU AND BEVERAGE LIST DEVELOPMENT

The Menu

The menu is the business card of any foodservice establishment. It tells the guests what it has to offer and at what price. The menu can easily attract a specific clientele; however, it can deter others if not properly planned. A deterrent menu is one that is highly priced and, therefore, may automatically eliminate a specific demographic that cannot effort a certain price level.

An attractive menu can be the dishes offered in synergy with the price level, types of service, portion size, and overall experience in taste, originality, uniqueness, and preparation method. Thus, proper menu planning is important and must be carefully formulated to communicate to the customer precisely the company's business model, the pricing strategy, and the invitation to use the facilities again in the future. Hence a successful restaurant can only survive on repeat business except for certain types of operations such as at the airport or in sports' arenas where customers are compelled to eating there and may patronize the place one time only.

Therefore, menu preparation must be a cooperative effort between all key managers in the foodservice operation. The menu with recipes is prepared by the chef regarding the dishes and preparation methods; however, it must be prepared in collaboration with the restaurant manager to coordinate the various service styles and techniques the menu dishes may require.

The restaurant manager and the chef may also need the chief steward's assistance regarding preparation and service equipment available, what additional equipment may be needed, and the present inventory of equipment available. The sommelier must also be consulted to propose recommendations as to what wine to serve with what dishes. The FBD will have his/her input on prices and budgets; the purchasing manager must ensure that food items are available and that there will be continuous supply. When all the above is completed, the cost controller will work with the purchasing manager to obtain an estimated cost of the food ingredients to prepare a cost estimate of each dish and the menu items' cost mix. The costing for each recipe is forwarded to the director of food and beverage, who will finalize the prices of the menu together with the chef.

In the menu preparation process, once all parties have accepted the final menu, a kitchen and service training must be established, and so the date when the menu will be launched. The food and beverage team and the sales and marketing team will organize and launch an advertising campaign to promote the new menu. The final preparation stage is to program the menu into the point-of-sale system. In a hotel setting, it will be integrated with the back office and front office systems.

Lastly, the menu will be printed according to the dining room and meal period where it will be offered, m in synergy with the décor and the overall theme and atmosphere of the outlet.

Regarding the service, the restaurant manager must become familiar with all the necessary information about each dish on the menu and train the restaurant and bar staff accordingly:

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1. Method of preparation and all the ingredients used in the menu
2. Preparation time for each dish
3. Sauces used with each dish
4. Accompaniments and garnishes
5. Whether the dish is vegetarian, kosher, halal, etc..
6. Method of service
7. Appropriate wine/spirits to be recommended with each dish
8. Price
9. Which course each dish belongs (main courses)
10. Which category each dish belongs to (cold appetizers, hot soups, etc.)
11. Alternatives, if there is a possibility for substitution
12. Place of preparation, e.g., pantry, hot food area, garde manager, bakery, etc.
13. Appropriate service utensils, chinaware, and silverware used with each dish
14. Portion sizes
15. Seasonality of ingredients
16. Place/country of origin
17. When and where to serve, whom to serve, e.g., occasion, time, type of outlets (room service)
18. Who is the ideal clientele to appreciate this menu?
19. Popular selling items
20. Additional items such as daily specials, cycle menus/items, etc.
21. Any literature in hard copy or WWW references available to enhance the customer experience.

Types of Menus for Implementation in Various Operations/Outlets

An establishment may have several menus for several outlets. It is important to know which menu is applicable, where, and when. A large operation may feature a wide menu offering which includes the following types:

1. Á la Carte
2. Banquet menu
3. Bar menu
4. BBQ menu
5. Brunch menu
6. Breakfast menu
7. Children's menu
8. Early bird menu
9. Daily menu
10. Dessert menu
11. Dinner menu
12. Exotic menu
13. Family style menu
14. Healthy items menu
15. Institutional menu
16. Luncheon menu

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17. Limited menu
18. Maître d'hôtel menu (flambé and other tableside cooking items)
19. Outside catering menu
20. Party menu
21. Poolside menu
22. Pram menu
23. Reception menu
24. Room service menu
25. Seasonal menus
26. Tea menu
27. Teenager menu
28. Senior menu
29. Snack menu
30. Special occasions' menu
31. Specialty menu (including aged beverages, chocolate, and cigar menu)
32. Table d'hôte
33. To go menu
34. Wedding menu
35. Wine menu/list

Menus are different for different operations. They must be strategically aligned with the company's scope as they contribute to its success. For a customer, it is merely a list of food items (In British English, "Bill of Fare") showing what is available for purchase and consumption at what price. The manager is a strategic document that defines the purpose of the foodservice establishment in line with its strategic intent. Thus, it is a document that helps to plan, organize, operate, and control the foodservice operation. It guides other departments such as purchasing, working order for the kitchen, and selling media for the service staff.

Please Note

It is important to consider some key strategies in menu planning: the size of the menu; "number of categories and number of items in each category, together with style and level of service needed to serve the dishes on the menu," dictates how many chefs and service staff are needed for each operation.

The Menu Philosophy

The menu is the means of communication that guides patrons to food and beverage selections to satisfy their dining preferences. In return, guest satisfaction will lead to the profit requirements of the operation. The menu serves as a reference and information about meal periods, operating days, and hours of the operation. It also informs patrons of special services being offered, novel ways to enjoy the dining experience, unique and exciting dishes, and unmatched preparation techniques, and it recites the history of the establishment.

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Menu Creation

As explained earlier, it involves all concerned in operation, and it is not simply a matter of the chef picking out items that he/she likes to introduce and prepare. The first step in creating a menu is preparing a vision "where do we go from here, why, and how?

Application of strategic tools and techniques such as environmental scanning includes conducting surveys, historical analysis, competitor's analysis, market trends, market analysis in terms of product acquisition and continuity of supply, costing and pricing strategy, and determining who the real customers are. In other words, a menu should be planned like a marketing plan and a business plan, to include the vision, the mission, the formulation, implementation, and control. The above planning will also determine the basic consumer demographics such as age, gender, profession, etc., and then will determine the restaurant customer behavior, dining preferences and dining frequency, price affordability, and individual psychographics.

For example, one must consider why so many hotel guests are reluctant to eat in hotel restaurants? They seem to perceive that a free-standing restaurant features better food, better service, reasonable prices, etc., all of which is not true.

Depending on the results of the survey, the menu planning process can begin. One must keep in mind that creating a menu is a complex and daunting task. To create a menu, one needs other valuable information besides the results obtained in the survey. One must know to know all about the operation, the ownership philosophy, the staff, physical resources, and much more. All involved need to know how various recipes can be combined, which items create synergy together, the budgetary and operational constraints such as future cost, additional equipment needed, and whether it may require well skilled and experienced staff. Once again, menu planning can be time-consuming and a waste of money if not planned correctly.

Organization of the Menu

It is how a menu is organized in terms of several categories and the number of items featured in each category. For example, a contemporary "á la carte menu" may include only four categories: Appetizers, Entrées, Side dishes, and Dessert. A traditional "á la carte menu" of 4 decades ago may have had as many as 12 to 16 categories to include egg dishes, games, etc. The number of items on contemporary menus has been reduced due to cost factors not readily identified in the past. These costs include high carrying inventory cost, labor cost to maintain inventory, loss due to spoilage of perishable items, and many others. Also, today's restaurant patron is much better educated and demands fresh and healthy food items, innovative cooking and presentation techniques, speedy service, simple service, etc., thus having too many items to choose from might cause confusion to the guest. A menu that carries over 100 items, such as in some Asian ethnic menus, may cause the guest to read for several minutes and ask many questions about how dishes are prepared and served etc. Therefore, having the ideal number of categories and the ideal number of items will create a balanced menu.

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Menu Design

Designing a menu involves many factors to be considered. The theme of the restaurant design, the décor, the colors, size of the dining area, size of tables, etc. With regards to the menu itself, if printed, one must consider the size, color, and quality of the paper, color ink, size of the font, readability, the lighting of the restaurant, number of pages, quality of the menu cover of a jacket (leather, hardboard), pages stapled or separated by tassels, language, translations, etc., number of copies to be printed, etc. However, over the last two decades, the printing process has been simplified. Most restaurants have in-house printing capability, and others are using i-pads or other electronic devices without the need to print.

Just a few decades ago, the cost of printing a menu could range from $10.00 each to $ 50 and more each. As explained above, today, menus can be printed in-house; however, luxury restaurants continue to use the service of an expert printing company to distinguish themselves from competitors. In-house menu printing offers several advantages; if an item is out of stock for a valid reason, the menu could be easily reprinted, and the newly arriving guests would not notice the discrepancy on the menu. In-house printing also saves costs and allows the restaurant to customize menus according to the meal period, seasonal offerings etc.

Most restaurants today have two kinds of menus: ***Standard and Daily Menus***. However, a few restaurants continue to have more traditional menus to accommodate the clientele they serve. Luxury restaurants, for example, have menus with prices and menus without prices. These menus are meant to accommodate parties in which the host does not wish to let the guest feel embarrassed by the prices on the menu and become hesitant to order a favorite dish if the price may appear high. In technical terms, a menu without prices is referred to as "lady's menu of invitees' menu; however, since the guests' demographics have changed, and we see an increasing number of ladies entertaining gentlemen, the menu without prices may be referred to as the "guest menu" and the one with prices as the "host menu."

Standard Menu

This menu is usually printed or recited to the customer. It is commonly known as a fixed menu, which most of the items never change. All menus have advantages and disadvantages. Some of the advantages of a fixed menu are that there is a continuous supply of the raw product, which in turn leads to lower cost and consistency of product and dish preparation, ideal procurement and production schedules, and it acts as a powerful self-promoting marketing tool for the operation since regular guests return to order their favorite items. Some disadvantages of the standard menu are the difficulties in carrying overproduction effectively, meaning that what has been produced must be sold, but it must be discarded if it has not sold. Also, it does not allow for the ability to respond to market demand and/or product changes, especially if many copies have been printed in an expensive format.

Daily Menu

Usually, this type of menu is offered in addition to the standard menu. This type of menu allows making changes as the management wishes; hence "daily menu" means daily changes. The daily menu offers several advantages; it can respond to immediate changes in the market, it allows for price of cost adjustments, it works as a ***"cycle menu"*** *(see below)* to reduce the monotony of the standard menu, it helps in the promotion of seasonal items or slow-moving items by promoting them under different dish name and

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different methods of preparation, and it is very flexible. For example, when promoting a limited number of daily specials on the weekend, the daily menu can be quickly reprinted with new daily specials or without major specials immediately without letting the guests notice the difference.

As for everything else, this type of menu has some **disadvantages.** It has serious weaknesses associated with its implementation. It causes problems with training, with the preparation of specific items in certain quantities. It requires much guesswork to forecast how many items can be sold, thus disrupting the production schedule. Another weakness is that it does not allow having standard items, e.g., since the product orders are made for limited quantities, the chef may never know if certain special items can be featured the following week during the same day or meal period. For example, if ***salt cod*** is featured to make a "***brandade***" (a French dish consisting of salt cod, olive oil, either milk or thick cream, garlic, and served with potato puree or toasted baguette) on a Friday night, the chef does not know if the raw product may be readily available for him/her to add it to the daily menu.

Cycle Menu

This menu typology is usually featured for a determined period only: weekly, monthly, or even quarterly if it represents a season such as "Game Season." The length of the cycle refers to the length of time the menu will be offered. A "menu cycle frequency" determines how often the same menu is offered. For example, A 7-day cycle menu is repeated every seven days. These types of menus are usually featured in institutional operations such as schools or hospitals or large companies' cafeterias. The main **advantages** of featuring these kinds of menus are that production can be standardized, and the staff can use equipment and technology that allows advanced preparation and mass customization and quality consistency, such as the "Cook-Chill" preparation process. Staff can be trained to produce standardized food, thus improving their skills in line with the *"concept of the learning and experience curve theory*." Cycle menus also allow for carryovers of unused products into the next day's inventory on hand. Historically "***cycle menus"*** have shown no significant disadvantages except when delivery problems occur or lack of storage space or because of significant equipment breaks down. Links to a large collection of historical menus can be found on the "Food Timeline" web site at: (Food timeline, 2021; Menus, 2021).

THE BEVERAGE MENUS/ BAR LIST/ WINE LIST

Most restaurants feature one beverage menu, which includes all beverages and wines. However, many establishments feature a variety of beverage menus, especially in fine dining restaurants, piano bars, room service, casino bars, private bars, and other outlets with or without live entertainment. The beverage menu features drinks that can contribute to higher profit margins since liquor is little o non – perishable. However, one must consider the high cost of inventory, breakage, pilferage, and the overall liability connected with an expensive liquor menu, not excluding the cost of licenses and permits required for the operation.

Nevertheless, profit from liquor always outweighs the cost and offsets the low profits of no profit generated in food operations. These concerns usually do not affect a well-organized operation such as that of a resort hotel operation. A comprehensive beverage menu features all beverages, including soft drinks, juices, cocktails, mocktails, and hot beverages.

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The Wine List

This beverage menu has become the most discussed and featured menu in many operations around the world. Bars and especially trendy wine bars do not necessarily need to produce and serve food; they can serve ready-to-eat specialties such as salami, prosciutto, cheeses, smoked salmon, etc.

A wine list can be as large as the establishment retains it necessary. It can list as many as 12 wines to as many as 400 or more, depending on the clientele it caters to, the type of operation, and the size and value of the inventory.

Although it is not difficult to create a wine list, it is much more difficult to apply the right pricing strategy. For this chapter, we will limit the discussion about the wine list in general and will not discuss the anatomy or recommended types of wines, whether domestic or imported or their categories. Menus, and especially wine lists, are a study of their own and can be very complex. Based on the foregoing, one can argue that the main reason why many wine lists fail to deliver the desired return on investment is the wrong pricing strategy. The highest profit comes from house wines and wines sold by the glass. Usually, the higher the selling price of wine, the higher the cost. If the price is too high, the sales will be low.

Consequently, the inventory will not turn, causing inventory carrying costs to be high. Not the case with less expensive wines. A low-priced wine will encourage the guest to buy more, while a high-priced wine will discourage the guest from buying more. The risk of carrying expensive wine is high, and the cellar management cost associated with the inventory is also high. If a bottle of expensive wine that the restaurant has aged is spoiled, the restaurant carries the cost of replacing it with the customer. Therefore, the inventory of expensive wines must be kept at a minimum, while the inventory for fast-moving wines should be kept at an ideal par level.

Today, distributors can deliver wine six days a week; therefore, there is no need to keep a Million Dollars wine inventory when the cost of carrying such stock can be perilous. It is worth mentioning that modern technologies have made it possible for bars and restaurants to serve expensive wines by the glass. Equipment with a nitrogen solution is now being used in many bars to preserve the quality of an opened-expensive bottle of wine. This also allows the connoisseur to afford a glass of expensive wine without buying a whole bottle.

Operations that employ sommeliers are at low risk of losses because of the expertise a sommelier can provide in cellar management, promotion, and merchandising wines. Other types of operations should seek a professional's expertise in creating the ideal wine menu for the operation. The wine menu should be set up by someone who knows about wine and understands the target market, the competition, and pricing strategy.

5. DINING ROOM SERVICE STYLES AND TECHNIQUES

Serving the guest is very important to the foodservice industry. Customers are guests that are coming to the home of the proprietor. There are skills, experiences, knowledge, and good manners required to offer good service. Regardless of how elaborated the service may be, it is still considered a service. In the U.S., great emphasis is put on service across industries and especially in foodservice. Because the earnings in foodservice are based on patrons' tipping, it becomes necessary for a server to give good service.

The establishment must provide the servers with the tools necessary to perform a good service. The absence of proper qualifications, willingness to give an appropriate service, and lack of available tools

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prevent patrons from using the restaurant again in the future. Good service in the U.S. is somewhat over-emphasized, and, due to this very reason, the customer expects more and demands more to the point that excellent service is impossible to deliver. In most Asian countries, customers do not give tips; therefore, there is no reason not to give greater service because tipping is not the incentive; every guest receives great service. In Europe, one can find waiters and waitresses still working at retirement age at restaurants where tips are included in the price. Although it may appear as there is no emphasis on service, they are very knowledgeable and give expert service to make the visit an enjoyable one.

In the U.S., service staff is much younger, and very few work as a server to pursue a career in the restaurant business. For many working in a restaurant means making extra money while being a student or needing extra cans before the holidays. These situations make it difficult for a foodservice manager to train service staff properly, retain staff, and offer consistently excellent service if seniority as a server is extremely low.

Service is a general term; however, the type and style of service offered at a restaurant will depend on the type of operation and its standard of service required. Training servers involves experience, knowledge, patience, and management skills.

The types of services offered today differ in great length and will depend on how much money the establishment wishes to allocate to the service. The services provided in various types of operations include:

Counter service: serves a high number of customers, and the server works close to the production line to provide quick service.

Cafeteria service: this service also has a high rate of customer turnover. In cafeterias, guests wait in line, select the items and puts them on trays, pays the cashier at the end of the line, selects a table, consumes the food, and depending on the set-up of the cafeteria, a bus person or guests pick up the trays are asked to bus their own tables.

Buffet service: allows for low labor cost since guests serve themselves; however, food cost usually increases because guests waste more than they can eat.

American table service: it is simple and the least expensive in the world. Many operations world-wide have now adopted this type of service because it has the lowest cost factor. This service requires that food be dished onto plates in the kitchen; the server takes the plate to the table and later picks up the soiled dishes.

Banquets operations use this type of service to serve many guests and have limited servers. The common style of setting-in plates in the United States is from the guest's left with the left hand. It is believed that serving from the left-hand side with the left hand originated in private family service with a limited number of servants. The server used to clear the dirty plate from the right with the right hand and then placed the newly filled plate in front of the guests with the left hand. This American service, still used today, is among the least formal styles of service. It is an inconvenient type of service since not many servers are left-handed. However, the modern American service style calls for all cooking and plating of food to be completed in the kitchen. A server picks up the plated food, carries to the dining room on trays, places the tray on a tray stand, and sets-in the plates in front of the guests from the right with the right hand. This allows the server to carry two or three plates with the left hand while serving the guests with the right hand. For small parties, women are served first, and then other guests serving clockwise around the table, then all men. For larger parties, the woman to the left of the host is served first, and then the server serves each guest in turn, moving clockwise around the table, serving the host

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last. However, service styles can be changed any time according to the guests' request and the type of food served, depending on the occasion.

French table service: it is by far the most elegant, slower, and the most expensive. It is also complex and requires extensive training. The service uses several table settings, and it is not unusual for a customer to use up to 45 and more pieces of silver and chinaware for a three to four-course meal. Traditionally, French service consists of three to four separate courses, with much of the food cooked or finished on the guests' tableside, from a cart called "guéridon," in the dining room. Items are brought into the dining room on silver platters and placed on the guéridon or covered warmer. The dishes are portioned, plated, and served from the right-hand side of the guest.

Russian table service: Food is served from large platters or bowls to the guest plate. Russian service, which is used mostly for banquets, is less pretentious than French service; however, it is quicker and very elegant. The main goal of Russian service is to assure the guest receives fully cooked; hot food served fast and tasteful way. All food is fully cooked and skillfully arranged with Russian service and garnished on large platters in the kitchen. The platters of food are carried to the dining room by a server and presented to the table. With the server's right hand, empty plates are set in from the guest's right, beginning serving the first lady seated at the host's left. The server then moves clockwise around the table and serves the host last.

English table service: it is usually very formal. Dishes are prepared in the kitchen on platters. In the past, if large pieces of roasts were served, the host carved them and put the slices on plates and handed them down to the hostess, who used to set the other items on the guest plate, and finally, the guest receives the full plate from the hostess.

This service is still prevalent in England today, especially in restaurants and country clubs. Elsewhere, today, this service style is usually reserved for private rooms' dinners or luncheons or special occasions where guests want to imitate a home-style dinner setting while still being waited on by professional staff. Special placemats are used, and plates are preset on top of them. The server moves clockwise around the table when clearing used plates. All food is fully cooked and plated in the kitchen. The host, or today, the maître d'hôtel, carves the meat and passes it to the nearest guest, who, in turn, passes it along with the table. The host generally serves soup into bowls, which are then passed around the table. Side dishes arrive from the kitchen in large serving platters, and guests help themselves, or the host may plate the side dishes before passing the plates. Similar and less formal style services have become popular in the United States, especially those restaurants that promote a family-like ambiance to their patrons.

Butler Service: Butler service is like the Russian service, except that the guests serve themselves with provided utensils from the serving platter. Beginning with the lady to the host's right, the butler offers from the left, moving counterclockwise around the table, holding the platter in both hands. This service is not to be confused with the real butler service for which one must attend a special training school to learn how to perform, such as service.

Critical Issues in Food and Beverage Management and Service

Without a doubt, Food and Beverages Managers today face the same challenges as every other manager across industries. The most challenging issues he/she needs to be concerned with are environment, sustainability, energy conservation, pricing issues, labor cost issues, and legislative problems, greatly influencing the operation's profits.

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Currently, all industries deal with the inclusion of a diverse workforce to represent the very international clientele the establishments attract and serve. The foodservice and the Food and Beverage industry, in general, have experienced significant changes in the supply chain over the last few years. The changing demand in today's consumer market means industry processors can no longer plan based on long product lifecycles and that innovation has become critical for survival. Some of the current issues the Food and Beverage industry is now facing include increased demand for variety and innovation, governmental regulation on quality, product traceability, low-profit margins, and the need for shelf-life management.

An additional and critical issue facing the Food and Beverage industry is that inconsistent quality of raw materials requires dynamic recipes and variable processes. Food manufacturers must demonstrate traceability in the end-to-end supply chain, not only for food safety and legislative compliance but also to meet increasing corporate and social responsibility expectations. At the center of these issues is the one about carbon footprint. More and more restaurants are buying local foods within specific short distances or short miles' radius to support the trend of carbon footprint reduction and support the local economy. Therefore, the foodservice industry constantly faces many challenges at the end of the supply chain.

Health regulations imposed by city governments include menu items labeling with nutritional value, reduced-sodium consumption, and other regulations that will challenge the DFB's ability to produce desired profits. The demand for lower costs is encouraging global sourcing of a wide variety of foods, which adds risk to the U.S. supply chain and the foodservice liability in serving healthy foods.

The shift in restaurant customer preferences is changing the way the foodservice industry operates. Lifestyles focus and changing market segmentation strategies force the food and beverage service industry to meet customers' demands with new and innovative menus. Also, consumers are more educated, better informed, heavily influenced by social media networks. Often, they are confused as to what exactly is right or wrong and whom to trust or believe, especially when it comes to IWOM (Internet Word of Mouth), which can negatively and immediately influence a restaurant business and its profits. If, in the past, an unhappy restaurant customer shared a bad experience with only ten other people, today he/she can share with thousands or millions of other people using social networks.

Other persistent challenges involve the availability of qualified, well-trained personnel at rank and file and middle management level. Another problem is the perseverance of unions trying to organize restaurant chains and other types of operations. For example, labor unions have struggled to make quick-service inroads but remain steadfast in their attempts to organize fast-food employees.

Also, competition continues to be intense within the industry and especially in mature markets. Innovation in food, beverage, service, and technology will be the new decade's leading success factors. Therefore, Directors of Food and Beverage must pay close attention to the evolution of technology and follow food and beverage production and service trends to meet the ever-demanding customer's expectations to remain a player in the competitive landscape.

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Chapter 8
Managerial Accounting for Non-Accountants in Restaurant Operations

ABSTRACT

This chapter discusses the accounting functions of a foodservice operation. A foodservice manager does not need to know accounting to its fullest extent as he/she would be capable of substituting a financial controller; instead, the manager only needs to have a broad and sound knowledge of the accounting department's activities. Therefore, this chapter will prepare the foodservice manager, mainly with the "managerial accounting branch" and less with the others. Accordingly, the chapter is titled "Managerial Accounting for Non-Accountants."

LEARNING OBJECTIVES

After studying the chapter, the reader will be familiar with:

- Concept and understanding of accounting in general and foodservice specific
- The accounting department, its operational activities, and organization
- Financial responsibilities of the financial controller and the foodservice manager
- Definition of accounting and its scope in foodservice
- Branches of accounting
- Industry-specific accounting functions as they apply to a foodservice business
- Budgeting
- Forecasting
- Capital investment
- Purchasing
- Cost control

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A. INTRODUCTION TO FOOD AND BEVERAGE SERVICE ACCOUNTING

Is there a difference between financial management and accounting management? This chapter discussed basic accounting principles about revenue management, business analysis, reporting, financial control, budgeting and forecasting principles, and more (David & Britton, 2004). The term finance may be defined as "*the discipline of funds management,*" in other words, the management of money capital. In practical business terms, a "*fund*" could be interpreted as the "means" to provide "funding" or monetary capital for a project, a person, a business, or any other private or public institution. Thus, finance is about a corporation's financial decisions, an individual, a public or private entity, including governments. The players face two basic financial questions in the daily economic environment: 1. what investments should be made? 2. How to pay for those investments? The secret of financial management success is to increase value for the entity.

The hospitality industry, in general, has always dealt with one of the most complex accounting systems. Because the hospitality industry has always been global, it had to create systems that could be widely understood and standardized. It strived to have one currency, common systems of measurement, evaluation, and records. What continues to be different from one country to another, to name some, is the tax and reporting system. The tax law, of course, influences the way records must be kept, the length of time, what kinds of records, and, to a certain extent, the profitability of a business. To make the hospitality accounting system more standardized and simplified, The Financial Hotel Association of New York City published 1926, the first edition of the Uniform System of Accounts For The Lodging Industry.

The scope was to create a standardized and uniformed accounting system for the lodging industry. In the fall of 2006, the fall of 2006. As for everything else we deal with, the USALI, too, needed many changes. When the 10th edition was released, the Financial Management Committee also released a summary of the fundamental changes in specific sections of the revised and improved10th edition. These changes were first reported in the Lodging Magazine and The Bottom-Line Magazine. Copies of the latest edition of the USALI are available for purchase at the Educational Institute of the AH&LA (2020) website at www.ei-ahla.org (AH&LA, 2020). The Revised Edition published in 2014 by The Financial Management Committee of the American Hotel and Lodging Association (AH&LA), in conjunction with the Hospitality Financial and Technology Professionals (HFTP), establishes standardized formats and account classifications to guide accountants and managers in the preparation and presentation of financial statements for lodging operations in general and the foodservice operation housed in a hotel/resort setting. The National Restaurant Association has developed the Uniform System of Accounts for Restaurants (USAR) for the restaurant industry alone. The Uniform System of Financial Reporting for Clubs (USFRC) was produced through the collaboration of Hospitality Financial and Technology Professionals (HFTP) and the Club Managers Association of America (CMAA). It is the club accounting resource for club managers, officers, and controllers. Like the USAR, the USFRC seeks to provide a consistent and clear way to record sales, expenses, and overall financial conditions. The attempts to provide operators guidelines rather than mandated methodology. All three Uniform System of Accounts, the one for the Lodging Industry, that for the restaurant industry, and the other for club management are guidelines every foodservice manager must have on the desk and familiar with. These guidelines are updated as needed in line with the Generally Accepted Accounting Principles (GAAP) (Murphy, 2003; Dellaportas, 2006; Love, 2008.) The USALI, USAR, and USFRC contain all necessary so-called "schedules" and cover important topics that have been adopted by most hospitality companies worldwide. The USALI guidelines are the most complete because they include accounting guidelines for the entire

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hospitality service and lodging operation, such as a resort and a corporate business hotel. The USALI includes, but not limited to, instructions about:

1. Financial Statements
2. Balance Sheet
3. Statement of Income
4. Statement of Owners' Equity
5. Statement of Cash Flows
6. Notes to the Financial Statements
7. Departmental Statements
8. Statement for Gaming Operations
9. Statement for Properties Operated by a Management Company
10. Operating Analysis
11. Summary Operating Statement
    a. Schedule 1—Rooms
    b. Schedule 2—Food and Beverage
    c. Schedule 3—Other Operated Departments
    d. Schedule 4—Rentals and Other Income
    e. Schedule 5—Administrative and General
    f. Schedule 6—Sales and Marketing
    g. Schedule 7—Property Operation and Maintenance
    h. Schedule 8—Utilities
    i. Schedule 9—Management Fees
    j. Schedule 10—Rent, Property and Other Taxes, and Insurance
    k. Schedule 11—House Laundry
    l. Schedule 12—Employee Cafeteria
    m. Schedule 13—Payroll-Related Expenses
    n. Department Payroll Titles

Ratios, Statistics, and Expense Dictionary

A foodservice operation in a hotel setting may include several sub-departmental operations, both profit and cost centers. In the case of a free-standing foodservice operation consisting of one outlet alone, it may not require all schedules included in the USALI. A typical hotel-resort sub-departmental operation may have many food and beverage outlets. It is from a pool restaurant and bar to golf food and beverage operations, room service, outside catering, lobby espresso bar, etc. Accordingly, the food and beverage accounting system manage a wide range of profit and cost centers, possibly several foreign currencies and other payment media. Like other accounting systems across industries, the Food and Beverage Service Accounting system is a system and process of keeping records of a restaurant business's financial transactions. At the end of any accounting reporting period, be daily, weekly, monthly, or yearly period, records are summarized and truthfully reported to a person, a department, an entity, an agency, or whoever is entitled or responsible to receive such a document. The person who is responsible for all financial transactions, who has the necessary skills, expertise, and knowledge to manage an accounting department, is called controller (or comptroller).

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A foodservice manager must also have a deep understanding of the accounting system in place, keeping in mind that understanding accounting is not the same as managing an operation, it is, however, an integral part of the foodservice manager's managerial capabilities to be able to lead a foodservice operation successfully. In other words, a foodservice manager must not necessarily be able to make book entries of financial transactions; however, he/she must understand all the financial transactions regarding inventories, receiving payments, credits, debits, and most of all, business financial performance. Experience shows that many foodservice managers, especially students, think of the food and beverage service, trade more of being a practical business dealing with customers and staff, and less with numbers. On the contrary, they must understand how important it is to be familiar and efficient in dealing with the accounting system in general. Moreover, once the financial statements at the end of a period have been produced, the foodservice manager must be able to interpret the results and, in turn prepare the necessary reports needed to the regional manager, or the head office, or directly to the owners or to the board, or kept for future business development and expansion. The preceding should not be a deterrent to future foodservice managers. Instead, it should stimulate their thinking about the importance of fully understanding accounting; after all, it is about numbers and results. It was only a few decades ago before the PC was introduced that accounting was a manual job. The author remembers when after a long night working as a night auditor in a luxury hotel, the report was off by.10 cents and could not go home until the error was found, and the report was balanced. It was a painful process. Today it is much easier because computerized systems can do that with a click of a mouse. The manager needs not to know how to prepare a report, but how is a report interpreted? The accounting department can provide any necessary information, but the manager will ultimately be responsible for the results in his/her operation. *Why was the food cost too high or too low? Why was the labor cost proportionally higher than the revenue increase?* These are questions a controller will ask the manager, who must justify, make corrections, and prevent shortfalls from happening again. In a way, the controller should be the best colleague the manager must-have.

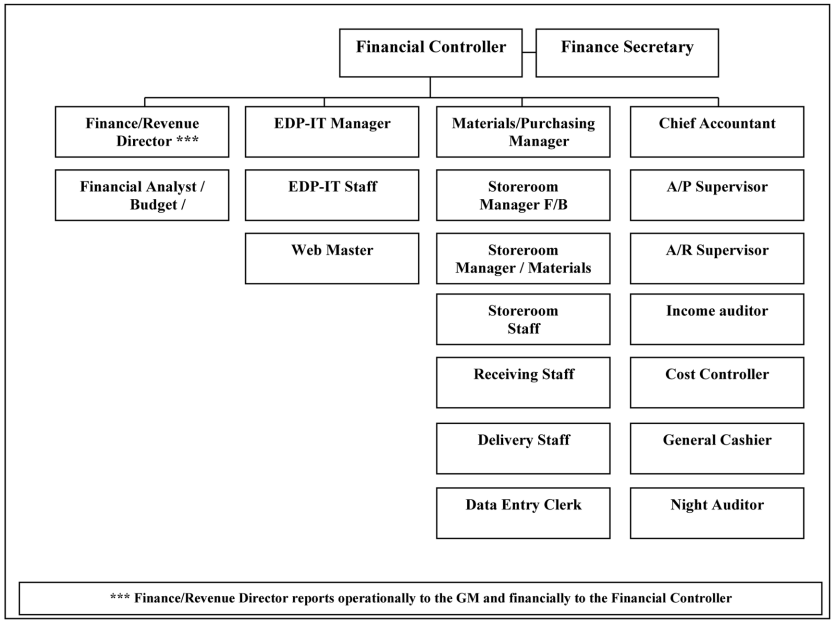
B. THE ACCOUNTING DEPARTMENT

Sample Financial Responsibilities of a Financial Controller

1. The **Financial Controller** is directly responsible for all aspects of accounting functions in hotel/restaurant operations.
2. Assists the General Manager to maximize the networking capital position of the hotel
3. Analyze and interpret financial results to assist and advise the General Manager and the Department Heads
4. Ensure accurate balance sheet analysis monthly with full supporting detail.
5. Ensure all financial reports, budgets, forecasts, and other financial information requires is accurately compiled and submitted within the specified time limits
6. Maintain an effective cash management system
7. Responsible for ensuring tight internal control both financially and operationally
8. Completion of all month-end functions; preparation and posting of all journal entries, preparing financial statements and reports, cash flow, etc

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Figure 1. Accounting department organization chart in a large hotel operation
**** Finance/Revenue Director reports operationally to the GM and financially to the Financial Controller*



9. Reconciliation and monitoring of all balance sheet accounts
10. Verifying the accuracy of the Daily Revenue Report and submit to Head Office on a timely basis
11. To supervise the filing and maintenance of all accounting related documents and records on a timely basis in compliance with the company's record retention policy
12. Preparation of all financial and management reports for both Owners and Leadership Team
13. Coaching, training, development of Finance Department staff
14. Participation in the formulation of Hotel budgets and preparation of forecast reports
15. Responsible for maintaining accounting software systems: Accpac (*** Professional Accounting Software package) G/L and A/P
16. Familiarity with all hotel operating systems

Sample Financial Responsibilities of a Foodservice Manager

1. Direct bottom-line responsibility for all foodservice operations, which includes areas of responsibility shared with others such as Food and Beverage cost, labor costs, etc.
2. Effective communication and cooperation between managers to achieve desired results
3. Effective forecasting and staffing
4. Proper costing, pricing, and merchandising of food and beverage menu items
5. Together the Accounting department establish and maintain systems and procedures for the ordering, receiving, storing, issuing, and control of all inventories
6. Assist in unit forecast and unit accounting
7. Promote quality foods and keep cost in line with the budget

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8. Conduct period inventory and perform other functions such as maintaining records to comply with the owning company, government, and accrediting agency standards
9. From the above examples, we can see that both the accounting department and foodservice management have shared financial responsibilities.
10. Before we discuss the different branches of accounting, it is essential to reiterate that a foodservice manager or director of food and beverage does not have to be capable of substituting a financial controller. He/she must have a sound knowledge of all accounting functions, including all accounting staff's responsibility, from the account receivable to the inventory staff's cost controller. Whenever the need arises to discuss a specific accounting issue, the manager must know whom to approach in the accounting department. That official communication must always go through the financial controller.

Definition of Accounting

It is the process of identifying, measuring, and communicating financial information to allow for informed judgments in decision-making. The accounting process includes the examination of specific events to dissect those that are financial. The role of accounting is to keep records, classify, and summarize by what we know as "bookkeeping " and interpret, analyze, synthesize, and report all financial transactions to the stakeholders. The controlling body of accounting practices is The Financial Accounting Standards Board (FASB).

Branches of Accounting

The following section will explain the various branches of accounting and their purpose. As previously stated, a manager's responsibility is to manage and make sound financial decisions based on the financial reports presented and based on the job's personal and professional experience.

1. Financial Accounting

It is the field of accounting that treats money to measure economic performance instead of (as in cost accounting) as a factor of production. It encompasses the entire system of monitoring and controlling money, inflows, and outflows of the firm as assets and liabilities, and revenues and expenses. Financial accounting gathers and summarizes financial data to prepare financial reports such as balance sheets and income statements for the firm's management, investors, lenders, suppliers, tax authorities, and other stakeholders.

2. Managerial Accounting

It is concerned with providing information to managers who manage and control the company's operations. Managerial accounting is different from financial accounting in which it is concerned with providing information to stockholders, creditors, and others who are outside an organization. Managerial accounting information includes the costs of an organization's products and services. Other information that assists managers in planning and controlling activities is revenues from products and services. The key difference between financial and managerial accounting is that financial accounting is aimed at

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providing information to parties outside the organization, whereas managerial accounting information is aimed at helping managers within the organization.

3. Cost Accounting

It is the branch of accounting that aims to measure and capture the company's costs of production by assessing the input costs, E.g., food, and beverage, in each step of the production process as well as direct and indirect costs, and other costs such as the depreciation of capital equipment. Cost accounting measures and records these costs individually, then compare input results to output or actual results to provide management with financial performance results within a specific accounting period. Cost accounting is most beneficial as a tool for management in budgeting and in establishing cost control programs, which can improve net contribution margins for the company in the future.

4. Tax Accounting

Tax accounting is very similar to other branches of accounting. The main difference is that the information provided is used for different purposes, such as tax liabilities, tax returns, and tax credits. Overall, tax accounting concerns itself with the proper and timely filing of tax payments, forms, or other documents as required by law. Professional tax accounting techniques and practices ensure that businesses properly fulfill their legal tax obligations without defaulting with the government tax branches. The essential tax accounting functions include amending, preparing, and filing corporate and required tax returns on local, state, and federal levels. It involves various sectors, including income, royalties, franchise, and sales. Some of the taxes restaurants operations are liable to include sales taxes and payroll taxes.

5. Auditing

The auditing branch of accounting is primarily concerned with the accuracy and truthfulness of financial reports produced within a business operation. It is designed to identify accounting irregularities to prevent accounting fraud. An **audit** is an independent verification of financial records. An audit is conducted by an individual **auditor** or by a group of individuals investigating companies' records and transactions to determine accuracy and truthfulness in reporting financial data. The auditing branch is concerned with the protection of the company's assets. There are two types of auditors: internal and external. Internal auditors appointed by the company may be the controller, financial analyst, chief accountant. External auditors are usually individuals working for independent companies who specialize in auditing and can help the company correct anomalies to prevent fraud.

6. Forensic accounting and auditing

A branch of accounting that investigates fraud through forensic auditing, compliance, due diligence, and risk assessment; detection of financial statement misrepresentation and tax evasion; bankruptcy and valuation studies; GAAS, GAAP, and SEC violations or accounting irregularities; non-standard entries, structured transactions, records tampering, and earnings management (non-neutral financial reporting); fair presentation and disclosure transparency; audit quality review and evaluation; transaction tracing, reconstruction and accountability; litigation support and dispute avoidance; extended procedures within

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a statutory or forensic audit environment; money and information laundering; and the underground economy (Domino, Giordano, & Webinger, 2017).

a. Forensic auditing focuses on the following activities:

   i. evidential reasoning in the accounting domain
   ii. the highest level of assurance in accounting engagements
   iii. procedural protocols in evidentiary discovery, analysis, and presentation
   iv. transaction and reporting event ownership and accountability
   v. debit & credit analysis for fraud detection
   vi. proper contextual methodologies and informed presumptive testing
   vii. linking "books and records" analysis with accounting effect interpretations
   viii. resolution of accounting anomalies
   ix. enhanced audit quality through active detection of fraud
   x. data interrogation and business process deconstruction techniques

7. Hospitality Accounting

This sub-branch follows under the general branches of accounting. However, it is a very specialized area that is concerned with accounting practices and techniques used in all segments of the hospitality industry, such as restaurants, hotels, resorts, clubs, cruise liners, casinos, and other hospitality-related businesses. Those practicing managerial accounting in the hospitality industry have specialized knowledge to deal with complicated procedures in a compelling activity. That knowledge comes from an excellent educational background, practical industry experience, learning from success and failure, and the endless opportunities this unique business offers. After all, it is about numbers, and knowing how to manage numbers means understanding how positive results can be produced.

C. THE LANGUAGE OF ACCOUNTING

The accounting formula:

Assets = Liabilities + Owner's Equity

To better understand it, please see Figure 2, it is a graphic representation of the accounting formula.

A scale must always be in balance when weighing goods, so is the accounting scale. When one side of the scale is modified, the other side must be modified or counterbalanced. To illustrate a better example, consider the following. If a company issues additional shares to generate a cash infusion in the cash account, cash reserves will increase, so do liabilities. Meaning the company owes the stockholders the money they have paid in cash in return for the shares they have purchased; thus, the balance sheet is now balanced. As stated above, to be fully proficient in understanding financial statements and draw conclusions to make financial decisions, a manager must remember some basic business math.

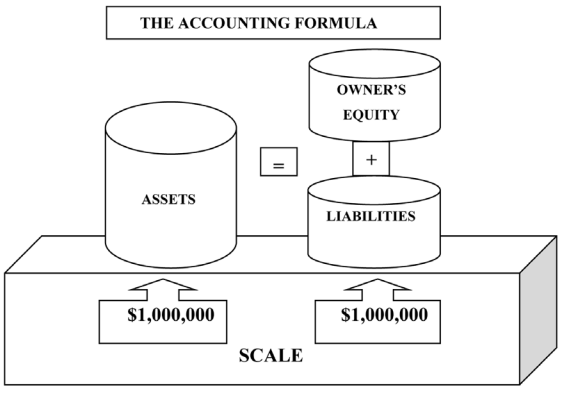
This chapter will not reintroduce basic mathematics because it assumes that a food service manager should have the necessary prerequisites that qualify him/her to join an undergraduate university program

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Box 1. Commonly Used Accounting Abbreviations

A/C	Account
A/R	Accounts Receivable
A/P	Accounts Payable
Amtz	Amortization
B/S	Balance Sheet
CAPEX	Capital Expenditure
c/d	Carried down
b/d	Brought down
c/f	Carried forward
b/f	Brought forward
Dr	(Debtor) Debit
Cr	(Creditor) Credit
G/L	General Ledger
FF&E	Furniture – Fixture & Equipment
FOB	Free on Board
I/S	I/S Income Statement
N/L	Nominal Ledger
P&L	Profit & Loss
PP&E	Property, Plant and Equipment
TB	Trial Balance
VAT	Value Added Tax
CST	Central Sale Tax
TDS	Tax Deducted at Source
MAT	Minimum Alternate Tax
EBIDTA	Earnings before Interest, Depreciation, Taxes and Amortization.
EBDTA	Earnings before Depreciation, Taxes and Amortization.
EBT	Earnings before Taxes
EAT	Earnings after Tax
PAT	Profit after tax
PBT	Profit before tax
Dep	Depreciation

Figure 2. graphic representation of the accounting formula



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and remember the basic mechanics of computation for additions, subtractions, multiplications, and divisions. He/she should also remember introductory algebra and calculus. We use elementary computations in food and beverage management; one of the most used computation mechanics is fractions.

In accounting, especially in dealing with inventories, accounts are subject to additions, subtractions, transfers, deletions, and changes. For example: when the storeroom receives new purchases, it adds to the inventory; that is an addition to the current stock level, meaning a change happens. If a new item is added to the existing inventory, an 'addition" is made to the general inventory. If items are issued for processing or for sale, there will be a reduction in the inventory level; thus, a subtraction is made. If an inventory item is discontinued from the inventory list, then a "deletion" is made. If a bottle of vodka is transferred from the banquet bar to the main bar, a "transfer" is made, meaning that several changes have happened: the banquet bar inventory decreased by one bottle of vodka and the main bar inventory increased by one bottle. It sounds complicated, but it is not. However, cost accountants do not like transfers because they cause unnecessary work during daily flash cost reconciliation or month-end inventory and cost reconciliation. An accountant would recommend that par levels be reevaluated and probably increased to meet the sales demand to solve this inventory problem.

BASIC MECHANICS OF COMPUTATION

Computing Fractions

We use fractions in recipe costing regularly; it is the most critical computation in recipe creation and costing. For example, a cocktail such as the "Long Island Iced Tea" consists of 5 alcoholic ingredients, each measuring 1 ounce; therefore, each ingredient represents 1/5; thus 1/5 vodka +1/5 tequila +1/5 rum +1/5 gin +1/5 triple sec, equals 5/5 or simplified equals one unit or 1/1. It is recommended that to simplify recipe engineering, chefs and beverage managers should create recipes applying simple computation using common denominators such as 1/5 + 1/5 and not 1/5 + 1/6.

Computing Percentage

Percentage computation is probably the most used formula in any business accounting and financial activities. The basic computation is:

$$\frac{Part}{Whole} = Percent\ \frac{25}{100} = .25\ or\ 25\%$$

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Computing Average

E.g., to find out the average number of restaurant guests served 7 days we add the number of guests served for each day and then divide them by the number of days:

Table 1. Summary of guests served per day over 7 days

Days	1	2	3	4	5	6	7	Total
Guests	56	65	74	69	76	88	90	518

$$\frac{\textit{The sum of the parts } (518)}{\textit{Divided by the number of parts } (7)} = 74$$

The average number of guests served for a 7- day period was 74

Computing Average

Restaurants and bars often have pick days and low days revenues due to extrinsic factors, including special events such as football night and seasonal weather conditions. These could be reoccurring natural or planned events beyond the control of the foodservice operator. In such cases, the foodservice manager wants to compute the moving average to determine more accurately how to plan and allocate the necessary resources such as labor and utilities.

Computing Moving Average

Moving average is frequently used to understand underlying trends and helps in forecasting. Moving average convergence or divergence is probably the most used technical analysis tools in stock trading in the financial world. It is common in several businesses to use a moving average of 3-month sales to understand how the trend is. Foodservice businesses, however, are affected immediately by any type of event, especially if sporadic or not planned, such as bad weather. If the event can be predictable, the foodservice manager can more accurately forecast revenues and more accurately allocate the appropriate cost and expense resources. Therefore, it is common to compute a daily moving average in foodservice business and not monthly because of the short-term occurrences or unplanned events that may negatively affect the business performance. Furthermore, the labor schedule is prepared a week or weeks in

Table 2. Summary of guests served per day over a 7-day period showing weekdays

Days	1 Monday	2 Tuesday	3 Wednesday	4 Thursday	5 Friday	6 Saturday	7 Sunday	Total
Guests served	56	65	74	69	76	88	90	518

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advance, and since labor is the highest expense component in the equation, a manager can better plan the labor requirement based on an average that on a single day.

Sample computing a 3-day moving average over a week or 7- day period.

1. Period 1

We add the number of guests served on day 1 + day 2 + day 3 and divide the total by the number of days, which is 3Where:

$$\frac{56+65+74}{3} = 65$$

2. Period 2

Then we add the number of guests served on day 2 + day 3 + day 4 and divide the total by the number of days, which is 3Where:

$$\frac{65+74+69}{3} = 69.3$$

3. Period 3

Then we add the number of guests served on day 3 + day 4 + day 5 and divide the total by the number of days, which is 3Where:

$$\frac{74+69+76}{3} = 73$$

4. Period 4

Then we add the number of guests served on day 4 + day 5 + day 6 and divide the total by the number of days, which is 3Where:

$$\frac{69+76+88}{3} = 77.6$$

5. Period 5

Then we add the number of guests served on day 5 + day 6 + day 7 and divide the total by the number of days, which is 3Where:

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$\frac{76+88+90}{3} = 84.6$

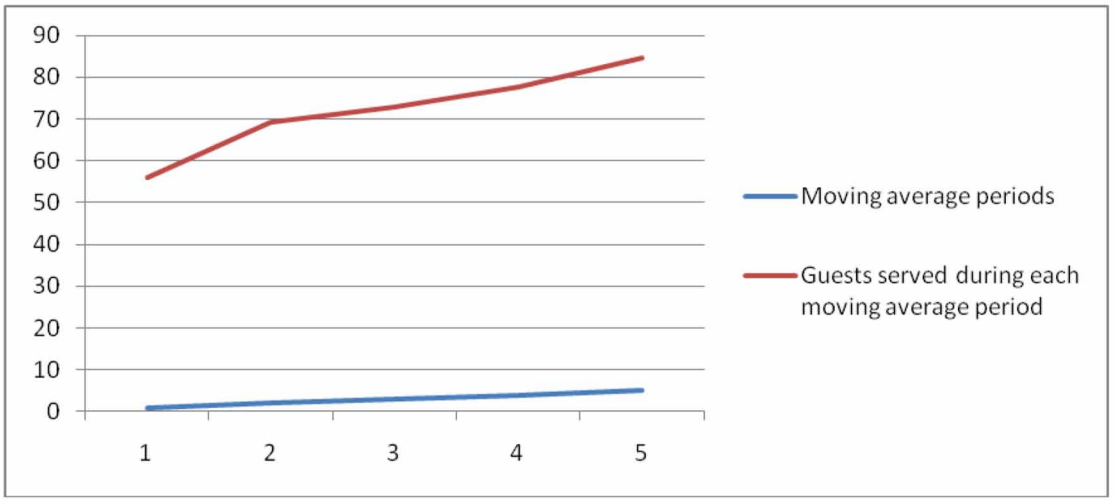
Table 3 shows a three-day moving average for 7 days:

Table 3. Summary of guests served per 3-day period over 5 moving average periods

3 Days moving average periods	1	2	3	4	5
Moving average for each period	65	69.3	73	77.6	84.6

As we can notice in table 3 above, the statistics show that the daily average fluctuates; in fact, the number of guests served on day 4, Thursday, is lower than day 3 Wednesday. In figure 3 however, we notice that the moving average increases dynamically per every three-day moving average period; even if day 4, Thursday, the number of guests served was lower than day 3 Wednesday. The graph in Figure 3 shows the moving average upward trend. Based on the moving average results of periods 3, 4, and 5, the manager should forecast higher revenue and allocate more resources towards the weekend. Figure 3 shows a graphic representation of the example given above.

Figure 3. graphic representations of a three day and five periods moving averages



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Computing Variance and Variance Percentage

Variance is a mathematical and statistical technique used for computing performance from the base numbers. For example, if our restaurant estimated to generate $10,000,000 in revenue; however, at the end of the fiscal year, it only generated $950,000; the restaurant had a negative variance of $50,000. Please note that a variance is always computed compared to the base numbers.

Sample Negative Variance

Budget: $1,000,000
Actual: $950,000
Variance: -$50,000
Variance percentage: -5%
Formula:

$$\frac{Budget(\$1{,}000{,}000) - Actual(\$950{,}000) = Variance(-\$50{,}000)}{Budget(\$1{,}000{,}000)} = .05 \; or \; -5\%$$

In this case, there is a negative variance to budget of -5%

Sample Positive Variance

Budget: $1,000,000
Actual: $1,050,000
Variance: +$50,000
Variance percentage: 5%
Formula

$$\frac{Budget(\$1{,}000{,}000) - Actual(\$1{,}050{,}000) = Variance(+\$50{,}000)}{Budget(\$1{,}000{,}000)} = .05 \; or \; 5\%$$

In this case, there is a positive variance to budget of 5%

Ratio Analysis in Food and Beverage and Miscellaneous Revenue

Ratio analysis is a fundamental computation for foodservice managers. The most important ratio is beverage to food sales ratio. In terms of revenue, this ratio tells the portion of beverage revenue produced compared to food revenue. It is not expressed as a percentage because it is not computed to the total revenue; instead, it is measured in relation to food revenue only, and it is expressed as "beverage to food ratio" or, for example, .75: 1.0, which in mathematical terms could be expressed as 75% of the food revenue however it is not what we want to determine. In other words, the ratio tells us how many cents on the dollar we sold in beverage compared to food revenue. Why is that so important? Because in terms of profit, beverage sales have a much higher profit margin compared to food sales.

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Figure 4 shows a sample beverage to food ratio computation. Given that the food cost per budget would have been 30% and the beverage cost per budget would have been 20%, what category would have produced a higher profit margin?

In Figure 4, we see that the beverage to food ratio is .13: 1.0, and .29: 1.0 for lunch and dinner, respectively. The total, lunch, and dinner combined, is .24: 1.0. This means that for every dollar we sold in food, we also sold 13 cents and 29 cents in beverages both, for lunch and dinner, respectively. What is the implication for the foodservice manager? This means that increasing the beverage revenue for both lunch and dinner while keeping food sales at the same level; it would increase the beverage to food ratio, thus producing a higher profit margin.

According to Sample sales and profitability analysis shown in Table 4 below, the profit margin for food sales using a 30% food cost base as per budget would result in a 70% gross margin or $42,525 and $93,240 for lunch and dinner, respectively. While using a 20% beverage cost base as per budget would result in 80% gross margin or $6,480 and $31,080 for lunch and dinner, respectively. If the industry average for prime cost for food was 65% and for beverage, it was 45%, the potential net profit before tax for lunch and dinner food sales would be as follows:

Table 4. Sample sales and profitability analysis using ration analysis computation

		Food lunch	Food dinner	Beverage lunch	Beverage dinner
Sales		60,750	133,200	8,100	38,850
Cost of sale food	30%	18,825	39,960		
Cost of sale beverage	20%			1,620	7,770
Profit margin food	70%	42,525	93,240		
Profit margin beverage	80%			6,480	31,080
Prime cost food	65%	39,488	86,580		
Prime cost beverage	45%			3,645	17,483
Net profit food	5%	3,037	6,660		
Net profit beverage	35%			2,835	13,598

Clearly, the net profit for lunch beverage sales was slightly lower than that of food sales; however, beverage sales' net profit was much higher than the food sales, although it only had a ratio of .29 to 1.0. This analysis suggests that the higher the beverage sales compared to food sales, the higher the total net profit will be.

Computing Mark – Up

There are several definitions of mark-up. Besides its ideal definition, we must first understand its purpose: ***"mark-up is used to establish a selling price for a product."*** It is computed by adding a constant percentage to an item's cost price to arrive at its selling price. The manager using this pricing method must be careful because it often generates confusion and could cause lost profits for the non-experienced restaurant manager/owner. Markup, expressed as a percentage of cost, has been frequently confused with gross margin, which is expressed as a percentage of the selling price. Mark-up instead is computed

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Figure 4. Sample beverages to food revenue sales report and ratios

E21 =((B13+B5)/(B12+B4))

	A	B	C	D	E
1			12/31/2010		
2	SALES	Actual $	ALL %	CAT %	Ratio analysis
3	Lunch Sales				
4	Food	60,750	23.79%	88.24%	
5	Beverage	8,100	3.17%	11.76%	0.13
6	Beer	2,025	0.79%	25.00%	
7	Wine	4,860	1.90%	60.00%	
8	Liquor	1,215	0.48%	15.00%	
9	Total Lunch Sales	68,850	26.96%	100.00%	
10					
11	Dinner Sales				
12	Food	133,200	52.15%	77.42%	
13	Beverage	38,850	15.21%	22.58%	0.29
14	Beer	7,770	3.04%	20.00%	
15	Wine	21,368	8.37%	55.00%	
16	Liquor	9,713	3.80%	25.00%	
17	Total Dinner Sales	172,050	67.36%	100.00%	
18					
19	Other Income(Accounts Receivables Paid)	14,500	5.68%	100.00%	
20					
21	TOTAL REVENUE	255,400	100.00%	100.00%	0.24
22					

as a percentage of the cost. Therefore, let us remind ourselves that "Margin," or Gross Margin," is the difference between total sales and the cost of sales.

The mark–up is simply the percentage added to the cost. Mark-up is expressed both, in currency and percentage. Using the mark-up formula described below, a manager can price any item, given that the constant percentage has been established in advance and will keep revenue and cost in line with forecast and budget. Simply put, the Mark-up computation is a useful tool for foodservice managers to quickly calculate a selling price especially when menu items are sold as "Daily Market Price." For example, a prime rib is sold by weight, a market-fresh lobster, or day-boat scallops, fresh white truffles, etc. Again, once the mark-up percentage has been established, it is easy to compute any price with a push of a few calculator's buttons. With sophisticated computerized point of sale systems, it is even easier to calculate prices, and make changes daily or even per meal period. For example, if the manager decides to promote specific items in the menu on a special occasion, he/she only needs to change the mark-up coefficient for the categories in the system, and the price will be adjusted automatically. This is how retailers change their prices when they offer special daily or weekly discounts.

Basic Mark-up Equation

Cost + mark-up = selling price ($4.00 + $ 8.00 = $12.00)

$$Mark\text{-}up\ \ percentage = \frac{selling\ \ price(12.00) - cost(4.00)}{Cost\ 4.00} \times 100 = 200\%$$

Mark-up test formula: cost $4.00 + 200% = $ 12.00

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Conventions and Concepts in International Accounting

Although accounting in different countries may differ procedurally because of the country's legal reporting process, in a way, accounting is a concept that is similarly applied across all countries. Just as the convention for making and using a calculator, accounting, too, has conventions. When preparing accounting statements for a hospitality company, especially a multinational company, whether they are external "financial accounts" or internally focused "management accounts," the objective need to be that the accounts fairly and transparently reflect the actual "substance" of the hospitality business and the results of its operation. In accounting, we apply the concept of an accurate and fair view, which ensures a correct assessment of whether accounts accurately represent the business' activities.

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Accounting Conventions

The most frequent convention is the **"historical cost convention."** This requires transactions to be recorded at the price negotiated and agreed and for assets to be valued at their original cost. Under the "historical cost convention," therefore, no account is taken of changing prices in the economy. E.g., A bottle of wine purchased for $15.00 in year 1. it may have a market value of $25.00 in year 3; however, the book value of the bottle of wine will remain $15.00. However, the selling price may be increased to reflect the current market prices.

Other Conventions Comprise a set of Accounts That can be Summarized as Follows

a. Monetary measurement

Accountants do not account for items that cannot be quantified in monetary terms. Items that are not accounted for (unless someone is prepared to pay something for them) include workforce skill, morale, market leadership, brand recognition, quality of management, etc. In other words, monetary measurement recognizes the difference between tangible and intangible assets.

b. Separate Entity

This convention seeks to ensure that private transactions and matters relating to a business's owners are segregated from transactions related to the business.

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c. Realization

With this convention, accounts recognize transactions (and any profits arising from them) at the point of sale or transfer of legal ownership - rather than just when cash changes hands. For example, a catering company that services a customer daily based on a year or more contract can recognize the food and beverage and other services sale when the transaction is legal - at the point of contract. The customer's actual payment may not be made until the end of the billing period, E.g., by-weekly, monthly etc.., if the customer is in good standing and *has been granted specific credit terms.*

d. Materiality

Materiality is a rather complex issue, and it is often referred to in auditing. According to the application of accounting standards and accounting policies, the preparation of accounts involves a high degree of sound judgment. Where management and financial decisions are required about the appropriateness of an accounting judgment, the "materiality" convention suggests that this should only be an issue if the judgment is "significant" or "material" to a user of the accounts. The concept of "materiality" is an important issue for auditors of financial accounts.

e. Accounting Concepts

In the U.S., the basic accounting concepts consists of:

i. The Money Measurement Concept (see above)
ii. The Entity Concept (see above)
iii. The Going Concern Concept
iv. The Cost Concept (see above)
v. The Dual-Aspect Concept

Since we have introduced the conventions and concepts from an international point of view, the following accounting concepts emphasize the preparation of any set of accounts:

f. **Going Concern**

Accountants assume that unless there is evidence to the contrary, a company is not going broke and continues to be in business until a management decision is made to cease being in business. This has important implications for the valuation of assets and liabilities.

g. **Consistency**

Transactions and valuation methods are treated the same way from year to year or period to period. Therefore, users of accounts can make more meaningful comparisons of financial performance from year to year or fiscal period to fiscal period. Where accounting policies are changed, companies are legally required to disclose this fact and explain any change's impact.

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h. Discretion

Profits are not recognized until a sale has been completed. Also, to sustain profitability, management accounting takes a careful view of possible future problems and costs of doing business if the likelihood exists that such problems will be incurred in the future.

i. Matching (or "Accruals") Principle

Income should be properly "matched" with the expenses of a given accounting period. It is not uncommon that restaurant operations managers are tempted to distort revenues and expenses to manipulate the profit during a given fiscal period. An example is the allocation of revenue and expense for a New Year's Party that starts with the calendar year's last fiscal period and ends during the following calendar year's beginning fiscal period.

Key Characteristics of Accounting Information

It makes only sense that a general agreement among accounts is reached and, before an accounting can be regarded as useful in satisfying the needs of various user groups, accounting information should meet the following criteria:

a. General Understandability

This implies the expression, with clarity, of accounting information so that it will be understandable to all users - who are generally assumed to have a reasonable knowledge of business and economic activities of the operation and the company.

b. Relevance to the user

This implies that to be useful; accounting information must assist a user in forming, confirming, or maybe revise a view - usually in the context of making a business/financial/management decision (e.g., should I become a partner in this business? Should I work for this company?)

c. Consistency

This implies consistent treatment of similar items and applying accounting policies, just as we do in every other business undertaking.

d. Comparability

This implies users' ability to compare similar companies in the same industry group and compare performance over time. Much of the work that goes into setting accounting standards is based on the need for comparability. This is especially important in managing budgets and in forecasting.

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e. Reliability

This implies that the presented accounting information is ethical, truthful, accurate, complete (nothing significant missed out), and capable of being verified (e.g., by an auditor or a potential investor).

f. Objectivity

This implies that accounting information is prepared and reported in a "neutral" way. In other words, it is not biased towards a user group or vested interest. For example, in a hotel setting a hotel general manager may choose to charge a promotional sales and marketing expense solely to the food and beverage operation even if the rooms division may have benefited from it. Consequently, the food and beverage operation may see a drop in its departmental profit, thus increasing the profit in the room's division; however, the total profit for the entire hotel operation remains the same.

Accounting Activities in Practice

Chart of Accounts

Just as every individual has a name, accounts must have an identity. In accounting, we use a chart of accounts to allocate an identity to each account. In turn, each account is grouped under a category and may also have sub-accounts. Figure 6 shows a sample restaurant chart of accounts for a balance sheet. The accounts numbers (codes) can be started as the financial controller sees it fit, e.g., from 0001 onward or 1000-10000...onward. However, the main accounts should allow a wide range of digits for sub-accounts that do not exist at the time of the business creation; however, they could be added according to the business needs or even expansion.

The General Ledger

The **general ledger** is where all accounting transactions are posted in a double-entry system using debits (on the left) and credits (on the right) for each transaction. An additional column to the far right can keep a running total of activity in the account, as your checkbook. The **debit and credit** entries impact at least two ledger accounts, and it is usual to capture enough information in each leg of the entry to identify the other one. To extend the comparison to your checkbook, if you also had a register for the types of income and expenses you receive and pay, you could set up a general ledger for yourself. The general ledger provides data for the **Balance Sheet** and either the **Single-Step Income Statement** or the **Multi-Step Income Statement** (depending on which one the company prepares.) The ledger can be electronic or physical, depending on whether you are using computer software or a manual system. Most companies use a computerized version of the general ledger, allowing for greater entry and reporting ease. All accounts in the **chart of accounts** are grouped in one of five categories: Assets, Liabilities, Owner's Equity, Revenue, and Expenses. The general ledger is organized according to the chart of accounts, with a separate register, file, page, or card for each account. Figure 6 shows a sample of record transactions between the XYZ restaurant and North Bay Co, produce supplier. On December 31, 20XX, the restaurant received a delivery invoice for $850.00 for the main restaurant's products. Most probably,

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Figure 5. Sample restaurant chart of accounts for a balance sheet

A	B	C	D	E	F
Sample restaurant's chart of accounts for the balance sheet					
CODE	**ASSETS**		**CODE**	**LIABILITIES**	
10000	**CASH**		20000	**PAYABLES**	
10010		Change & Petty Cash	20010		Accounts Payable
10020		Operating Account	20020		Current Portion Long-Term liabilities
			20030		Withholding & FICA Taxes
10100	**ACCOUNTS RECEIVABLE**		20040		Federal Unemployment Taxes
10110		Customers	20050		State Unemployment Taxes
10120		Employee financial assistance, loans...	20060		Sales Tax
10130		Miscellaneous	20070		Alcohol Tax
10140	**INVENTORY**		20080	**ACCRUED EXPENSES**	
10150		Food	20090		Rent
10160		Liquor	20100		Percentage Rent
10170		Beer	20110		Payroll
10180		Wine	20120		Retirement
10190		Soft drinks-juices	20130		Medical-life insurance
10200		Operating supplies	20140		Vacation
10210	**PREPAID EXPENSES**		20150		Interest
10220		Insurance	20160		Real Estate Taxes
10230		Taxes	20170		Other accrued expenses
10240		Licenses	20180	**LONG-TERM LIABILITIES**	
10240		Subscriptions-membership	20190		Note Payable - Building
10400	**PROPERTY & EQUIPMENT**		20200		Note Payable - Equipment
10410		Land	20210		Capital Leases
10420		Building	20220	Other liabilities	
10430		Leasehold Improvements	**CODE**	**OWNER'S EQUITY**	
10440		Furniture, Fixtures & Equipment	20900	Common Stock	
10450		Transportation	20910	Paid in Capital	
10460		Accumulated Depreciation-Building	20920	Retained Earnings	
10470		Accumulated Amortization-Leasehold	20930	Other	
10480		Accumulated Depreciation-FF&E			
10490		Accumulated Depreciation-Transport			
10500	**OTHER ASSETS**				

Figure 6. Sample Food Supplier Ledger

A/c Code: A/P 20225 – North Bay Produce Co.							
Date	**Activity**	**Reference**	**Amount**	**Date**	**Activity**	**Reference**	**Amount**
January 24, 20XX	Paid	Food/Banquet (Inventory Code:10155)	850.00	December 31, 20XX	Invoice # 57830	Produce	850.00
January 31, 20XX	Balance credit/debit		**0**				
		Check # 32001	850.00				850.00
			====				====
				January 31, 20XX	Balance		**0**

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this invoice had a 30-day credit term before late fees would apply. The controller decides to maintain good credit and a good business relationship and paid the invoice in full on January 24, 20XX.

The Accounting Flow of Activities

To produce a financial statement and a balance sheet, it is necessary to have a systematic method of recording all the activities or events that influence the financial measurements of Assets, Liabilities, and Owner's Equity. Before using computerized accounting systems, accounting activities were entered by hand into a set of books or accounts. Today it is the norm to record these activities into a computerized accounting system. During "Going Concern," a document is produced each time a transaction is recorded. Each record is referred to as an entry, and the practice of maintaining these entries in the accounts is referred to as bookkeeping. The act of placing an entry into an account is known as posting. The total of all the entries in an account is known as the balance of that account.

The accounts themselves are referred to collectively as the general ledger or simply the ledger. Sales transactions produce receipts, and invoices or paid receipts always accompany purchases. Deposit into bank accounts is made with deposit slips. Checks can be received as a form of payment made to the restaurant or can be written by the restaurant to pay for goods or services received. Proper bookkeeping involves the record of all these documents in the journal. For example, credit sales received from any payment media (credit cards, wire transfer, etc.) other than cash may be recorded in the sales journal; all cash payments are recorded in the cash payments journal.

Because each restaurant business may own different assets, the restaurant may have different liabilities, different sources of income, and so expenses and equity. The categories used by the system of accounts to record its activities will vary from one company to another. Nevertheless, most foodservice accountants prefer to use the Uniformed System of Accounts for Restaurants (USAR) as described earlier. However, for each company, the account codes may change and be used in the general ledger according to their system; as explained above, this is known as the chart of accounts. Each account in the ledger is usually categorized into one of the five types of financial measurements described above in Figure 5: Assets, Liabilities, Owner's Equity, plus Income and Expenses. Because the accounting equation must always balance, all the Assets and Expenditures account balances in the ledger must be equal to all the Liabilities, Owner's Equity, and Income to represent a true status-quo of the financial position of the business.

When all totals are in balance, we can state that the accounts are in balance or that the ledger has been correctly balanced. This is a system of checks and balances from A to Z that must be accurately followed. To keep the ledger always in balance, the accountant posting all financial transactions must ensure that whenever an entry is posted to an account, a matching account entry must be posted exactly at the same time to ensure that the total of the Assets and the Expenditure account balances remain the same as the total of the Liabilities, Owner's Equity and Income. The posting activities to all accounts are referred to as double-entry bookkeeping. (Refer to the section "What is accounting" at the beginning of this chapter. Although most postings consist of two entries (debit and credit), postings will often consist of multiple consecutive entries to balance the ledger. For example, a hotel purchasing department may buy olive oil for four food and beverage operations within the hotel complex.

The oil will be automatically delivered to each outlet; therefore, the accountant may credit the food inventory, e.g., account Code # 10150, with the total olive oil purchase and debit the payable account code # 20010 with the total amount. Because the oil was directly issued to the restaurants, the accountant will credit each restaurant's inventory and debit each restaurant's food cost account with the purchase's

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appropriate dollar value. These outlets all have their own Chart of Accounts sub codes assigned. E.g., for the inventory credit: 10151 for the main restaurant, 10152, for the coffee shop, 10153 for banquet, and 10154 for room service. Considering the above a posting that increases the balance of an Asset or Expenditure account or reduces the balance of the Liability, Owner's Equity, or Income account and is referred to as a debit. An entry that reduces the balance of an Asset or Expenditure account or increases the balance of the Liability, Owner's Equity, or Income is referred to as a credit, see Figure 7.

A double-entry bookkeeping is divided into two columns. Debits are entered into the left-hand column and credits into the right. For the ledger to remain in balance, the total debits must equal the total credits. Although this is as easy as balancing the personal checkbook, many students, especially those categorized as "Non-accountants," have serious difficulties in dealing with the two accounting terms, "Debit and Credit." Long ago, it was simply referred to as the left-hand-right hand. The application of computerized accounting systems has pushed many students further away from simple understanding. These traditional definitions left hand-right hand, derived from long-established manual practices of posting entries into double-entry bookkeeping that describe debits on the left and credits on the right. In sum, Debits and Credits remain the backbone of any accounting system. Depending on what type of account we are dealing with, a debit or credit will either increase or decrease the account balance. This is indeed the most challenging part of accounting for new non – accountant students/managers. Figure 7 illustrates the entries that increase or decrease each type of account.

Figure 7. Sample Debits and Credits entries that increase or decrease each type of account

Entry significance and effect on the account illustrated in words and symbols					
Account Type	**Debit Entry**	**Credit Entry**	**Account Type**	**Debit Entry**	**Credit Entry**
Assets	Increases	Decreases	**Assets**	+	-
Liabilities	Decreases	Increases	**Liabilities**	-	+
Owner's equity	Decreases	Increases	**Owner's equity**	-	+
Income	Decreases	Increases	**Income**	-	+
Expenses	Increases	Decreases	**Expenses**	+	-

D. CAPITAL MANAGEMENT AND CONTROL

Capital Management (CM) in this context deals with the managing of the relationship between the firm's assets, sales, liabilities, and profits. Its shortest definition is: "The deployment of all assets and liabilities to maximize profits." The goal is to ensure that the firm generates enough revenues to operate and that it has enough cash flow to service short and long-term debts and be able to pay operational expenses, thus producing expected profits. During the process, if properly managed, the firm's value can increase if the return on capital exceeds the cost of capital. In business investment sense, the rate of return on the investment made on the business venture must exceed that of the regular return a bank would pay for a non- risk investment. CM's main task is to monitor and control sales, cash, inventory, financing, debts, and profits. Subsequent tasks of CM are forecasting, budgeting and control. In hospitality, within the forecasting and budgeting tasks, CM also encompasses the task of Revenue Management (RM).

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Revenue Management

In a hotel operation, as it is still practiced today, RM is a function of the Sales and Marketing department and not necessarily finance. In a hotel setting, food and beverage service operations have always been considered complementary to the lodging operations, in most cases. This chapter, however, disaggregates the practical and actual "management of revenues" from the Sales and Marketing strategy and discusses it here as a practical function of the accounting department. Practically, in the context of accounting, RM means to provide all profit centers with the right information, tools, and guidance to achieve the best financial results. This section includes the concept RM based on a quantitative approach as opposed to a qualitative-strategic approach. The reason is that restaurant chains have a well-organized sales and marketing department at the corporate and regional level to assist each ***strategic business unit*** (SBU) in maximizing profits; independent restaurants do not. This section discusses the importance of revenue management in a foodservice operation. Strategically there are three ways to maximize profits; a. maximizes revenues; b. reduce cost; c. eliminate unnecessary cost and expenses, or d. all the above.

By understanding procedures and techniques and using modern tools such as analytical software and revenue management software, profits can be maximized more effectively than when the industry was working manually. Even if technology has compelled businesses to make necessary changes to their operations, there will always be the human element's role in the Revenue Manager's context. A profitable foodservice operation is a pleasant place for all stakeholders to be involved, the investors, the management, and the staff. Nevertheless, it is not easy for the manager or operator to consistently deliver desired profits without the continuous revenue management process. The task of forecasting, budgeting, monitoring sales, analyzing results, synthesizing outcomes, correcting errors, revising the budget, increase-reduce forecasted expectations accurately, and repeating the process, is essential. Revenue Management attempts to answer all questions related to profit maximization. The next section will discuss each function of the accounting department's concept and practice related to money management, including Forecasting, Budgeting, Capital Investment, Purchasing, and Cost Control.

Forecasting

Countless studies have been conducted on business forecasting in general and on methodologies, especially in the hospitality industry. In layman's business terms, "forecast" means *"to predict what the future may bring."* Can anyone predict that? What would the world look like if we knew the answer to every business inquiry? Would we still be able to successfully conduct business if every company knew what tomorrow might bring? Of course not! Therefore, within the framework of Capital Management, we attempt to explain the meaning, the tasks, and the applications of forecasting techniques as they relate to the foodservice industry. There are numerous definitions of forecasting. And once again, we attempt to find the ideal definition that best fits our endeavor's scope.

Forecasting is a qualitative and quantitative process that applies a set of simple or complex techniques to predict the company's short or long-term performance. Predictions include future business volume, income, expenses, cash flow, and profits. Its accuracy depends on a set of prediction variables not usually controllable by the business. Therefore, a forecast is neither an exact plan nor a promise to achieve a target goal; we assume it may happen, not what will happen. Throughout our lives, we are constantly confronted with uncertainties due to constant changes often beyond human control. Therefore, the prob-

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ability that we will not make the right decisions is always real. Despite these constraints, forecasting continues to be an essential discipline in planning and running a business.

Business solution companies have developed software that can manage complex forecasting computation fast and efficiently to allow for accurate decision making and quick changes when necessary, especially when the predicted forecast needs to be increased or reduced. However, it is argued that despite the continuous advances in computer technology, which suggest that forecasting requires a scientific approach, the overall process must continue to be regarded as an art rather than a science because it is the human factor that affects the ultimate decision. In hospitality, forecasting is dependent on many factors that we call influential variables. The variables that affect forecasting include political, economic, social, technological, legal, global, and environmental forces. Other sets of variables may include, but not limited to, climate, business environment, commodity prices, energy prices, labor markets, interest rates and exchange rates, taxation, legal restraints, customers' spending power, new product development, use of capital, use of labor, marketing policies, long-term strategy, and objectives.

Forecasting in the Foodservice Industry

The foodservice industry is not much different from other industries in terms of sales forecasting. Besides the influential prediction variables discussed earlier, there are specific differences even within the foodservice industry itself. For example, it is straightforward to forecast food purchases for a school cafeteria or ready to eat meals (RTMs) for the army than it is for a' la carte restaurants. It is also relatively easy to forecast sales and the cost of food and beverage for a wedding that it is for an outdoor event in which occupancy will depend on the number of tickets being sold. Similarly, the revenue and cost associated with a five-day conference that has been booked two-three years before the event are relatively easy to forecast.

What is challenging to forecast are those events that are dependent on consumer behavior and that are easily affected by unforeseeable conditions such as weather, traffic, strike, demonstrations, price inflation, seasonality, product contaminations, etc. Again a' la carte restaurants and or a bar can be immediately affected by any kind of unpredictable event, while a pre-organized function such as a conference, a wedding, a reunion, or any other type of event that needs to be pre-organized is less affected by the same types of events. Cyclical events are also relatively easy to forecast, e.g., Mother's Day. Such an event always follows on the same day of the year, and regardless of rain or sunshine, the event manager can accurately forecast the number of covers expected. Other events may occur every year for certain; however, the date may change, e.g., Easter Sunday celebration for Catholics or Ramadan Celebration for Muslims.

Although similar, other events may not be as predictable because they may be considered more recreational and not celebratory, and therefore a last-minute change of mind may occur.

An example may be a rainy day on the fourth of July in the U.S. In all events, forecast relies on historical data, seasonal and cyclical historical and future trends. Most importantly, such factors as Political, Economic, Social, Technical, Legal, and Global changes are known to influence forecasting based on their competitive or even legislative interaction with the market, consumer confidence, and consumer price index (USDA, 2021). For example, the implementation of the Value Added Tax in the U.S., which in some European countries exceeds 15%, could significantly affect consumer spending, especially in restaurants, for a sustained period during the inception year.

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Forecasting Methods

There are two forecasting approaches: *qualitative* and *quantitative*. The qualitative approach may be used to forecast trends, especially when launching new products. The qualitative approach forecast is based on judgment and opinion. Some commonly known techniques are:

1. Executive opinions
2. Delphi technique
3. Consumer surveys

Qualitative Forecasting techniques are judgmental and can be useful in formulating short-term forecasts and complement predictions based on quantitative methods.

Executive Opinions

Executives or experts from sales, production, finance, purchasing, and administration give subjective opinions about future sales of a new or modified product. For example, in a small restaurant operation, the manager invites all front and back of the house employees to test – taste the new menu asking for their input on whether the items may appeal to current and future patrons. In doing so, the manager and the chef can summarize their menu evaluations and opinions and determine what strategic action to take next.

The Delphi Method

It is very similar to the executive opinion technique. It is a technique in which a panel of experts is questioned individually about their evaluation of the product, perceptions of consumer behavior, future events, and future sales volume. Together with their pros and cons, their forecasts are evaluated by an independent party and returned to the panel, along with additional questions. This continues until a consensus is reached. This type of method is useful and quite effective for long-range forecasting.

Consumer Surveys

Some restaurants, especially chain restaurants, conduct their own market surveys regarding specific consumer behavior. Surveys interviews are conducted face-to-face, over the phone, by mail, or online using a questionnaire as a means of obtaining data. Both qualitative and quantitative statistical analysis methods are applied to analyze the survey results to test hypotheses and answer research questions regarding consumer behavior. Quantitative approach forecast is based on two common computation techniques:

1. **Analysis of Historical Data**
    a. Naive methods
    b. Moving average
    c. Exponential smoothing
    d. Trend analysis
    e. Decomposition of time series

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2. **Associative (Causal) Forecasts**
    a. Simple regression
    b. Multiple regression
    c. Econometric modeling

What techniques or methodology to select in forecasting will depend on management capability and the knowledge to use advanced analytical tools and complex-statistical analysis methods applied to many other factors? The management should develop one or a few forecasting models as it sees fit to achieve the objective. Understandably if a method delivers unsatisfactory results, other techniques must be adopted in the process. One must also consider forecasting criteria:

1. What is the management trying to forecast?
2. Revenue from high volume; revenue from lower volume but with – higher profit?
3. What kind of forecast: strategic or tactical?
4. Whom will the forecast serve?
5. Is it for investment purposes or internal purposes?
6. How much accuracy is desired?
7. Is there a minimum tolerance level of errors?
8. What data is available?
9. What specific techniques can be applied according to the data available?

This chapter does not require the student manager to have specific pre-requisites to deal with forecasting; instead, it will keep the topic simple and adopt a few forecasting techniques that do not require advanced statistical analysis. The following examples can be easily replicated with a simple spreadsheet; (see resources CD for additional forecasting tools). Before a manager engages in forecasting, preparatory work must be done. This consists of a checklist of information it needs to accomplish the task.

Preparing a Forecasting Scenario

Generally, if forecasting will be prepared for an existing business, the necessary data may be available internally from the accounting office or from other sources depending on the type of foodservice establishment. If the business is new, then industry average data can be used. This data can be obtained from industry experts and consulting companies. Again, what type of data is needed will depend on the kind of forecast being prepared. In the following scenarios, we will use the example of an existing operation. Table 5 shows industry averages useful in developing a forecasting scenario for a new business with no historical data of its own. It can also be used for an existing business as a reference to what the industry average "rules of thumb are." Table 5 provides a sample industry financial data average usually outsourced from experts in the field or a consulting company. A long time ago, most data and business performance analyses were painfully and patiently collected and analyzed manually.

With the technological tools available today, data collection and analysis can be consolidated into a single page with a few mouse clicks. Today one can analyze almost any data collected; it all depends on what we want to analyze and its purpose? Figure 8 shows a sample of "Restaurant Historical Revenue Data." Figure 9 shows a sample of three- year balance sheet analysis scenario. This scenario is useful in predicting future financial results by applying simple or even advanced prediction methods statically.

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Table 5. Industry average ratios are often referred to as "rules of thumb."

Investment	Ratio	Restaurant type	
Sales to Investment Ratio			
(Annual Sales/Startup Cost) - Leasehold	1.5 to 1		
If own land and building	1 to 1		
Sales per Square Foot Ratio (directly correlated with profitability)		**Full-Service**	**Limited-service**
Losing money		$175 or less	$225 or less
Break-even (up to 5% of sales)		$175 - $245	$225 to $300
Moderate Profit (5% to 10% of sales)		$275 to $400	$300 to $425
High Profit (over 10% of sales)		more than $400	more than $425
Food Cost	28% to 34%	31% - 34%	30% - 31%
Beverage Cost:			
Liquor	18% to 20% of total bar sales		
Bar consumables	4% to 5% of total bar sales		
Bottled beer	24% to 28% of total bar sales		
Draft beer	15% to 18% of total bar sales		
Wine	35% to 45% of total bar sales		
Non-alcoholic beverages:			
Soft drinks	10% to 15% of total non-alcoholic beverage sales		
Regular coffee	15% to 20% of total non-alcoholic beverage sales		
Specialty coffee	12% to 18% of total non-alcoholic beverage sales		
Iced tea	5% to 10% of total non-alcoholic beverage sales		
Paper Cost		1% to 2% of sales	3% to 4% of sales
Payroll Cost		30% to 35% of sales	25% to 30% of sales
Management Salaries	10% or less as % of sales		
Hourly Employees Gross Payroll		18% to 20% of sales	15% to 18% of sales
Employee benefits	5% to 6% as % of sales		
	20% to 23% as % of gross payroll		
Prime Cost		65% as a % of sales	60% as a % of sales
Occupancy & Rent:			
Rent	6% or less as % of sales		
Occupancy	10% or less as % of sales		
Simple Valuation of Restaurant: Example			
Net Income - Annual	$50,000		
Add: Depreciation	$15,000		

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Table 5. continued

Investment	Ratio	Restaurant type	
Add: Interest Expense	$12,000		
Add: Owner's Salary & Other Compensation	$75,000		
Equals: Annual Cash Flow	$152,000		
Multiply: 3.5 times	3.5		
Equals: Estimated Value of Business	$532,000		
Profitability:			
Income before Occupancy Costs or			
Controllable Profit or EBITDAR		14% - 16%	20% - 22%
EBITDA		7% - 10%	12% - 16%
Income before Interest and Taxes		4% - 6%	7% - 10%
Revenue per Seat		$9,000 - $13,000	$11,000 and over

Source: Amrik Singh, Hospitality Accounting and Cost Control, 2010

The manager preparing a forecasting scenario can see many components of the previous year's revenue performance and the weekly and daily breakdown at a glance. Because the cells contain formulas, the manager can quickly work with the data to prepare a forecasting scenario. Columns P and Q in Figure 8 show the previous year's revenue and covers totals and the following year's totals the manager intends to forecast for. The manager will consider all influential factors that may impact the future performance he/she is trying to predict, including the Political, Economic, Social, Technical, Legal, Competitive, and Global factors mentioned above (see figure 10). Then he/she considers the past financial results as depicted in figure 9. The results show an increase in actual sales of 8.8% and12.6% over 2008 and 2009, respectively. This increase suggests that the restaurant has performed well. However, the manager realizes that present economic conditions and the ever-increasing competition may not allow for the same results; therefore, the manager decides to apply a conservative or rather pessimistic approach than an optimistic one (See figure 10). After a careful analysis of all data, the manager may decide a 5% increase in revenue in the forecasting scenario (see Figure 8, columns P and Q, and figure 10). This Scenario highlights a sample of how foodservice operations can develop forecasting models.

Authors Thomas H. Davenport and Jeanne G. Harris published the famous book "*Competing on Analytics: The New Science of Winning,"* (Davenport & Harris, 2007). They argue that the frontier for using historical data to make decisions has shifted dramatically. High-performing enterprises are building their competitive strategies around data-driven insights that, in turn, generate impressive business results. It is a secret weapon. Analytics is a complex quantitative and statistical analysis and predictive modeling. Exemplars of analytics are using new tools to identify customers and customer behavior. Many hospitality companies have learned how to leverage the power of analytics.

Figure 8 highlights a sample of historical data concerning a possible independent operation. For a foodservice operation in a hotel setting, there is additional data required. For example, restaurant customers who are also guests staying at the hotel are essential in preparing a hotel foodservice operation's forecast scenario. The most critical component the manager needs to determine is how many hotel guests may patronize a specific hotel restaurant during what meal period (See Figure 11). For example, if ho-

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Figure 8. Sample Restaurant Historical Data

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Restaurant yearly historical data broken down weekly/daliy - Forecast for the new fiscal year is increased by 5%																
Week days	Meal Period	Capacity 250 Seat Turn Over	Total Food Sales	Wine Sales	Beer Sales	Liquor Sales	Total Beverage Sales	Total Food & Beverate Sales	Total Covers	Food Check-Average	Beverage check average	Total Check Average	Weekly revenue statistics		Totals for year 20XX (Weekly average x 52 weeks)	Forecast for new fiscal year 20XX (Increase by 5%)
Monday	Breakfast	1.3	5,940.0	0.00	0.00	0.00	0.00	5,940.00	330.0	18.0	0.00	18.0	0.292	% within the day	308,880.00	324,324.00
	Lunch	0.7	3,858.0	385.80	192.90	77.16	655.86	4,513.86	175.0	22.0	3.75	25.8	0.222		234,720.72	246,456.76
	Dinner	1.1	7,685.0	1,537.00	384.25	307.40	2,228.65	9,913.65	265.0	29.0	8.41	37.4	0.487		515,509.80	541,285.29
	TOTALS	1.0	17,483.0	1,922.80	577.15	384.56	2,884.51	20,367.51	770.0	22.7	3.75	26.5	0.128	Between days	1,059,110.52	1,112,066.05
Tuesday	Breakfast	1.5	7,590.0	0.00	0.00	0.00	0.00	7,590.00	385.0	19.7	0.00	19.7	0.318	% within the day	394,680.00	414,414.00
	Lunch	0.9	4,320.0	432.00	216.00	86.40	734.40	5,054.40	225.0	19.2	3.26	22.5	0.212		262,828.80	275,970.24
	Dinner	1.3	8,679.0	1,735.80	433.95	347.16	2,516.91	11,195.91	314.0	27.6	8.02	35.7	0.470		582,187.32	611,296.69
	TOTALS	1.2	20,589.0	2,167.80	649.95	433.56	3,251.31	23,840.31	924.0	22.3	3.52	25.8	0.150	Between days	1,239,696.12	1,301,680.93
Wednesday	Breakfast	1.2	5,730.0	0.00	0.00	0.00	0.00	5,730.00	295.0	19.4	0.00	19.4	0.309	% within the day	297,960.00	312,858.00
	Lunch	0.7	3,267.0	326.70	163.35	65.34	555.39	3,822.39	165.0	19.8	3.37	23.2	0.206		198,764.28	208,702.49
	Dinner	0.9	6,981.0	1,396.20	349.05	279.24	2,024.49	9,005.49	234.0	29.8	8.65	38.5	0.485		468,285.48	491,699.75
	TOTALS	0.9	15,978.0	1,722.90	512.40	344.58	2,579.88	18,557.88	694.0	23.0	3.72	26.7	0.117	Between days	965,009.76	1,013,260.25
Thursday	Breakfast	1.5	7,340.0	0.00	0.00	0.00	0.00	7,340.00	379.0	19.4	0.00	19.4	0.316	% within the day	381,680.00	400,764.00
	Lunch	0.9	4,598.0	459.80	229.90	91.96	781.66	5,379.66	215.0	21.4	3.64	25.0	0.232		279,742.32	293,729.44
	Dinner	1.2	8,134.0	1,626.80	406.70	325.36	2,358.86	10,492.86	298.0	27.3	7.92	35.2	0.452		545,628.72	572,910.16
	TOTALS	1.2	20,072.0	2,086.60	636.60	417.32	3,140.52	23,212.52	892.0	22.5	3.52	26.0	0.146	Between days	1,207,051.04	1,267,403.59
Friday	Breakfast	1.6	7,650.0	0.00	0.00	0.00	0.00	7,650.00	395.0	19.4	0.00	19.4	0.297	% within the day	397,800.00	417,690.00
	Lunch	1.0	4,570.0	457.00	228.50	91.40	776.90	5,346.90	258.0	17.7	3.01	20.7	0.208		278,038.80	291,940.74
	Dinner	1.3	9,875.0	1,975.00	493.75	395.00	2,863.75	12,738.75	333.0	29.7	8.60	38.3	0.495		662,415.00	695,535.75
	TOTALS	1.3	22,095.0	2,432.00	722.25	486.40	3,640.65	25,735.65	986.0	22.4	3.69	26.1	0.162	Between days	1,338,253.80	1,405,166.49
Saturday	Breakfast	1.9	7,952.0	0.00	0.00	0.00	0.00	7,952.00	467.0	17.0	0.00	17.0	0.311	% within the day	413,504.00	434,179.20
	Lunch	0.5	2,599.0	259.90	129.95	51.98	441.83	3,040.83	135.0	19.3	3.27	22.5	0.119		158,123.16	166,029.32
	Dinner	1.5	11,290.0	2,258.00	564.50	451.60	3,274.10	14,564.10	375.0	30.1	8.73	38.8	0.570		757,333.20	795,199.86
	TOTALS	1.3	21,841.0	2,517.90	694.45	503.58	3,715.93	25,556.93	977.0	22.4	3.80	26.2	0.161	Between days	1,328,960.36	1,395,408.38
Sunday	Breakfast	1.8	8,200.0	0.00	0.00	0.00	0.00	8,200.00	445.0	18.4	0.00	18.4	0.375	% within the day	426,400.00	447,720.00
	Lunch	1.2	6,700.0	670.00	335.00	134.00	1,139.00	7,839.00	311.0	21.5	3.66	25.2	0.359		407,628.00	428,009.40
	Dinner	0.6	4,500.0	900.00	225.00	180.00	1,305.00	5,805.00	147.0	30.6	8.88	39.5	0.266		301,860.00	316,953.00
	TOTALS	1.2	19,400.0	1,570.00	560.00	314.00	2,444.00	21,844.00	903.0	21.5	2.71	24.2	0.137	Between days	1,135,888.00	1,192,682.40
Grand totals		1.2	137,458	14,420	4,353	2,884	21,657	159,115	6,146	22.4	3.52	25.9			8,273,969.60	8,687,668.08
Food & Beverage Sales Mix ***			0.864	0.666	0.201	0.133	0.136	***Individual Beverage Sales Mix is computed within the beverage category only								

Figure 9. Sample 3-year Financial Analysis Scenario

	A	B	C	D	E	F	G	H	I
1	Three - Year Finacial Analysis Scenario of the Belvedere Restaurant								
2	SELECTED FINANCIAL INPUT	2008	2009	2010		ANALYSIS	2008	2009	2010
3	Cash and equivalents	120	90	168		Current ratio	1.29	1.27	1.02
4	Accounts receivable	1,896	2,065	2,222		Quick ratio	0.43	0.42	0.30
5	Inventory	3,836	4,154	5,384		Accts. receivable turnover	13.65	13.65	14.29
6	Current assets	6,036	6,554	8,151		Inventory turnover	4.19	4.09	3.48
7	Total assets	19,482	21,437	36,960		Return on assets	11.55%	11.61%	8.14%
8						Return on equity	26.14%	27.00%	30.43%
9	Current liabilities	4,678	5,164	7,969		Debt to total assets	70.97%	68.17%	79.22%
10	Total liabilities	13,827	14,614	29,281		Dividend payout ratio	39.92%	36.59%	63.37%
11	Stockholders' equity	5,655	6,823	7,679		Times-interest-earned	4.58	6.18	6.97
12	Total liab. & equity	19,482	21,437	36,960		Balance sheet (%)			
13						Current assets	31%	31%	22%
14	Sales	25,883	28,183	31,742		Long term assets	69%	69%	78%
15	Cost of goods sold	16,088	17,010	18,739		Total assets	100%	100%	100%
16	Gross profit	9,795	11,173	13,003					
17	Operating income	3,537	3,990	4,670		Current liabilities	24%	24%	22%
18	Interest expense	772	646	670		Long term liabilities	47%	44%	58%
19	Income taxes	1,287	1,502	1,663		Stockholders' equity	29%	32%	21%
20	Net income	1,478	1,842	2,337		Total liab. & equity	100%	100%	100%
21						Income Statement (%)			
22	Dividends	590	674	1,481		Sales	100%	100%	100%
23	The Belvedere Restaurant shows a dynamic increase in					Gross profit	38%	40%	41%
24	sales, net income and in dividents. This data analysis					Operating income	14%	14%	15%
25	is a useful resource in preapring a financial forecast.					Net income	6%	7%	7%

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Figure 10. Simple competitive analyses

Simple competitive analysis										
Competitors	Concept	Service	Location	Capacity	Operating Hours	Days Open	Bar (Full License)	Walk-in	Check average	competitive meal period
Belvedere (this is us)	American	Casual	West Side	250	B-L-D	7/7	Yes	Yes	26.00	B-L-D
Latitude	American	Casual	Downtown	230	B-L-D	7/7	Yes	Yes	24.00	L-D
Restaurant Keith Baylord	American	Casual	Downtown	230	B-L-D	7/7	Yes	Yes	23.50	L-D
Cellini's at the Ritz- Carlton	Steakhouse	Casual	Cherry Creek	285	L-D	7/7	Yes	Yes	27.00	L-D
The Top at the Bellevue	Italian	Casual	Downtown	220	B-L-D	7/7	Yes	Yes	29.00	B-L-D
Cucina TriColore	Italian	Casual	Cedar Creek	120	L-D	7/7	Yes	Yes	24.00	L-D
Chez Robert	Italian	Casual	Cedar Creek	150	D	7/7	Yes	Yes	25.00	D
Fleur De Campagne	French	Casual	West Side	140	D	7/7	Yes	Yes	25.00	D
The Grille on the Hill	Steakhouse	Casual	Downtown	240	L-D	7/7	Yes	Yes	26.00	L-D
North Pole	Alaskan	Casual	Cedar Creek	200	L-D	7/7	Yes	Yes	23.00	L-D
Cefalonia	Greek	Casual	West Side	270	L-D	7/7	Yes	Yes	25.00	L-D
El Gaucho Argentino	Steakhouse	Casual	Cedar Creek	230	D	7/7	Yes	Yes	27.00	D

Figure 11. Restaurant guests to hotel guests ratio

BELVEDERE HOTEL - RESTAURANT GUESTS TO HOTEL GUESTS RATIO ANALYSIS												
Month of January 2009	Rooms available	Rooms Sold	Hotel occupancy in %	Hotel guests count	Rooms Revenue	Average room rate	RevPar	Restaurant breakfast covers	Restaurant lunch covers	Restaurant dinner covers	Total restaurant covers	Restaurant guests to room guests ratio
1/1	500	200	40.00	300	$29,134	$145.67	$58.27	223	25	76	324	1.08
1/2	500	203	40.60	305	$30,298	$149.25	$60.60	227	34	39	300	0.99
1/3	500	295	59.00	443	$41,914	$142.08	$83.83	346	21	67	434	0.98
1/4	500	266	53.20	399	$38,195	$143.59	$76.39	234	60	78	372	0.93
1/5	500	150	30.00	225	$27,867	$185.78	$55.73	191	34	99	324	1.44
1/6	500	151	30.20	227	$26,872	$177.96	$53.74	167	31	102	300	1.32
1/7	500	190	38.00	285	$35,294	$185.76	$70.59	182	43	128	353	1.24
1/8	500	226	45.20	339	$41,021	$181.51	$82.04	267	36	112	415	1.22
1/9	500	221	44.20	332	$39,088	$176.87	$78.18	112	45	97	254	0.77
1/10	500	225	45.00	338	$39,929	$177.46	$79.86	265	37	112	414	1.23
1/11	500	181	36.20	272	$29,619	$163.64	$59.24	119	31	111	261	0.96
1/12	500	213	42.60	320	$30,593	$143.63	$61.19	243	48	144	435	1.36
1/13	500	309	61.80	464	$56,121	$181.62	$112.24	323	36	191	550	1.19
1/14	500	354	70.80	531	$65,140	$184.01	$130.28	401	45	239	685	1.29
1/15	500	408	81.60	612	$74,758	$183.23	$149.52	389	12	201	602	0.98
1/16	500	409	81.80	614	$73,755	$180.33	$147.51	415	11	113	539	0.88
1/17	500	408	81.60	612	$71,865	$176.14	$143.73	523	34	99	656	1.07
1/18	500	358	71.60	537	$60,581	$169.22	$121.16	399	37	123	559	1.04
1/19	500	439	87.80	659	$67,725	$154.27	$135.45	456	38	49	543	0.82
1/20	500	427	85.40	641	$65,711	$153.89	$131.42	501	34	167	702	1.10
1/21	500	431	86.20	647	$66,775	$154.93	$133.55	479	17	128	624	0.97
1/22	500	439	87.80	659	$68,941	$157.04	$137.88	502	23	196	721	1.09
1/23	500	396	79.20	594	$63,463	$160.26	$126.93	377	69	167	613	1.03
1/24	500	381	76.20	572	$63,276	$166.08	$126.55	348	35	157	540	0.94
1/25	500	242	48.40	363	$38,342	$158.44	$76.68	191	54	136	381	1.05
1/26	500	244	48.80	366	$36,959	$151.47	$73.92	117	45	125	287	0.78
1/27	500	434	86.80	651	$82,000	$188.94	$164.00	409	33	146	588	0.90
1/28	500	435	87.00	653	$83,394	$191.71	$166.79	503	55	194	752	1.15
1/29	500	434	86.80	651	$83,410	$192.19	$166.82	599	46	112	757	1.16
1/30	500	407	81.40	611	$78,278	$192.33	$156.56	396	43	175	614	1.01
1/31	500	305	61.00	458	$59,448	$194.91	$118.90	278	46	106	430	0.94
Totals	**15500**	**9781**	**63.10**	**14672**	**$1,669,764**	**$170.72**	**$107.73**	**10182**	**1158**	**3989**	**15329**	**1.04**

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tel guests patronize the hotel restaurant for breakfast and dinner, the ratio would be 2:1, meaning that the same hotel guest has patronized the restaurant twice during the stay. This has significant statistical importance because it addresses several financial concerns. It measures the attractiveness of the food and beverage facilities within the hotel; it costs less to advertise, the increased revenue reduces the fix cost, increases the assets turnover ratio, and ultimately increases the departmental profit. Therefore, the collection and analysis of this internal data become very valuable in developing forecasting models.

In addition to the scenario presented above, there are alternative forecasting methods managers can use with the application of simplified mathematical formulas. Although many foodservice managers are still using these methods, they do not lead to competitive advantage. Revenue Management is a mature and advanced forecasting methodology to be considered if a restaurant wants to remain competitive.

Sales and percentage variance forecasting methods:

- Year 2010 Sales – Year 2009 sales = variance in dollar.

  $1,000.000 – $900,000 = $100,000

- Variance in dollars / previous year's (2009) sales = percentage variance

$$\frac{\$100,000}{\$900,000} \times 100 = 11.11\%$$

Or:

(Year 2010 sales 1,000.000 /Year 2009 sales 900,000) - 1*100 = 11.11%

The same formulas can be used to compute covers variances, cost and expenses, and profits. The above examples show the variance from the current year to the previous year; however, it is unwise to simply project a revenue increase of 11.11% for 2011 without considering the many factors we have discussed above. This is what the revenue management process sets out to achieve: "To charge the right price, at the right time, to the right customer who is prepared to pay." In other words, the strategic task of forecasting within the framework of revenue management is to consider all influential factors that will affect future revenues and not merely assume that an 11.11% positive variance from the previous year may be feasible the following year. In the previous discussion, we discussed that there are only three ways to increase profits: increase revenues, reduce cost and expenses, or do both. Strategic forecasting does not deal with the prediction of revenues alone but also with cost and expenses. The goal is to develop a strategic model that forecasts higher revenues that increase cost and variable expenses either proportionally or under proportionally to revenue increase, decreasing the fix cost's effect. For example, the energy cost to heat a grill will increase proportionally if the restaurant service staff manages to sell as many steaks as possible within the same service period. The higher the seat turnover during the winter months, the lower the dining space's heating cost and the higher the seat turnover, the lower becomes the real estate tax per unit, which is a fixed cost. These are additional examples of fix costs that may increase under proportionally compared to sales. Thus, it is not always wise to consider reducing the payroll or reducing the food and beverage cost to generate higher profit. Cutting on quality of product or service can lead to guests' dissatisfaction.

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Therefore, one should always strive to develop forecasting models that are rather strategic than a tactic. It is worthwhile to mention that restaurant revenue forecasting is not the same as forecasting hotel revenue. Nevertheless, no forecasting method is ever perfect, and no revenue forecasting is ever easy. Hotels, however, do have different opportunities with different constraints and related problems. Restaurants forecast are far more difficult to predict and much more vulnerable to immediate negative impact for all the reasons explained above. That in a hotel setting, both foodservice managers and hotel managers must work in synergy to accurately forecast what, more often than none, needs to share the revenue from the same guests. In closing, it is essential to emphasize that regardless of an operation's size, the most critical indicator in forecasting is the economy's status.

Budgeting

It is always essential to give an accurate definition of a specific and essential term; thus, *"budgeting"* means: "To determine an estimate of income and expenditure of a business within a period, usually a fiscal year." Meaning that a budget must have a beginning and an end; it cannot be open-ended. Moreover, because it is only "an estimate" or a "wish," it must be continuously revised, adjusted for inflation, deflation, economic conditions, shortfalls, and for many other factors both internally and externally, predictable and unpredictable.

A budget is prepared for many reasons. It is a vital internal tool of control for accountability, responsibility, fraud detection and prevention, and more. Externally it can be a business tool that helps establish creditability with banks, private lenders, purveyors, and customers. The main difference between a forecast and a budget is that a forecast attempt to predict what the business could achieve. In contrast, a budget describes and measures financial goals and compares them to previous periods and actual numbers using both dollars and percentages. Budget variances can be used in regression analysis to predict actual past performances measured against budgetary goals to establish a trend and be used as a predictor for future budgets.

Restaurants do not operate in a vacuum; therefore, every environmental variable that affects the industry must be considered for future financial planning. Figure 12 shows a sample national economic projection estimate from the CBO (Congressional Budget Office) for calendar years' range 2009 – 2020. The consumer price index is a good indicator in budget preparation. Thus, for budget preparation, the inflation rate is crucial in estimating the future cost of goods and labor.

a. Excludes prices for food and energy.
b. The consumer price index for all urban consumers.
c. Level in 2014.
d. Level in 2020.

Common techniques used to construct a budget:

1. Consider if, to begin with, the ***Income Statement*** or other data
2. Consider ***"Zero Based"*** (means setting expectations without considering the past)
3. Consider using the previous year's results as a ***"Base Year."***
4. Consider using the previous 3-4 years' average as a "Base Year".

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Figure 12. CBO's Economic Projections for Calendar Years 2009 to 2020

Sources: *Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Department of Labor, Bureau of Labor Statistics; Federal Reserve Board.*

Note: GDP = gross domestic product; PCE = personal consumption expenditure.

	Estimated	Forecast		Projected Annual Average	
	2009	2010	2011	2012–2014	2015–2020
	Fourth Quarter to Fourth Quarter (Percentage change)				
Real GDP	-0.4	2.1	2.4	4.4	2.4
GDP Price Index	0.9	1.0	0.9	1.2	1.7
PCE Price Index	1.4	1.4	1.1	1.2	1.8
Core PCE Price Index[a]	1.5	1.0	0.9	1.1	1.7
Consumer Price Index[b]	1.7	1.6	1.1	1.3	1.9
Core Consumer Price Index[a]	2.0	1.1	0.9	1.2	1.9
	Calendar Year Average				
Nominal GDP					
Billions of dollars	14,253	14,706	15,116	17,816 [c]	22,770 [d]
Percentage change	-1.3	3.2	2.8	5.6	4.2
Unemployment Rate (Percent)	9.3	10.1	9.5	6.5	5.0
Interest Rates (Percent)					
Three-Month Treasury bill rate	0.1	0.2	0.7	2.9	4.6
Ten-Year Treasury note rate	3.2	3.6	3.9	4.5	5.5

Figure 13. How to build a restaurant budget

HOW TO BUILD A RESTAURANT BUDGET								
Restaurant Vital Statistics		Five year financial projection with 5% increment each consecutive year respectively						
Year of inception	20XX	Budget items	Financial Assumption					
Menu concept	Prix Fix		Year 1		Year 2	Year 3	Year 4	Year 5
Beverage concept	A' la carte							
Category	Luxury	SALES	Amount	Category	Amount	Amount	Amount	Amount
Type of cuisine	Italian	Food Sales	$2,246,400.00	53.10%	$2,358,720.00	$2,476,656.00	$2,600,488.80	$2,730,513.24
Seating Capacity	80	Beverage Sales	$1,872,000.00	44.25%	$1,965,600.00	$2,063,880.00	$2,167,074.00	$2,275,427.70
Weekly operating days	5	Other Income	$ 112,320.00	2.65%	$ 117,936.00	$ 123,832.80	$ 130,024.44	$ 136,525.66
Operating weeks	52	**TOTAL SALES**	**$4,230,720.00**	**100.00%**	**$4,442,256.00**	**$4,664,368.80**	$4,897,587.24	$5,142,466.60
Yearly operating days	260	COSTS						
Meal period: dinner	1	Food Cost	$ 628,880.00	28.00%	$ 660,324.00	$ 693,340.20	$ 728,007.21	$ 764,407.57
Seat turnover	0.9	Beverage Cost	$ 468,000.00	25.00%	$ 491,400.00	$ 515,970.00	$ 541,768.50	$ 568,856.93
Daily covers	72	Other income cost	$ 22,464.00	20.00%	$ 23,587.20	$ 24,766.56	$ 26,004.89	$ 27,305.13
Yearly covers	18720	TOTAL COST	$1,119,344.00	26.46%	$1,175,311.20	$1,234,076.76	$1,295,780.60	$1,360,569.63
Check average food	$120	**GROSS PROFIT**	**$3,111,376.00**	**73.54%**	**$3,266,944.80**	**$3,430,292.04**	**$3,601,806.64**	**$3,781,896.97**
Check average beverage	$100	EXPENSES						
Check average other	$6	Payroll expenses	$1,903,824.00	45.00%	$1,999,015.20	$2,098,965.96	$2,203,914.26	$2,314,109.97
Total check average	$226	Operating expenses	$ 423,072.00	10.00%	$ 444,225.60	$ 466,436.88	$ 489,758.72	$ 514,246.66
Yearly revenue	4,230,720	Other expenses	$ 211,536.00	5.00%	$ 222,112.80	$ 233,218.44	$ 244,879.36	$ 257,123.33
Staff brigade requirement	Full	Occupancy cost	$ 211,536.00	5.00%	$ 222,112.80	$ 233,218.44	$ 244,879.36	$ 257,123.33
Quality of staff	High	TOTAL EXPENSES	$2,749,968.00	65.00%	$2,887,466.40	$3,031,839.72	$3,183,431.71	$3,342,603.29
Expected clientelle	Affluent	**OPERATION'S PROFIT**	**$ 361,408.00**	**8.54%**	**$ 379,478.40**	**$ 398,452.32**	**$ 418,374.94**	**$ 439,293.68**

5. Compare past years budgets against actual results, compute variances and perform a trend analysis (see figure 9, comments in the box on line 23
6. While creating it, make a note of everything that is being taken into consideration, all assumptions used in the budget regarding revenue, cost and expenses, and profit

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7. For every line item, consider constructing a scenario as you were graphing it and ask yourself: will a change in "Y" cause a change in "X," if so, "what exactly is going to change" and "what may the consequences be because of the changes?
8. Regardless of what scenario is being constructed, what counts is the increase in revenue, keeping all cost proportionally inline or partially under proportional, and an increase in profit
9. Compute and revise all budget assumptions:
    a. National long-term budget and inflation rate average (see figure 12)
    b. Size and timing of growth in sales
    c. Assume that there will be an increase in the cost of sales due to changes in the cost of commodities, change in production, market conditions, distribution channels, tax implications, new legislations
    d. Work on strategies to decrease the overall by improving internal control processes
    e. Think about the payroll in general: number of staff, dates wages, and salary increase go into effect, dates of new hires, changes in minimum wage legislation,
    f. Exempt employees' salaries are usually fixed and regulated by state and federal law; part-time employees must be included in the payroll expenses as FTEs (Full-Time-Equivalent)
    g. Increase in health insurance due to changes in health care legislation
    h. Although unlikely, think of a possible decrease in health insurance from a change in a health plan
    i. Increase in workmen's compensation insurance due to excessive work-related accidents
    j. Increase in liability insurance and liquor bond to possible incidents related to the dispensing of alcohol violation
    k. Increase in rent by the landlord
    l. Increase in utilities due to "Green" initiative legislation
    m. Possible increase in advertising due to a new website and related promotional activities
    n. Increase in transportation expense due to increase in fuel prices, insurance, road taxes, mileage reimbursement
    o. Increase in debts service
    p. Increase in credit cards fees
    q. Increase in payroll-related expenses because of new recruiting campaign, hiring, and training of new employees.
    r. Increase in maintenance expenses and renovation/change of end-of-life items such as light fitting, water supply
    s. Other assumptions may vary according to the type of operation

Working With the Budget

It is essential to reemphasize that the budget is a vital internal tool of control for accountability, responsibility, fraud detection, and prevention. Because the budget is in place in almost all legally run food-service businesses, the manager should use it to its full potential and to his/her advantage. The manager can compare the budget to actual every day, every week, every month. Analyze and investigate major variances. E.g., food and beverage costs should be treated like liquor; if the cost is > 1% point above or below budget, it must be questioned. If the cost is much lower, say > 3% points lower than budget, than the staff maybe cutting on quality by reducing or substituting high-quality products with those of

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less quality. Adversely the staff could be using too much of the product, or this could be a sign of fraud, pilferage, negligence, whichever the case, the budget will serve as a guideline to keep revenue, cost, and expenses in equilibrium and allow the manager to research, analyze, draw conclusions and make necessary changes.

Budgeting is not advanced math and is not a science; it is a process by which all monetary activities involved in the business's day-to-day operation can be monitored. Because it is logical, it is not difficult to work with. Experts argue that budgets are blind and useless. Many managers like to prepare an overly optimistic budget guided by the figures from the previous year. Others argue that without budgets, managers would have no data to compare twit their actual performance. Therefore, budgets are considered goals and should be treated as such. Goals should be planned to be realistic, achievable, flexible, and not written in stone and not only personal but also a combined effort; everyone working with it should be responsible.

There are countless factors to consider when preparing a budget and working with it. For example, if a manager did not investigate the city's 10-year strategic planning and suddenly learns that the access road to the restaurant will be converted to a pedestrian zone within six months, no more cars. Consequently, someone did not consider that the parking meters will be eliminated, and as a result, fewer customers may patronize the restaurant? Since San Francisco instituted health care reform, restaurants have added extra charges to the final bill to recuperate the extra payroll benefit expenses being paid to employees. The 4% extra charge to the already 9.8% sales tax was not foreseen a year prior; therefore, restaurants had no alternative but to pass the additional payroll expenses to the customer. This occurrence must be reflected in next year's budget. Other factors include the ever-changing customer demographics and consumer behavior, including competitors' behavior and profile, especially those of new entrance. Besides the qualitative techniques indicated above, the manager can use several simple mathematical formulas to estimate the budget. Table 6 shows an example of foodservice industry ratio analyses for full menu and limited menu operations (values may vary according to the type of restaurant, location, and other related financial factors)

COMMONLY USED FORMULAS FOR PREPARING BUDGETS

Forecasting Food and Beverage Sales as a Percentage of Hotel Rooms Sales

Factors to consider are the number of rooms, occupancy %, average room rate (ARR), days open, expected % of total expected restaurant revenue (ERR) derived from rooms occupancy

Formula

Rooms × Occupancy % × Average Room Rate × Days Open x ERR %

Example

Rooms 100 x.75% Occupancy x $79.00 ARR x 365 Days x .40% ERR= $865,050

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Forecasting Food Sales

Projected food sales are computed by multiplying the total seat capacity times the seat turnover, times the average food check, times the number of operating days. The same formula is used to forecast beverage revenue and other income such as cigars, merchandising like memorabilia, cookbooks, pictures etc.

Forecasting Food Sales

Seats 80 × Turnover .90 × Average Food Check $120 × 260 Days Open =
Forecasted Sales $2,246,000

The Break-Even Point

The break-even formula is used to determine how much revenue is needed to cover the total variable and fixed cost to "exactly break-even," thus generating profit. Meaning that before the operation can enjoy one percent of profit, it must cover most financial obligations related to the operation's fixed and variable cost. It is considered an indicator before revenue being generated and a statistical tool after generating revenue.

Breakeven Point Formula (BEP)

BEP = Fixed Cost (FC) / (100% – Variable Cost (VC) %)

$$\frac{FC\$1{,}119{,}344}{100\%-65\%} \times 100 = \$3{,}198{,}126$$

Profit Target Formula

It is not uncommon for investors to demand a specific rate of return. We can apply the Profit Target Formula or "profit from the bottom up" formula in such a case. The investor knows the cost involved in running the operation; however, we would like to achieve the desired profit in dollars and in percentage; therefore, this formula allows us to estimate how much sales must be generated to achieve the desired profit.

Profit Target Formula

Sales $ = FC + Profit Objective (PO)

100% – Variable Cost (VC) %

$$\frac{FC\$1{,}119{,}344+(PO)365{,}000}{100\%-65\%} \times 100 = \textit{Sales}\ \$2{,}240{,}983$$

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Forecasting Cost and Expenses, Including Labor Cost

Cost is driven by the activities in preparing a product and the goods being sold. For any cost category, multiply sales by the set percentage of the cost as per guideline. It can be used to compute any cost and expenses provided the percentage is given. Note that all payroll-related expenses must be taken into consideration when computing payroll estimates, including all contributions the employer makes toward the employee benefits. Furthermore, employers must report their payroll tax obligations to the Tax Office and deposit payroll taxes on time. Reporting requirements are always subject to change; however, at the time this book was released, reporting include:

1. Making federal tax deposits
2. Annual federal unemployment tax return (Form 940 or 940EZ)
3. Employer's quarterly payroll tax return (Form 941)
4. Annual Return of Withheld Federal Income Tax (Form 945)
5. Wage and Tax Statements (Form W-2)

In estimating the payroll cost, the employer is not concerned about the employees' statutory payroll deductions alone; instead, it is concerned with the employer's responsibility for payroll taxes that continue even after paychecks have been issued to employees. The company is responsible for paying the employer's share of payroll taxes, for depositing tax dollars withheld from the employees' paychecks, preparing various reconciliation reports, accounting for the payroll expense through their financial reporting, and filing payroll tax returns. Companies are responsible for paying their portion of payroll taxes. These payroll taxes are an added expense over and above the expense of an employee's gross pay and include the following:

1. Social Security taxes
2. Medicare taxes currently
3. Federal unemployment taxes (FUTA)
4. State unemployment taxes (SUTA)

In a foodservice business, payroll represents the highest expense, and therefore, accurate payroll budgeting is key to generating a higher profit.

Cost Target Formula

Sales x target cost percentage

Food Sales $2,240,983 x 30% food cost percentage = $72,295

Total Sales $3,198,126 x 45% labor cost percentage = $1,439,157

The ratios shown in table 6, are useful to the manager when preparing and monitoring a budget and when triangulating the results between the budget (see category percentage shown in figure 13, industry ratios shown in table 6, rules of thumb shown in table 5, and the 3-year financial analysis shown in figure 9).

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Table 6. Foodservice industry ratio analyses (values vary according to the type of restaurant, location, and other related financial factors

SAMPLE RESTAURANT INDUSTRY RATIOS	Full Menu	Limited Menu
Sales:		
Food	75.7%	100.0%
Beverage	23.9%	0.0%
Total Sales	**100.0%**	**100.0%**
Cost of Sales:		
Food cost (computed from food sales)	40.2%	36.1%
Beverage cost (computed from beverage sales)	29.3%	0.0%
Total Cost of Sales	**38.2%**	**34.3%**
Gross Profit on Sales	**61.8%**	**65.6%**
Other Income	0.6%	0.2%
Total Income	**63.9%**	**66.5%**
Controllable Expenses:		
Payroll	28.0%	24.5%
Employee Benefits	3.7%	2.9%
Direct Operating Expenses	4.2%	5.1%
Music and Entertainment	0.2%	0.0%
Marketing	1.7%	2.1%
Utilities	3.5%	3.1%
General & Administrative Expenses	2.6%	2.4%
Repairs and Maintenance	1.8%	1.4%
Total Controllable Expenses	**47.0%**	**46.6%**
Occupancy Costs		
Rent	4.8%	5.4%
Property Taxes	1.2%	1.0%
Other taxes	0.6%	0.3%
Property Insurance	1.4%	1.3%
Total Occupancy Costs	**7.3%**	**7.8%**
Interest Expenses	**1.5%**	**2.2%**
Depreciation	2.3%	3.1%
Restaurant Profit	**3.7%**	**4.7%**
Corporate Overhead	0.0%	0.0%
Other Deductions	0.2%	2.5%
Income Before Income Taxes	**2.8%**	**3.5%**

* All ratios are based as a percentage of total sales except food and beverage costs, which are based on their respective sales.
Source: Wisconsin Restaurant Association Report, 2020

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Analyzing Revenue and Cost Variances and Preparing a Report

Table 7 represents a special report obtained from the accounting office regarding the monthly revenue for July 2020 compared to July 2020 budget and 2019 actual. At the end of every month and according to the company policy, the food service manager must prepare a financial commentary about each foodservice outlet's financial performance and a general summary. This report may be submitted to the owner, the regional office, or its headquarter. In the report, the manager will highlight and comment on major variances, whether they are positive or negative, whether they are in line with the budget, and how they compare to the previous year. To accomplish this, the manager must keep a daily logbook and record everything that has happened during the month. The record may include weather conditions, incidents, positive events, actions that may have been taken, and actions that need to be taken in the future.

Table 7. analysis of variances within a revenue period

HOW TO BUILD A RESTAURANT BUDGET								
Restaurant Vital Statistics		**Five year financial projection with 5% increment each consecutive year respectively**						
Year of inception	20XX	**Budget items**	**Financial Assumption**					
Menu concept	Prix Fix							
Beverage concept	A' la carte		**Year 1**		**Year 2**	**Year 3**	**Year 4**	**Year 5**
Category	Luxury	**SALES**	Amount	Category	Amount	Amount	Amount	Amount
Type of cuisine	Italian	Food Sales	$ 2,246,400.00	53.10%	$ 2,358,720.00	$ 2,476,656.00	$ 2,600,488.80	$ 2,730,513.24
Seating Capacity	80	Beverage Sales	$ 1,872,000.00	44.25%	$ 1,965,600.00	$ 2,063,880.00	$ 2,167,074.00	$ 2,275,427.70
Weekly operating days	5	Other Income	$ 112,320.00	2.65%	$ 117,936.00	$ 123,832.80	$ 130,024.44	$ 136,525.66
Operating weeks	52	**TOTAL SALES**	**$ 4,230,720.00**	**100.00%**	**$ 4,442,256.00**	**$ 4,664,368.80**	$ 4,897,587.24	$ 5,142,466.60
Yearly operating days	260	**COSTS**						
Meal period: dinner	1	Food Cost	$ 628,880.00	28.00%	$ 660,324.00	$ 693,340.20	$ 728,007.21	$ 764,407.57
Seat turnover	0.9	Beverage Cost	$ 468,000.00	25.00%	$ 491,400.00	$ 515,970.00	$ 541,768.50	$ 568,856.93
Daily covers	72	Other income cost	$ 22,464.00	20.00%	$ 23,587.20	$ 24,766.56	$ 26,004.89	$ 27,305.13
Yearly covers	18720	TOTAL COST	$ 1,119,344.00	26.46%	$ 1,175,311.20	$ 1,234,076.76	$ 1,295,780.60	$ 1,360,569.63
Check average food	$120	**GROSS PROFIT**	**$ 3,111,376.00**	**73.54%**	**$ 3,266,944.80**	**$ 3,430,292.04**	**$ 3,601,806.64**	**$ 3,781,896.97**
Check average beverage	$100	**EXPENSES**						
Check average other	$6	Payroll expenses	$ 1,903,824.00	45.00%	$ 1,999,015.20	$ 2,098,965.96	$ 2,203,914.26	$ 2,314,109.97
Total check average	$226	Operating expenses	$ 423,072.00	10.00%	$ 444,225.60	$ 466,436.88	$ 489,758.72	$ 514,246.66
Yearly revenue	4,230,720	Other expenses	$ 211,536.00	5.00%	$ 222,112.80	$ 233,218.44	$ 244,879.36	$ 257,123.33
Staff brigade requirement	Full	Occupancy cost	$ 211,536.00	5.00%	$ 222,112.80	$ 233,218.44	$ 244,879.36	$ 257,123.33
Quality of staff	High	TOTAL EXPENSES	$ 2,749,968.00	65.00%	$ 2,887,466.40	$ 3,031,839.72	$ 3,183,431.71	$ 3,342,603.29
Expected clientelle	Affluent	**OPERATION'S PROFIT**	**$ 361,408.00**	**8.54%**	**$ 379,478.40**	**$ 398,452.32**	**$ 418,374.94**	**$ 439,293.68**

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Because the amount of revenue to be generated can never be certain, an experienced manager will never make purchases for planned expenditures such as FFEs, tools, utensils until the month has been closed. In other words, planned expenditure for a specific month should always be done after the month-end results have been computed. In this way, the manager has a month of lagging advantage over the planned purchase and will remain assured that the desired profit in terms of dollars and percentage can be achieved. For example, if the budget for July of 2020 included the purchase of new planters for the restaurant entrance, the manager needs to remain certain that the sales forecast for July has been met. If it is not met, then the manager should not purchase the new planters. This strategic decision will be included in the monthly financial commentary and will be used to prepare the next budget and the short and long–term strategic plan.

It is essential for the manager to always remember that regardless of who or what may cause a budget shortfall, he/she will always be responsible and held accountable for the results. Successful management of budgets is a critical component of a manager's performance review and will be used as a base for a salary increase, promotions, intercompany transfer, and most importantly, it can be used when the manager is in pursuit of a new challenge with a competitor. Lastly, as mentioned earlier in this chapter, high-performing enterprises building their competitive strategies around data-driven insights that, in turn, generate impressive business results. Accordingly, the key to a company's financial success is the analysis and use of historical data; therefore, the manager has no competitive alternatives but continually analyzes results and takes bold actions. It is a secret weapon.

Sample Financial Report a Manager Would Prepare for the Regional Office

This report is usually preceded by a cover letter and the operation description, with the company identification code and other required information. The scenario below highlights the results of revenue, cost, gross profit, and covers served. It does highlight total expenses and departmental profit. Comments about all other line items would be completed in the same format as described below.

Revenue

The total food and beverage revenue for July 2020 was $420,205; it was $21,008 or 5% above budget and $ 41, 018, or 10.25% above last year's same period. The positive variances resulted from a higher-than-expected revenue of 20% and 8.67% in lunch and dinner beverage sales, respectively. This positive increase was largely due to a successful wine promotion that was implemented in cooperation with local wineries. Compared to the budget, there was a lower-than-expected food revenue generated during lunch, minus 2.55 or $ 2,433; however, this was offset by a moderately higher than expected dinner food revenue of 5% or $9,951. The positive increase in total revenue further confirms the dynamic trend increase for Year-to-Date revenues. Compared to last year's revenues, the restaurant's financial performance continues to be satisfactory.

Cost

The total food and beverage cost in dollars were $5,016, and in percentage, it was 4.22% lower than the budgeted cost. Compared to last year, it was .02 percentage points lower. This positive outcome is the result of the tighter control of the operation and the increasingly more efficient staff who contributed

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to higher productivity. However, the overall cost is 1 percentage point beyond the allowance of +/- 1 percentage point compared to the budget. The management will ensure that the cost will realign itself with the planned percentage and in accordance with the company policy.

Gross Profit

Expressed in dollars, the gross profit margin was $15,992 or 5.211% above budget. In terms of percentage, the gross margin was 72% of the gross revenue and well in line with the budget. In comparison with July of 2019, it was 2.0 percentage points higher. According to the company's financial goals for 2010, a 1-point margin higher than expected at 70% level will produce a .04 percentage points higher profits. We will continue to keep the gross margin high by further tightening the operation's control by upselling beverages that a low-cost factor and motivating outlets managers and staff with invectives.

Covers, Check Average, and Seat Turnover

The overall cover count was -94 compared to the budget; however, it was 310 higher than last year. Although the cover count was lower than expected, the total revenue was higher due to a higher-than-expected total check average, which was $47.35 compared to $45.00 as per budget. The higher check average's main contributing factors were the higher-than-expected beverage average for both lunch and dinner and the higher-than-expected dinner food check average, which was $31.20 compared to $30.00 as per budget. Due to the higher-than-expected cover count, the frequency usage of the restaurant facilities also increased. Although it was 1 percentage point below the budget, it was 3 percentage points above last year. These results show an upward trend in seat turnover, which in terms of cost means lower fixed cost per dining patron.

Continue with the remainder of the income statement, all food and beverage promotional activities, marketing campaigns, staff and management activities, celebrity guests, and any other important information relevant to the restaurant's success. Also, attach any relevant material such as the new promotional wine list, the special wedding menu, and the new Weekend special features, including the "chef's table promotion with VIPs on Friday lunch."

Capital Budgeting

In a figurative sense, ***capital budgeting*** is the process of planning expenditures incurred on assets whose cash flow is expected to range beyond one year. It can be is defined as a process that requires planning for setting up budgets on restaurant projects expected to have long-term implications. It can be used for the purchase of a new restaurant business, new equipment, or the launching of a new restaurant concept and brand. In a practical sense, capital budgeting refers to the purchase of all ***fixed assets***. In the case of a new restaurant concept, it includes purchasing land and the construction of the building structure.

The ***Capital Budget*** represents a detailed schedule of all expenditures necessary to complete the project: land, construction, machinery, equipment, tools, and utensils. These items are listed in the balance sheet. An extended form of the capital budget includes all other related costs such as startup and pre-opening costs, recruiting, hiring and training of personnel, inventory build-up, supplies, office supplies, stationeries, and many other items. All costs related to the operation must be recognized and categorized, especially those costs that are reoccurring. It is critical that an accurate estimate of the total

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cost of capital being invested be calculated because a restaurant that starts undercapitalized eventually will end in financial distress flowed by failure.

Back in Roman times, soldiers needed to secure 6 months' supplies to win a war. Today such a principle still stands, and as a rule of thumb, a restaurant should have enough capital invested in surviving at least six months from its inception. If the capital needed to open a restaurant is not available, then the project should not be started. That is the reason why a feasibility study is crucial before investing in a restaurant venture. The highest expenditure will involve the operation's physical structure and the largest machinery and equipment needed for production and processing, furniture such as tables and chairs, and IT infrastructure. Among the above items, the most important are land, building, and equipment. Land and building are where the business is located. Leasehold Improvements such as the installation of a bar counter, wall fixed furniture such as wine display and wall refrigerators, additional plumbing, HVAC, and any other improvement such as a dance floor, and a gazebo are necessary to have a place that appeals to customers in terms of comfort, décor, and warm atmosphere. Leasehold improvement can be made both internally and externally.

If the property is leased, all leasehold improvements must be removed when the lease is terminated unless otherwise negotiated in the lease contract. The equipment required for the restaurant, bar, and kitchen outlets is dictated by the type of food and beverage menus. The menus' size will dictate the size of the storage facilities and the number of staff required. The standard of the menus will dictate the quality of the staff required. A luxury restaurant will require a highly trained chef, a restaurant manager, a sommelier, and a highly trained rank and file staff. In addition to the requirements for the physical plant, the operation needs professional services for the construction of the facilities and ongoing maintenance such as architectural service, electrical engineering, interior design, landscaping, floral decorator, sound expert, legal representation, accounting, payroll, entertainment, and other services provided by consultants. The list should make the investor realize that venturing into a restaurant business can be a very complex undertaking.

The success of a restaurant business depends on the management's capital budgeting decisions at the inception point. The management or future investors need to analyze various factors before venturing in an extremely vulnerable industry for the non – experienced. In investing, the stakeholders expect a return for their risk in venturing in a restaurant business. Those who have prior experience in hospitality understand the risk involved in investing and running a restaurant. New entrants will face severe challenges in an industry that offers prestige, rewards, fame, the opportunity for growth and prosperity but face extremely high risk. Statistics show that as high as 65% of newly opened restaurant business fails during the first year of inception. Because no agency tracks failure rate, and because the barrier of entry is extremely low, many who venture into restaurant business learn the hard way; that is the main reason why banks do not finance restaurant ventures.

In most cases, funds to finance restaurant ventures come from friends and family or private investors if they are convinced that it is a proven concept. Before investing, the stakeholder considers all possible methods of capital budgeting. Popular methods include Discounted Cash Flow (DCF) method, net present value (NPV), and internal rate of return (IRR).

Discounted Cash Flow Methods Explained

The Net Present Value (NPV) is the difference between the Present Value (PV) of the future cash flows from an investment and the amount of investment. The Present Value of the expected cash flows is

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computed by discounting them at the required rate of return the investor seeks to have, often called the minimum rate of return. Meaning that for this method, the rate of return is selected in advance because the rate is used to discount the cash flow. For example, a restaurant venture investment of $1,000,000 today at 10 percent will yield $1,100,000 at the end of the year; therefore, the present value of $1,100,000 at the desired rate of return (10 percent) is $1,000,000. The amount of investment $1,000,000 in this example is deducted from this figure to arrive at NPV, which is zero ($1,000,000 - $1,000,000). A zero NPV means the investment will repay the original investment plus the required rate of return of 10%. A positive NPV means a better return, and a negative NPV means a worse return than the return from zero NPV. For example, if the investment had lost $100,000 from its original investment, then the rate of return would have been negative $100,000, and the net present value would have been $900,000. Table 8 shows the tables with the future and the present value of money for up to a 10% cost of capital (interest) and up to 10 years of cash flow. The Internal Rate of Return (IRR) is another discounted cash flow (DCF) technique. The IRR is the average annual return earned through the life of an investment and is computed in several ways. Depending on the method used, it can either be the effective rate of interest on the investment or the discount rate that reduces to zero the net present value of a stream of income inflows and outflows. If the IRR is higher than the desired return rate, then the investment is attractive. However, it is a non-scientific method, usually computed with a spreadsheet formula, and is not considered to be a consistent principle. Sometimes it can give inaccurate or misleading answers. This method is often referred to as the "dollar-weighted" rate of return.

COMMON FORMULAS USED IN CAPITAL BUDGETING

Annual Rate of Return

$$\frac{Return - Capital\ invested}{Capital \times 100\%} = Rate\ of\ \ Return$$

Or

$$\frac{\$1{,}100{,}000 - \$1{,}000{,}000}{\$1{,}000{,}000} \times 100\% = 10\%$$

Future Value

$FV^{n} = \text{PV}\ (1 + \text{i})^{\ n}$

Where:

PV = Present value (investment amount)

i = Interest rate

n = number of years

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Present Value

$$PV = \frac{FV}{(1+r)^n}$$

Or

$$\frac{\$8{,}000}{(1+11)^3} = \$5,849$$

Where:

PV = Present value (investment amount)

FV= Future value

i = Interest rate

n = number of years

Future Value Table

Table 8 shows how much a series of $1 payments, to be paid at the end of each period for a specified number of periods into the future, is currently worth, with interest at different rates, compounded annually (Wolters Kluwer, 2021). A future value is a dollar amount that occurs at some point in the future. It may either be a cash inflow or a cash outflow. Future values are calculated using compound rates of return (equivalent to compound interest rate returns). Even if not stated, the Future Value calculation process implicitly assumes that the compound interest (or compound return) process has been used to arrive at this future dollar amount. To use the table, find the vertical column under the interest rate (or cost of capital). Then find the horizontal row corresponding to the number of the last year when payment will be received. The point at which the column and the row intersect is the present value of a series of $1 payments (Wolters Kluwer, 2021).

Present Value Table

Table 8 shows how much $1, to be paid at the end of different periods in the future, is currently worth, with interest at different rates, compounded annually. To use the table, find the vertical column under the interest rate (or cost of capital). Then find the horizontal row corresponding to the number of years it will take to receive the payment. The point at which the column and the row intersect is the present value of $1, (Wolters Kluwer, 2021). Businesses are often faced with financial decisions related to the future viability of the operation. Market research helps to identify what strategy to use to bring in additional revenue or diversify the product to stay competitive. The following scenario shows how the table of present value can be used in capital investment.

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Scenario:

Daddy's Pizza and Pasta Place is considering the acquisition of a new wood-burning pizza oven. After all the factors are considered, including initial costs, tax savings from depreciation, increased revenue from additional sales, and taxes on additional revenues, Daddy's Pizza and Pasta Place project the following cash flows from the new pizza oven:

Year 1: ($10,000)
Year 2: $ 3,000
Year 3: $ 3,500
Year 4: $ 3,500
Year 5: $ 3,000

Assume that Daddy's Pizza and Pasta Place cost of capital is 9%, using the net present value table shows whether the new machine would at least cover its financial costs:

Box 2.

Year	*Cash Flow*	*Table Factor*	*Present Value*
1	($10,000) x	1.000000 =	($10,000.00)
2	$ 3,000 x	0.917431 =	$2,752.29
3	$ 3,500 x	0.841680 =	$2,945.88
4	$ 3,500 x	0.772183 =	$2,702.64
5	$ 3,000 x	0.708425 =	$2,125.28

		NPV =	**$ 526.09**

Since the net present value of the cash flow is positive, the purchase of the new wood-burning pizza oven would be, to some extent, profitable for Daddy's Pizza and Pasta Place.

Saving Return on New Investment

An investment many restaurant operators must be concerned about is to make provision for replacing outdated or unproductive equipment. Consider the following scenario. The Clifton Restaurant and Catering has been washing its linen since it opened its doors. It has two large commercial washers and two dryers; however, the old machines are not energy efficient, and a technical problem with the wash cycles causes the linen to become grayish and not appealing to the customers' eyes. These machines have a life expectancy of about two years. After all the factors are considered, including initial costs for new wash and dryers, energy cost savings, cost savings from depreciation, the possibility to outsource the service and even reduce the payroll and avoid the new investment, the management has decided to proceed with the purchase of the new equipment to replace the old one (Wolters Kluwer, 2021). Before the management can make the final decision, it must collect all necessary information from the accounting department:

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Table 8. Tables of future and the present value of money – hypothetical scenario

Number of period cash flow	Table of FUTURE Value of Money									
	Discount rate									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	1	1	1	1	1	1	1	1	1	1
2	2.01	2.02	2.03	2.04	2.05	2.06	2.07	2.08	2.09	2.1
3	3.03	3.06	3.091	3.122	3.153	3.184	3.215	3.246	3.278	3.31
4	4.06	4.122	4.184	4.247	4.31	4.375	4.44	4.506	4.573	4.641
5	5.101	5.204	5.309	5.416	5.526	5.637	5.751	5.867	5.985	6.105
6	6.152	6.308	6.468	6.633	6.802	6.975	7.153	7.336	7.523	7.716
7	7.214	7.434	7.663	7.898	8.142	8.394	8.654	8.923	9.2	9.487
8	8.286	8.583	8.892	9.214	9.549	9.898	10.26	10.64	11.03	11.44
9	9.369	9.755	10.16	10.58	11.03	11.49	11.98	12.49	13.02	13.58
10	10.46	10.95	11.46	12.01	12.58	13.18	13.82	14.49	15.19	15.94
Number of period cash flow	**Table of PRESENT Value of Money**									
	Interest rate									
	1%	**2%**	**3%**	**4%**	**5%**	6%	**7%**	**8%**	**9%**	**10%**
1	0.99	0.98	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	1.97	1.942	1.914	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.63	3.546	3.465	3.387	3.312	3.24	3.17
5	4.853	4.714	4.58	4.452	4.33	4.212	4.1	3.993	3.89	3.791
6	5.796	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.23	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.326	7.02	6.733	6.463	6.21	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
10	9.471	8.983	8.53	8.111	7.722	7.36	7.024	6.71	6.418	6.145

Sources: author's representation from various open financial data sources

1. The book value of the washers and dryers as per the balance sheet
2. The actual value if it were to be sold (salvage value)
3. The life expectancy of the present equipment
4. The annual operating cost (energy, labor, chemicals)
5. The cost of repair or outsourcing the service based on the maintenance and repair record

Simultaneously, the purchasing department will research new equipment and ask distributors for Requests for Proposals (RFPs). The information it needs will include:

1. The model type, year of manufacturing, replacement parts availability, country of origin
2. Energy consumption – green compliance with the EPA and other agencies
3. The total cost of investment

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4. Payment terms – financing – discounts - incentives
5. Warranty terms
6. Life expectancy
7. Cost-benefit analysis over competitors and existing machines in place
8. Future Annual operating cost
9. Future cost of labor hour for service and maintenance

Once all information has been received, the management prepares a cost-benefit analysis scenario.

Table 9. Cost-benefits and savings analysis

Cost-benefit and saving analysis			
Existing washers and dryers		**Best proposal for replacement from Vendor #1**	
Book value	$4,000.00	New equipment installed	$ 28,000.00
Salvage value if sold or traded in	$2,000.00	Expected life	10 years
Annual operating cost	80,000.00	Warranty parts and labor 1 year	
Expected life left to operate	2 years	Book value-salvage value in 10 years	$ 0.00
Present quality of the job	Poor	Overall operating costs	$ 70,000.00
The longevity of use of linen	Very short	Overall savings after 10 years	$100,000.00

The management carefully analyzes the scenario, discusses it with the accounting and purchasing department, and concludes:

1. The new equipment cost $28,000.00, minus the salvage value; the net cost would be $26,000.00
2. The Clifton Restaurant and Catering will save $10,000.00 per year in total operating cost, a total of $100,000.00 after 10 years
3. Other benefits include a warranty, better quality of the job, extended longevity of the linen, better image toward dining customers, less psychological pressure in dealing with possible emergency repairs, and increased company assets.
4. The yearly savings generated by the new equipment show a rate of 35.7%

The saving rate of return formula is as follows:

$$\frac{Yearly\ savings}{Captial\ being\ invested} \times 100 = Saving\ rate\ of\ return$$

Yearly savings $10,000.00 / cost of new equipment $ 28,000.00 x 100 = 35.7%

According to the above scenario, the management decides to purchase the new equipment. The final decision always rests with the top management and/or ownership, who must decide whether the rate of return is in line with their business objective and according to their strategic plan. A saving rate of return of 35.7% when compared to the cost of capital appears to be acceptable to the management. The

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above scenario described a typical management financial decision-making process. Table 9 above shows a typical cost benefits and savings analysis description. The consequences of investing unwisely can be devastating for years to come.

Planning for Capital Expenditure

Capital expenditure is part of the long-term strategic plan, which is then executed during the short-term plan during a specific fiscal year. This plan will originally start as a wish list considering all factors affecting the purchase decision, such as the end of the life cycle of a product, new addition to the assets to generate additional income, or simply additional equipment to comply with the health safety prevention program policy. Whichever is the case, a schedule for such expenditure must be carefully drafted with present market value. The final investment cost will be considered when the expenditure may occur. Table 10 shows a capital expenditure list of items to be purchased, which is included in the short and long-term plans.

Table 10. Wish list of capital expenditure

Item ID #	Capital assets to be purchased	Priority code: 1. Needed urgently 2. Needed, not urgent 3. Needed, not indispensable 4. Desired, not required	Cost Estimate
IT-203	Proprietary Revenue Management Software	1	$ 20,000.00
TSP-02	VIP-Limousine	4	$ 100,000.00
IT-198	Commercial color laser print for back-office	2	$ 3,000.00
Act-09	Purchasing RFID control and tracking system	1	$ 15,000.00
Mtc-03	Landscaping improvement	3	$ 29,000.00
F&B- 10	Temperature controlled wine cabinet for main bar	3	$ 10,000.00
Pub - 11	Replace lobby furniture	4	$ 30,000.00
Sec - 03	Installation of security cameras with laser beams	1	$ 15,000.00
Mktg-01	New website	1	$ 7.500.00
F&B -13	New dishwashing machine	2	$ 22,000.00

Table 10 shows a wish list of capital expenditure items the manager preparing the budget either needs at some point in time or wishes to have to improve the operation. The priority code is assigned to identify the items that are immediately needed and those that are not. Managers need to be aware that investors do not like to infuse money into a business unless there will be a return on their investment, which is a return on assets. The desired item most often remains on the wish list forever. A rule of thumb says that if two pieces of utensils need to be replaced, the manager should ask for six, and after the budget is approved, only one piece may be purchased. Keeping in mind that top managers do not have time to read the entire budget to approve it, a concise explanation for each item in the wish list must be included in the budget section referred to as "Comments to Budget." Furthermore, the manager must be able to make a convincing argument if the top management may be inclined to approve an item with additional

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information. These kinds of scenarios are vital in capital investment. All factors discussed in this section are to be considered when long–term investment decisions are to be made.

E. PURCHASING AND COST CONTROL MANAGEMENT

This section discusses the procurement of resources for foodservice operations, including goods and services, and control of their overall inventory cost. We will use the terms procurement and purchasing interchangeably in the paragraphs that follow. The main objective of the purchasing and cost control department is not only to control purchases and cost alone by reducing any cost; but also, by making recommendations on how to use new and safe innovative products, how to incorporate a raw product that has 100% yield into the inventory and how to monitor inventory levels and merchandise turn over accurately. This section puts all these topics into the perspective of not reducing costs alone and increasing revenues without letting the patrons feel it. This section discusses the following topics:

1. Responsibilities of the purchasing department and purchasing manager.
2. The concept of procurement, from agricultural and manufacturing production to delivery, receiving, and internal processing
3. Cost control department, its operational activities, and organization
4. Responsibilities of the cost controller and the relationship with the foodservice manager
5. The Food and Beverage cost control process
6. Labor cost control process
7. Miscellaneous cost control process

1. Introduction to Purchasing

The foodservice industry deals with all the three types of businesses that are known in our economic system: ***Production, Trade, and Service***. The term ***Production*** means buying raw products, processes and sell them. For example, the purchasing manager buys raw vegetables for the chef, who, in turn, will clean them, process them, and sell them either as individual dishes or to accompany another menu item. ***Trade*** means selling something that has not been produced at the facility and does not need further processing. For example, the purchasing manager buys bottled soft drinks and issues them to the bar; the bar staff stores them in the fridge until they buy them. Nothing has been added to the product; therefore, it is traded; meaning that it has been purchased at a certain price, stored for a period, a mark-up has been added to its purchase price, and then sold at selling price according to the company's pricing policy.

The term ***Service*** in this context does not mean serving tables. Service encompasses all complementary activities to support the business operation. The *"service"* provides guests with all necessary information to use the facilities, calls a taxi when needed, and provides other services often referred to as "Value Added" services for which the guest pays any way but not directly. These types of services are included in the total product offering when guests patronize a restaurant. Therefore, the purchasing department procures all goods that require further processing and provides products that are simply traded.

Additional products are materials classified as a direct cost to support production, trade, and services (Accounting Tools, 2021). An example is the cocktail napkin. The bartender uses it when serving drinks, either as a coaster or as a napkin to absorb the humidity released by the condensation of a cold drink or

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simply as a napkin for the guest to use as he/she wishes. The cost of the napkin is classified as a direct cost to the drink; without the drink, the napkin may not be used. Successful purchasing will result in purchasing the right product at the right price at the right time. Proper and exclusive resource acquisition is a critical component in achieving competitive advantage. For example, many purveyors prefer to sell certain food products exclusively to a small number of reputable restaurants. If those restaurants employ celebrity chefs who endorse their products, their selling price will increase. Therefore, the responsibilities of the purchasing department overall and specifically, the purchasing manager, is enormous.

The ***purchasing manager*** must be familiar with all possible products used in the restaurant business; from produce to meats, fish, poultry, dairy, dry foods, beverages of any kinds, packaged, canned, and frozen foods, and all other products needed to support the production and sales of food and beverage. Each product is sold with specific specifications, whether in a case, as a bundle, by the pound, by the gallon or by the piece. The *purchasing manager* must know how to plan, organize, direct, and control all aspects of procurement by maintaining an intense awareness of market trends and knowledge of business and purchasing practices. Most importantly, the *purchasing manager* is fully responsible for managing the product life cycle through sourcing, price negotiation, and contract negotiation while maintaining and enhancing the restaurants' quality standards. The duties involve but are not limited to, the evaluation of vendor quotes and services to determine the most appropriate suppliers.

The *purchasing manager* must have a working understanding of all restaurant operations and work closely with the Foodservice Manager, the Executive Chef, Bartender, and, depending on the operation's size, works closely with other Food and Beverage Outlets Managers. The person holding this position must believe and respect the restaurant business's basic core values: honor, integrity, honesty, and accountability. Administratively the *purchasing manager* usually reports to the accounting department. Operationally he/she works very closely with the cost controller. Therefore he/she must be fully familiar with the cost control and accounting system in place. For example, no equipment can be ordered without receiving three quotes and the signature of the top management and the financial controller. Even under the worst circumstances, the company's policies and procedures must be respected. Finally, the *purchasing manager* attends trade shows, is a member of the local purchasing professional association, learns about the latest product offerings, technology upgrades, and makes recommendations to the management. His/her input into the long-term strategic plan is essential when it comes to capital budgeting and spending, see tables 9 and 10.

Capital expenditure purchasing is an essential function of the purchasing department; however, these purchases are not made frequently and are not as demanding as the purchases that reoccur daily, such as those of food and beverage products. Accordingly, the purchasing manager, as well as the cost controller, must be fully familiar with all products that are carried in the food and beverage inventory, including sizes and shapes of bottles, point of origin of products, the market value of the products being purchased, and most importantly must be familiar with all food and beverage storage, preservation, and preparation methods. Must know all fresh produce and requires special knowledge of seasonal availability, which affects the purchase price. If fresh produce is from an imported source, the price may be affected even more.

According to the law, food and beverage products are highly perishable and must be stored according to food safety principles. When considering food purchases, the purchasing manager must be fully familiar with all food preservation methods and all food cooking methods. The main determinants of food spoilage are temperature, light, air, and time. When food and beverages are delivered, the purchasing department immediately inspects the entire order, and according to their preservation method required, it stores

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them in the appropriate space. When considering beverage purchases, the purchasing manager must be very familiar with wine, beer, liquor, and non-alcoholic drinks. Wine usually represents the largest portion of the beverage inventory value, and therefore it is considered "an investment" in consumer goods. Wine cellar management is very important to the longevity and maturity of the wine. In beer, the most essential product is draft beer, which is not pasteurized and has an average shelf life of about 30 days.

Table 11 shows the steps of a purchasing process, from a departmental requisition of a product or service to the payment of delivery invoice, continuous process evaluation, and continuous research analysis of the market and suppliers.

Table 11. "The twelve steps of the purchasing process."

The purchasing ladder											
1											
Determine purchasing needs	2										
	Determine quantity and quality of product needed	3									
		Conduct a resource acquisition market research analysis	4								
			Identify potential suppliers with required product specs	5							
				Send request for written quote (RFQ)	6						
					Select supplier that best matches price & quality	7					
						Obtain written approval from authorized manager	8				
							Place order according to the product specs and to the RFQ received	9			
								Receive the ordered products and enter them into the inventory	10		
									Approve delivery note and forward for payment	11	
										Constantly Evaluate the entire purchasing process	12
											Constantly research and analyze the market and suppliers

THE PURCHASING PROCESS

1. Determining the Purchasing Needs

The Purchasing department is the internal intermediary between suppliers, departmental managers, and the accounting department. It determines all required products and services needed to support the operation and procures such needs at the best price level with the best matching quality within the operation's constraints and according to the company's policies and procedures.

As explained earlier, the purchasing manager and the staff (buyers) must have knowledge of their operation, must be familiar with local, national, and international markets, must understand the price elasticity of the market conditions according to seasonality, imports, tariffs, and the compliance with regulatory agencies. For example, a receiving clerk should not accept delivery of fresh mussels without

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a tag because that tag must be kept on record for 90 days. Furthermore, the purchasing manager plays an ethical businessperson's role, will be a good negotiator, and a fair customer to ensure that the players will always remain good business partners assuring the continuum of goods and services supply at the right price, for the right quality.

Many years ago, with the application of materials management, most foodservice operations no longer held large perpetual inventory levels because whatever is order is directly issued to the department. An exception exists in large operations and those that cannot receive daily deliveries, such as a remote country and golf club, that may receive deliveries once a week. Other operations, such as a convention center that uses product standardization for multiple outlet operations with cook-chill processes, may also maintain a high inventory level. Therefore, the purchasing ladder and the process explained below should be used as a base and should be adjusted to the operation type since it cannot be generalized to all operations. For example, a hospital purchasing requirement is totally different from that of a large hotel or convention center or a military facility. The process within a large company is usually established at the corporate level according to its policies and procedures. Small operations may or may not follow the entire procurement process as described here. However, all operations should have a purchasing and cost control system in place regardless of size.

2. Determine the Quantity and Quality of Product Needed

Today much of the correspondence is done electronically. Depending on the purchasing system, the department will send a requisition form listing the required items to be purchased. Items that are purchased on a standing ordered basis do not need a requisition. The requirement is usually established through a forecasting and ordering system, through a *par stock* level in which a standard amount is kept in operation with a set and known minimum and maximum amount to be on hand.

A reorder point (ROP) is established when an item is added to the inventory and is modified according to the quantity and frequency is used. Well-organized purchasing departments, especially those in very large operations or at the regional or national level, use mathematical formulas to establish what quantity of a specific product needs to be ordered at a specific point in time to minimize the total inventory holding and ordering costs. The ***Economic Order Quantity*** (EOQ) formula is often applied for high inventory levels that carry high holding and ordering costs. If we think of a resort hotel located on an island where it must import most specialty food items, the holding and ordering cost plus shipping can be very high. F. W. Harris developed the (EOC) formula in 1913 however, it did not get the attention of practitioners and scholars until it was published in the Harvard Business Review in 1934 at which time but R. H. Wilson, a consultant who applied it extensively, was given credit for it (Harris, 1913 & 1915; Wilson, 1934.)

The (EOQ) can be defined as "*The number of units that a company should add to inventory with each order to minimize the total costs of inventory, such as holding costs, order costs, and shortage costs,"* (Brightpearl, 2021). The formula works if the quantity to order at a given time is determined by 2 factors: 1, the cost of possessing or carrying products, and 2, acquiring or ordering materials. Although conventional wisdom tells us that purchasing larger quantities may decrease the unit cost of acquisition, the saving may not be more than offset by the cost of carrying products in stock for a more extended period. As for everything else, nothing is ever perfect, and the (EOQ) too has its limitation; therefore, the Underlying Assumptions of Economic Order Quantity is:

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1. The ordering cost must remain constant
2. The rate of demand must remain constant
3. The lead time is fixed
4. The purchase price of the item is constant thus omitting discount
5. The replenishment is made instantly
6. The entire order is delivered at once

Example of how the Formula is Applied

Scenario

Orsini's Restaurant Purchasing Department wants to compute the EOQ for "Easy Serve Espresso" (ESE) Espresso pods. The specifications are Case x 10 boxes x 10 espresso pods. The EOQ formula is as follows:

$$\sqrt{2YR * CO \setminus CU * CC\% = EOQ}$$

Where:

$\sqrt{2}$ = Square root constant

YR = Item Yearly Requirement (500-ESE Espresso Cases)

CO =Cost per Order $ 2.00

CU = Cost per Unit (case) = $75.00

CC% = Carrying cost %age of CU = 0.05

$$\sqrt{2 * 500 * \$2.00 \setminus \$.75 * .05 = 32.65} \text{ EOQ}$$

The EOQ = 32.65 (Rounded up to 33 Cases for Each Order)

3. Conduct a Resource Acquisition Market Research Analysis

The purchasing office will research the market regularly to keep the prices database update. It will source information to compare prices with the USDA forecast database indexes, those of the commodity exchange, and those of the suppliers. This research analysis is when the purchasing department collects all necessary information available as a tool to obtain final bids from the preferred suppliers. The products must be required to meet both the company and industry-standard specifications, including the ISO specification when necessary. The person requesting to purchase a product should provide the purchasing department with the exact specifications of the items needed from the quality and quantity

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point of view. Examples include The **I**nstitutional **M**eat **P**urchase **S**pecifications **(IMPS)**; the **U**niversal **P**roduct **C**ode **(UPC).**

4. Identify Potential Suppliers with Required Product Specifications

Following the market research for products and suppliers, the following topics should be discussed before the restaurant and suppliers can enter a buying-selling business relationship.

1. Product line
2. Brand products
3. Private label products
4. Quality assurance policy
5. Product tasting
6. Physical facilities
7. Ordering system: online, over the phone, sales call
8. Pricing and volume discount policy
9. Cost buying policy
10. Blank check buying policy
11. Sole source of procurement
12. Negotiated contract
13. Minimum delivery
14. Emergency procurement policy
15. Use of loading-unloading technology (RFID)
16. Delivery frequency
17. On-time delivery
18. Truck unloading procedures
19. Assurance of no out - of - stock items

5. Request for Quote (RFQ)

The purchasing department can send requests for written quotes or can use a call sheet, or a quote sheet will be used to record all quotes received on specific products needed for the operation, which will then be used to negotiate the best conditions and make a purchasing decision. Getting the quotes or bidding can be formal, in which a written confirmation is sent from the buyer to the seller to confirm the purchase and conditions, or informal, in which nothing is written is sent if a business relationship is established and is ongoing.

6. Select Supplier that Best Matches the Needs

The decision as to what product to buy from what the best price will determine supplier for the best quality at the best terms. As a rule, a purchasing department should always have three ranked and trusted – preferred suppliers whom to award the orders:

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a. The supplier designated as number one on the rank will receive most of the product category's orders. In exchange, the supplier will promise the best prices for the best available product and, most of all will assure the number of products being supplied.
b. The supplier designated as a number two on the rank will receive fewer orders, and therefore the prices are expected to be slightly higher than the number one on the rank. The products supplied will of the same quality.
c. The supplier designated as a number three on the rank will receive orders occasionally, and therefore, the prices will be higher than the first two.

This process assures the purchasing manager a continuous flow of products supplied by various sources at an acceptable price level. This of course, can be accomplished in locations where the supplier competition is high and so the bargaining power of the restaurant. To keep the bargaining power high, the restaurant management must pay invoices on time and respect all other contractual terms, whether short or long – term, in verbal or written form. After all, even if our industry is one of the largest in the world, it is a small industry in terms of business relationships.

Ethical Consideration in Selecting a Supplier

For the management to ask others to be ethical, the restaurant must have a code of ethics in place, and before choosing a supplier, the purchasing manager must investigate if the supplier meets the ethical expectations according to his/own company purchasing guidelines. Accordingly, the supplier should:

1. demonstrate that s/he has the resources and experience to conduct business successfully
2. be willing to provide references from other businesses they deal with
3. be environmentally concerned and that they have green practices policies in place.
4. not undercut the competitive process and honestly quote prices based on quality
5. not engage in collusive bidding, price-fixing, or bid rigging.
6. not engage in deceptively pricing practice
7. not offer gifts of any kind to the restaurant staff involved in the purchasing process
8. not offer kickbacks, free samples, and discounted purchases to restaurant staff
9. never attempt to recruit restaurant staff or just make job offer as a deceptive practice
10. not attempt to obtain company information as a tool to obtain additional business
11. never substitute products without informing the purchasing manager first
12. maintain the highest standard of product safety according to the government regulations
13. not falsify invoice
14. always respect pre-negotiated payment terms
15. not add additional charges for cost recovery such as "fuel charges" ...

7. Obtain Written Approval From the Authorized Manager

Before the purchasing department can order anything, the manager's request must be approved, especially for capital expenditure orders. The approval must be given according to the company's policies and procedures and within the budget limits. Despite the authority a manager may have to sign a purchase request order, when an order is placed for capital expenditure, the financial controller must approve it

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last. That is the only person who can decide whether to buy the assets requested or not. For all other purchases, up to the limit authorized in the purchasing policy manual, the department manager may be authorized to sign without an additional signature. In addition, all negotiated standing orders, including those under negotiated contracts, do not require bidding and additional signature.

8. Placing Orders According to the Product Specifications and to the RFQ Received

A well-organized purchasing department also organizes the department it procures the products and services to. A purchasing ordering system with a detailed schedule must be in place to have everything ready and in synergy with the restaurant operation. Table 12 shows a sample ordering schedule for produce suppliers. Notice that one supplier delivers every day and the other 5 days a week only. The first supplier, Alamo's produce, however, delivers even on the weekend. Table 13 shows a daily produce inventory sheet with the quantity available and the quantity that needs to be ordered, and table 14 shows a suppliers' quotes comparison sheet.

Table 12. Purchasing ordering schedule

Produce ordering schedule									
List of preferred suppliers			**MON**	**TUE**	**WED**	**THU**	**FRI**	**SAT**	**SUN**
1	**Alamo's Produce Co.**		**Delivery schedule**						
	Sales Representative	Joe DiCosito	Before 10:00 AM	Before 10:00 AM	Before 10:00 AM	Before 10:00 AM	Before 10:00 AM	8:00 to 11:00 AM	**On call**
	Office phone	505-895 7444							
	Cell phone	505-333-9977							
	Fax	505-895 7555							
	Email	J.DiCosito@apc.com							
	Order method: online	www.apc.com\order							
	Next day delivery order by	6:00 PM							
	Personal sales call	Mondays 10:00 AM							
2	**NorthBay Foods, Inc**		Before 8:00 AM	Before 8:00 AM	Before 8:00 AM	Before 8:00 AM	Before 8:00 AM	**No service**	**No service**
	Sales Representative	Kristin Smith							
	Office phone	505-765 3435							
	Cell phone	505-393 3776							
	Fax	505-765 5999							
	Email	Kristin1@nbfinc.com							
	Order method: online	www.nbfinc.com\order							
	Next day delivery order by	6:00 PM							
	Personal sales call	Wednesday 3:00 PM							

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With the evolution of the internet, large suppliers have established web-based purchasing systems that have simplified many foodservice operations' purchasing processes. These e-purchasing applications are integrated suites of applications designed to support the supply chain's sales process, allowing foodservice customers to order, report, track, and control inventory in a secure, real-time internet system. The system is designed for multiple applications to accommodate requests from any operation size, from a small free-standing restaurant to multi-unit operations. To assist the buyers, they provide customer user's guides, inventory supplements, an online help system, and a live customer support link to speak to a real person. E-purchasing systems reduce cost, time, labor, eliminate paper waste, and best of all, the ordering and delivery documents are kept in electronic format.

Furthermore, the evolution of new technology offers suppliers advanced warehouse inventory control systems that monitor fridges and freezers' temperatures, stock rotation and assures that orders are exactly loaded for delivery with all items ordered and with the proper sequence of track route stops. All the computerized ordering systems will automatically offer a product substitution should the desired product be out of stock when the order was placed. In this way, the restaurant is assured that everything ordered

Table 13. Sample daily produce inventory sheet

DAILY PRODUCE INVENTORY SHEET				**DATE: May, 27 20XX**		**CHEF: Mario**			
CATEGORY	**CODE**		**ITEMS**	**SPECS**	**UNIT COST**	**ON HAND**	**REORDER**	**Total available**	**Estim. Inventory value**
PRODUCE	**024**		**ASPARAGUS**	**CSx10lbs**	**26.00**	**0.5**	**1**	**1.5**	39.00
PRODUCE	**025**		**AVOCADOS**	**CSx48**	**48.00**	**1**	**0**	**1**	48.00
PRODUCE	**026**		**BEANS GREEN**	**CS**	**44.50**	**0.75**	**0**	**0.75**	33.38
PRODUCE	**027**		**BEETS**	**LB**	**0.56**	**5**	**5**	**10**	5.60
PRODUCE	**028**		**BELL PEPPER GREEN**	**LB**	**0.65**	**3**	**10**	**13**	8.45
PRODUCE	**029**		**BELL PEPPER RED**	**LB**	**1.97**	**2**	**5**	**7**	13.79
PRODUCE	**030**		**BOK CHOY BABY**	**LB**	**1.50**	**3**	**0**	**3**	4.50
PRODUCE	**031**		**BROCCOLI**	**CSX24**	**19.50**	**0.5**	**0**	**0.5**	9.75
PRODUCE	**032**		**BUTTER LETTUCE**	**24CT**	**8.65**	**0.75**	**0**	**0.75**	6.49
PRODUCE	**033**		**CABBAGE GREEN**	**LB**	**0.55**	**0**	**3**	**3**	1.65
PRODUCE	**034**		**CABBAGE NAPPA CABBAGE**	**CS**	**15.25**	**0.25**	**1**	**1.25**	19.06
PRODUCE	**035**		**CARROTS BABY**	**LB**	**0.76**	**5**	**10**	**15**	11.40
PRODUCE	**036**		**CARROTS PEELED**	**BAGx5lb**	**0.62**	**5**	**0**	**5**	3.10
TOTAL ESTIMATED INVENTORY COST									204.17

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Table 14. Suppliers' quotes comparison

Items #	Suppliers quotes comparison						
	Items description	Specifications	Unit/size/pack	DISTRIBUTORS			
				1	2	3	4
				QUOTE	QUOTE	QUOTE	QUOTE
1.	Potatoes bakers	90 count	case	$ 19.50	$ 20.30	$ 19.75	$ 19.60
2.	Broccoli	24 count	case	$ 21.00	$ 20.50	$ 19.75	$ 20.00
3.				$	$	$	$
4.				$	$	$	$
5.				$	$	$	$
6.				$	$	$	$
7.				$	$	$	$
8.				$	$	$	$
9.				$	$	$	$
10.				$	$	$	$

will be delivered, and there is no need to hold items that were not available on steady "backorder." E-purchasing has empowered purchasing managers with the capability to source products from anywhere, allowing them to compare prices and other terms easily. These technologies also allow managers to dedicate more time to the operation and less at the desk.

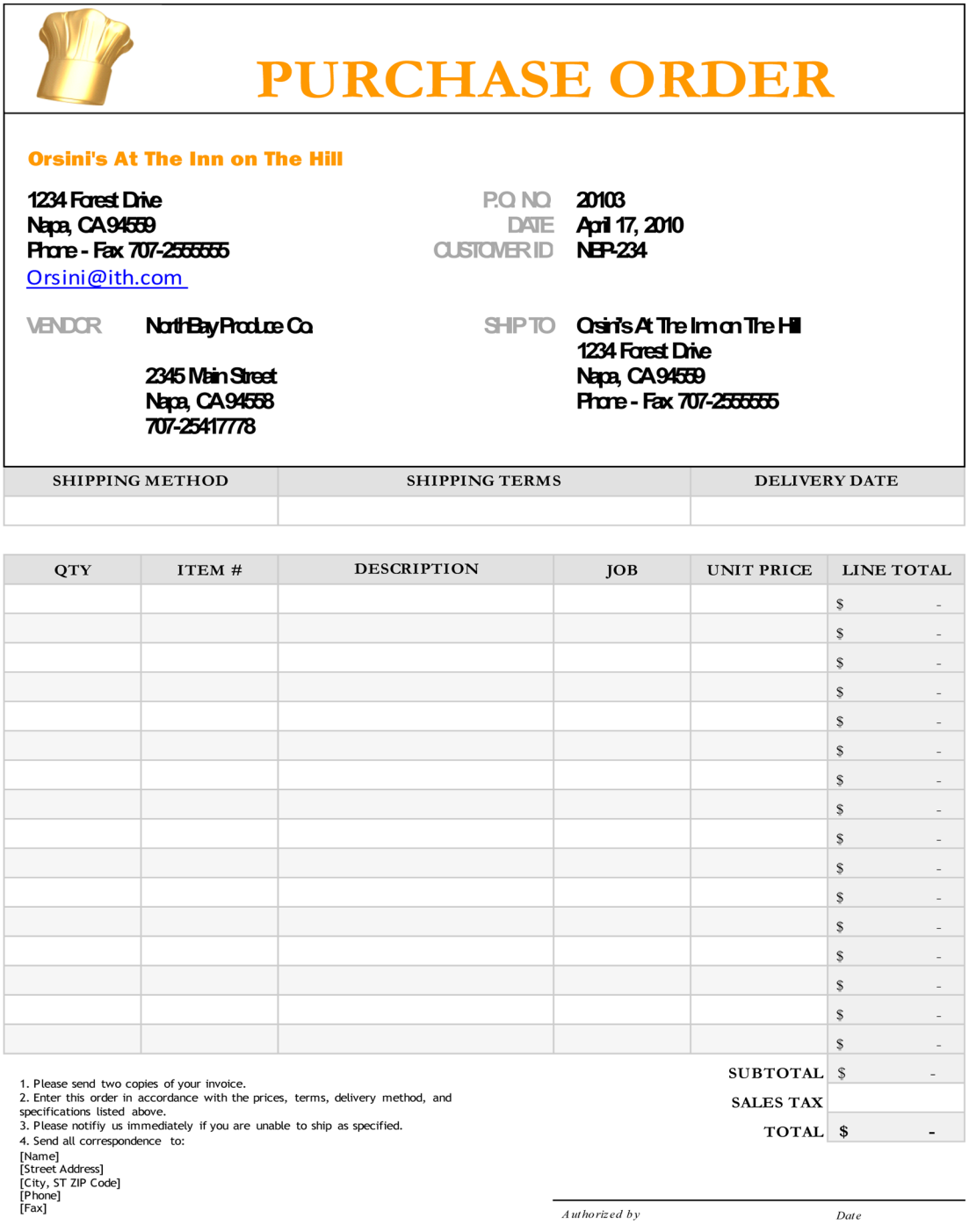
9. How are Orders Received and Entered Into the Inventory System?

Receiving is the activity that ensures the products delivered by the suppliers are those that were ordered by the purchasing manager/agent. The receiving clerk must be competent, trustworthy, highly trained about all inventory products the restaurant buys. He/she must be familiar with all techniques and tools needed to check the quantity, quality and size, prices, and terms of the delivery. Once the invoice is signed, the receiving agent endorses it, and in case of discrepancies, he/she will be held accountable. Therefore, it is essential that everything is carefully checked against the order, the delivery invoice, and actual goods delivered. A detailed list of all the products' specifications must always be kept on hand. The process of checking delivery should include the following:

1. Check the delivery time with the delivery agreement schedule
2. Compare quantities and prices in the delivery invoice with the purchase order
3. Check invoice extensions for correctness
4. Verified items purchased by the case, unit, or piece
5. Weight for each item purchased by weight
6. Verify each portion size of all boxed items
7. Verify that each boxed item is not damaged, that cans are not dented or blown
8. Verify food specifications such as grade, variety, type, cut, rained weight, etc.
9. Separate costly items such as crustaceans that need to be checked by the chef

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Figure 14. Sample purchase order form



PURCHASE ORDER

Orsini's At The Inn on The Hill

1234 Forest Drive
Napa, CA 94559
Phone - Fax 707-2555555
Orsini@ith.com

P.O. NO. 20103
DATE April 17, 2010
CUSTOMER ID NEP-234

VENDOR NorthBay Produce Co.
2345 Main Street
Napa, CA 94558
707-25417778

SHIP TO Orsini's At The Inn on The Hill
1234 Forest Drive
Napa, CA 94559
Phone - Fax 707-2555555

SHIPPING METHOD	SHIPPING TERMS	DELIVERY DATE

QTY	ITEM #	DESCRIPTION	JOB	UNIT PRICE	LINE TOTAL
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
				SUBTOTAL	$ -
				SALES TAX	
				TOTAL	$ -

1. Please send two copies of your invoice.
2. Enter this order in accordance with the prices, terms, delivery method, and specifications listed above.
3. Please notifiy us immediately if you are unable to ship as specified.
4. Send all correspondence to:
[Name]
[Street Address]
[City, ST ZIP Code]
[Phone]
[Fax]

Authorized by *Date*

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10. Separate costly canned items such as caviar that need to be checked by the chef
11. Check market-fresh vegetables for color, firmness, size, uniformity, and count
12. Verify and separate immediately foods that belong in the fridge or freezer and check temperatures before accepting them
13. Account for all discrepancies, separate goods that need to be returned for credit
14. Make the delivery agent sign each line item that needs to be returned for credit
15. Upon all delivered items have been verified for correctness, the receiving agent approves the delivery and authorizes the entry into the inventory. The agent should:
    a. Only give the final signature of acceptance once fully satisfied with the entire delivery
    b. Sign the delivery note with the time when the delivery was completed
    c. It is strongly recommended that management conducts spot-check to make sure that the purchasing department follows policies and procedures by following the same procedure as auditing everything else
    d. Add the entire delivery to the inventory

According to the inventory system in place at the operation, the goods are either added to a ***"perpetual inventory"*** or a running inventory. Table 15 shows a sample of a perpetual inventory system. Note that the ***running inventory*** looks very much the same except that it may follow the ***"par system"*** because all deliveries may be issued directly to the outlet, meaning that you either have a perpetual inventory system or a running inventory system for all food items. However, items such as those required for maintenance or chemicals may be kept in perpetual inventory for apparent reasons: sometimes, it lacks time; other reasons may be that buying items in bulk for all outlets may result in cost savings. Table 15 shows that there was a .50-unit discrepancy in the inventory on Monday, which was then found and credited back on Thursday. Also, there is no addition to the inventory in Sunday because the supplier does not deliver on Sunday; thus, the par stock for Saturday was increased to 6. Saturday's beginning inventory was 1 plus the addition of 5 units; the total units available were 6; enough to cover Saturday's requirement.

Table 15. sample perpetual inventory system

Restaurant Product category:			**Produce**			**Week from: to:**						
Items description	**Supplier**	**Price**	**Unit**	**Par**	**Transactions**	**MO**	**TU**	**WED**	**TH**	**FRI**	**SAT**	**SUN**
Tomatoes	Belmont Produce, Inc	$30.00	Tray 5 x 6	3	Begin. Inv.	0.50	2.00	1.00	2.00	0.50	1.00	3.00
					Additions	3.00	2.00	2.00	1.00	3.00	5.00	**0.00**
					Issues	1.00	3.00	1.00	3.00	2.50	3.00	2.00
					Adjustmt. (+) (-)	0.00	0.00	0.00	**0.50**	0.00	0.00	0.00
					Potential Inv.	2.50	1.00	2.00	0.50	1.00	3.00	1.00
					Ending Inv.	**2.00**	1.00	2.00	0.50	1.00	3.00	1.00
					Short (-) Over (+)	-0.50	0.00	0.00	0.00	0.00	0.00	0.00

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10. Approve Delivery Note and Forward for Payment

Following the delivery process, all invoices are collected by the cost controller, summarized, and totals computed for a weekend or month-end cost reconciliation. According to the company's policies, the same invoices may be forwarded to the manager or executive chef directly responsible for the purchases, which is best familiar with all orders and transactions.

11. Continuously Evaluate the Entire Purchasing Process

All departments concerned must continuously evaluate the entire purchasing process to assure that the policies and procedures in place are being adhered to. This checks and balances system enables the cost controller and, eventually, the general manager to have full and adequate control of the operations purchases, transactions, and total inventory value.

12. Continuously Research and Analyze the Market and Suppliers

Because restaurants operate under the principle of "going concern," meaning that the business has continuity until it stops operating, the purchasing department and all concerned must Constantly research and analyze the market and suppliers for all factors discussed in this section.

OTHER ISSUES IN PURCHASING

Storage and Inventory in Practice

Storage is an essential function of the purchasing and cost control process. Depending on what products need to be stored, there are policies and procedures in place. Storage is a concern because that is where most current assets are stored. Depending on the type and size of foodservice operation, the inventory value can be worth millions; therefore, it is not only knowing what the procurement for the operation should be but also its safety, security, and liabilities such as those related to alcohol or food spoilage that can cause food poisoning.

Keeping inventory levels low is also important because the money invested in perishable inventory does not earn interest; it is in fact, considered dead capital. For example, a large resort hotel operation with about 1000 rooms each furnished with minibars at about $100.00 worth (at cost) each of beverage inventory in it is equivalent to $ 100,000.00 of dead capital that needs to be converted into profit. Imagine the cost of labor to keep the minibars fully stocked, physically inventory them daily, account for all possible fraud charges associated with it, and finally, the alcohol liability in case a minor drinks from it. The cost of keeping the minibar alive is enormous.

One of the accounting department's goals is to work with the foodservice managers to increase inventory turnover ratios. In this way, the stock rotates constantly, all items are sold as the stock rotates, and there is close to zero dead capital in the storerooms except for items with long shelf life such as spirits and wine. The latter can be an investment if the operation employs an expert with cellar management experience. The wine carries a high inflationary value, and the older it becomes in the restaurant wine cellar, the higher the inventory value, the higher the profit. Once again, wine storage is challenging, and

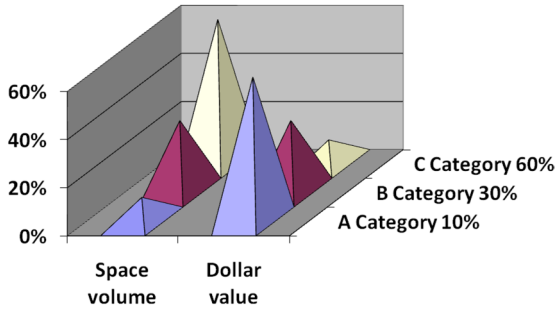
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wine aging should be managed by a cellar master or a well-trained sommelier and not by the purchasing and storeroom staff.

In the storerooms, proper inventory storage procedures must be followed; E. g.: ***FIFO (first-in-first-out system)***, meaning that what was purchased first must be sold first. Not only to rotate the stock but also for inventory evaluation and proper cost vs. sales price matching. Another known systems are the ***LIFO (last-in—last-out),*** meaning that what was delivered last must be sold first. This system is usually applied to storeroom items purchased at a lower price that may be perishable or purchased to be used as a special promotion. For example, the local fishmonger may call the purchasing office and say that it had a very good crab catch over the weekend, and he wants to sell them fast at 30% lower than the regular prices. In this case, the chef may want to buy a large amount, some to be used fresh and some to be stored; however, he prefers to use the LIFO system because the crabs are in season, and they should be sold fast. The reasonable lower price can be passed on to the customers, thus generating higher restaurant turnover, higher volume revenue, and higher profits. According to the above, the purchasing department can create higher sales and higher profits. As mentioned earlier, one of the responsibilities of the purchasing department is to analyze and investigate the market continually.

Another inventory evaluation system is known as the ***ABC inventory***. The system is better understood as a reversed pyramid next to a regular pyramid. Under the A category, the systems catalog the most expensive items that usually require the least space and represent the largest inventory value. Typical items listed under the A category maybe caviar, truffles, liver pate', saffron, gold leaves for the pastry department, expensive beverages such as champagne, and very old Cognac. Items cataloged under the B category are expensive meats and fish, such as Kobe filet mignon, lobsters, and exotic meats, expensive olive oil, and balsamic vinegar. Items under the C category required the most storage space and are worth a small percentage of the total inventory. They include paper supplies such as paper towels, napkins, bulk foods such as rice, pasta, legumes, canned foods, etc. Figure 15 compares space volume and dollar value of inventory using the ***ABC Inventory Evaluation System*** or ***ABCIES***.

Figure 15. Graphic representation of the ABC Inventory Evaluation System



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Procedures for Storage

Food handling follows under the control of Federal, State, and local laws. Inspection and compliance laws are strictly enforced. The best references for food safety compliance are the Food Code published by the Food and Drug Administration (FDA), issued following the FDA's Good Guidance Practices regulation. For updates, contact the FDA at Food and Drug Administration U.S. Department of Health and Human Services https://www.cdc.gov/foodsafety, (FDA, 2021)

Basic Storage Guidelines

1. Dry storage areas are for dry goods that require relatively low to moderate humidity levels of 50% to 60%. Specific goods that require different humidity, such as wines in general, chocolate, etc., must be stored separately. Dry storage areas should always smell fresh and never musty.
2. The air temperature should be monitored to not lower than 50°F and not higher than 70°F.
3. Products should always be stored on racks about 6 inches from the floor and walls
4. All products to be stored should be appropriately labeled, dated, and rotated
5. Use appropriate shelving, which allows for proper circulation of air. Typically, slatted aluminum or stainless-steel metal shelving is used. The lowest shelf should be at least 6 inches from the floor, and the entire shelving system should be 6 inches from the wall
6. Maintain freezer temps at or below 0°F. Monitoring freezer temperatures should be a part of ***standard operating procedures***.
7. Fridges and freezers fans should always be free from obstructions for proper air circulation
8. Never store products directly on the floor.
9. Clean and sanitize fridges and freezers' floors, walls, shelves, and floors regularly
10. All fridges must be kept at 38 degrees F or lower.
11. Keep products separated: dairy, produce, meats, cured and smoked meats, and fish
12. Keep fresh fish on ice at all time
13. Wrap, label, date, and rotate all foods in food-grade plastic or steel containers
14. Separate raw foods from ready to eat foods
15. Store raw foods below ready to eat food or possible in a different section
16. Store nothing on the floor
17. Store produce fresh foods and dairy between 36°F and 38°F
18. Store all fresh meats between 36°F and 38°F
19. Store chemicals and cleaning supplies that are hazardous and or cause combustion and fire in separate storage areas well ventilated and locked from everyone's access.
20. Store draft beer has been in the fridge immediately after receiving between 36°F and 38°F
21. Store canned beer and other canned or bottled beverages at 70°F
22. Store white wines outside fridge between 50°F and 70°F and in the fridge at about 38°F in general, however, this may deviate if the white wine is older or unfiltered
23. Store red wines according to their specifications in cellars or climate-controlled temperature storage facilities between 50°F and 70°F
24. Store spirits at room temperature in a clean, dry, free of odors, and well-ventilated room
25. For hotels with minibars, use separate storage for all minibar items according to their storage and temperature guidelines

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26. Ensure that all alcoholic beverages are marked with a company decal, a stamp, a bar-coded label, or an RFID label as soon as it enters the store inventory. These are safety systems put in place to avoid theft, falsification of products, and traceability.

Issuing Procedures

Issuing of food and beverage is just as complex as ordering and receiving, and it requires special attention to detail and adequate policies that must be strictly respected. First, the storeroom staff must be fully trusted, honest, ethical, well trained and avoid fraternization with staff that requisitions goods for other departments. Discrepancies in purchasing, storage, and issuing of goods are key contributors to profit losses. Table 16 shows a storeroom requisition form for the Sheena Beach Resort and SPA. In large operations issuing alcohol needs strict control because it may have multiple outlets, and therefore it is more challenging to control all inventories. For example, many foodservice companies have the policy in place that the empty bottle from the outlet named in the requisition must be exchanged for every bottle of alcohol requested.

This is a procedure that prevents bar staff from bringing and selling their own alcohol. Since the company alcohol containers are all marked with identification devices, it is easy to determine if the operation's storeroom previously issued the empties ***(see "Basic storage guidelines" item Nr. 26 above)***. Once the par stock for each outlet has been established, it is easier for the cost control department to conduct spot

Table 16. Beverage storeroom requisition

Sheena Beach Resort and SPA							
STOREROOM REQUISITION					**Nr. 2031**	**Date: July 10, 20xx**	
Issued to:		**Riviera Bar**			**From:**	**Beverage storeroom**	
Charge to:		**Food and Beverage**			**Department Account Nr.**		**FB-0201**
Item Description	Item Ref #	Item code	Issue unit	Quantity required	Quantity Issued	Unit cost	Total cost
Martell Cognac VSOP	1	3204	750 ml	2	2	35	70
Glen Morangie Sgl Malt	2	4897	750 ml	2	2	30	60
Taylor's Port 1997	3	1394	750 ml	1	1	69	69
Marsala Riserva Ducale	4	1463	751 ml	2	2	24	48
Chopin Vodka	5	4732	752 ml	3	3	32	96
Jägermeister	6	5692	753 ml	1	1	28	28
Southern Comfort	7	3827	754 ml	1	1	15	15
Sapphire Gin	8	3785	755 ml	1	1	24	24
Innis Killin Ice Wine	9	2965	375 ml	2	2	59	118
Totals				15	15		528
Requested by:	Approved by:				Issued by:		Received by:
J. Smith	T. Madden				Al Sanchez		Gigi

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checks for discrepancies. It is also essential that an ideal par stock be established and revised accordingly to avoid interdepartmental transfers. It is known that food and beverage cost controllers do not like transfers because it demands much time and creates unnecessary paperwork. Therefore, setting up an ideal par stock is a win-win situation for all concerned. Note in Table 16 that the storeroom requisition requires four signatures. In addition, it has control numbers for easy traceability in case of discrepancies.

The same type of requisition is used to request any storeroom item from the perpetual inventory; as discussed earlier, this is not required for items that are directly issued to the outlet.

Determining Inventory Levels and Control

Through the forecast and sales history and the experience of what is likely to be purchased by restaurant patrons, it is easier to establish the storeroom's inventory levels and determine the par stock in each outlet. In addition, a provision is made to balance the ***working stock*** (amount to be used between deliveries) and the ***safety stock*** (extra amount ordered to avoid outages). Because in the food and beverage service industry, we often deal with unprecedented circumstances, caution must always be taken to ensure those standard items on the menu are not out of stock. This is even more important in large catering functions such as a wedding, a conference dinner etc. However, none of the above can work efficiently if the foodservice facilities lack storage space. Ultimately the ideal level of inventory is determined by the storage capacity, meaning that if there is insufficient space or lack of equipment required, the restaurant cannot order and store many products. The storeroom inventory level also depends on the perishability of the product. This, however, is part of the restaurant and menu concept, which determines almost anything in operation. If the menu requires more perishable items, then the dynamic of inventory level changes.

Food and Beverage and Labor Cost Control

For many foodservice operators cutting costs seems to be the solution to higher profit; however, cutting ***what cost*** seems to be the most challenging management decision. There are only three ways to increase profit: cut costs and expenses, increase revenue, or do both. Because of the different standards in operating a restaurant, often, it is the case that food, beverage, and labor cost cannot be reduced. It could be due to the reputation of the establishment, the type of clientele, the fear of being caught cheating or for any other reason, and those costs cannot be touched. However, many other costs can be reduced. To achieve this objective, one should make full use of new technologies and statistical processes.

Furthermore, the internet is replete with information that is useful in cutting all kinds of costs. For example, a restaurant can reduce the overall cost by analyzing the often-hidden cost of doing business. They are hidden because operators make the mistake of looking only at the macro cost environment and not at the micro one. The following items' cost can be reduced by shopping for competitive service by installing monitoring devices, changing cooking methods of menu items, eliminating redundancy, and doing much more. The following is a scenario that can be simulated and strategically formulating a cost reduction program.

1. Analyze the cost of credit commission/fees; offer incentives to cash debit cards or paying guests.
2. Analyze utility consumption; offer staff monetary rewards for saving money.
3. Compare insurance rates with competitive providers.

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4. Buy the equipment instead of leasing. Leasing contracts are usually long-term; by buying and paying less in installments over the same period as leasing, the equipment will increase the company assets.
5. Compare the unit price of food or beverage paid if the equipment used to process them is "free on loan." These types of agreements carry hidden costs that do not belong to the cost of food or beverage. Two examples are a juice dispenser and a coffee machine. The purveyor includes the cost of the machine in the juice or coffee selling price to pay for it; therefore, the restaurant will carry the cost of the equipment in the food or beverage cost. This causes two problems: a. the cost of the food or beverage cost is unrealistically higher; b. because the equipment is given free on loan, the restaurant is paying for a "service" and will never own the asset. This service expense is a controllable expense and not a food and beverage cost. To prevent this kind of problem, the operation must be differently planned from its conceptual stage to the opening stage. Meaning that if the operation is financially sound to start the business based on a given model, the risk is too high, and it should not pursue it.
    a. Compare all outsourced services with competitive suppliers; payroll, communication (telephone, internet, etc.)
    b. Make use of technology to reduce cost (table configuration and reservation system)
    c. Implement and monitor a preventive maintenance program to avoid costly repair cost.
    d. Continuously train and retrain managers and staff.
    e. Constantly monitor, analyze, synthesize, formulate, apply... anything that saves money; however, never cut on quality or cut payroll as an immediate solution.

It is true that if controlling costs were easy, why do so many businesses go bankrupt? The problem lies in finding the equilibrium between the desired profit percentage, ideal cost structure, and revenue maximization. Profit percentage is usually the driver of the business undertaking because it shows the expected return on investment. Although it is common knowledge that percentage cannot be deposited into the bank account, it is used as a measurement tool to analyze the company performance. In simple terms, if a restaurateur has invested $1 Million in a restaurant venture and the return on investment is less than the interest a bank would pay, the investor faces two dilemmas: the ROI is lower, and the million dollars is gone. Therefore, investors must ask the fundamental questions before venturing in the restaurant business:

1. Do I understand the business of a restaurant?
2. Do I understand ***how to control the cost*** of a restaurant?
3. Do I understand pricing and revenue maximization?
4. Overall, do I understand the related disciplines such as finance, marketing, accounting,
    a. and management?

Based on the above principles, one can see that cost control alone cannot score higher profits. If an item's cost is too high, something is wrong with the purchasing, storing, processing, pricing, and merchandising of a menu item. If the food cost is too low, then someone is cutting corners, meaning that portions may be cut smaller, quality may be inferior, specific leftovers may be recycled, and the item may be overpriced. Therefore, an accurate cost control process seeks the balance between revenue, cost, and profit.

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The Cost Control Process

This section provides a general explanation of the control process from ***"managing cost control"*** and not extensively about the cost controller's actual day-to-day function. We will discuss various techniques and issues the foodservice manager needs to be concerned about to maintain his/her operation profitable. The old say is true. it is all about people, our customers" however, what is the point of engaging in the restaurant business, generating millions of dollars in revenue only to see that all the activities produce less profit than a bank would pay on a regular CD saving account.

A graphic representation of a cost control model is presented in Figure 16 to highlight the important cycle of the functions involved in cost control. Figure 16 shows the cost control process, and its functions represent an integral component of money control management in synergy with revenue management. The cost control department's role through the cost controller is to monitor and alert the operation's manager about anything that might deviate from what the strategic plan has set out to achieve. The cost controller usually reports directly to the financial controller and coordinates all accounting functions and activities related to controlling cost together with the personnel in accounting and in operational departments. Earlier in the section, in the paragraph titled *"Working with the Budget,"* we discussed the importance of keeping cost in line in dollars and in percentage. Furthermore, we discussed the month-end report in which all revenues and cost are presented *(See Table 7, Analysis of variances within a revenue period.)*

It is essential to know that when the manager receives the financial information presented in table 7, it may be too late for him/her to take any corrective action if needed. The controller's responsibilities include the daily flash food and beverage cost reports and any warnings the manager can use to ensure everything is well in line with budgetary objectives. Therefore, the supporting role of the cost controller is essential to the food and beverage operation.

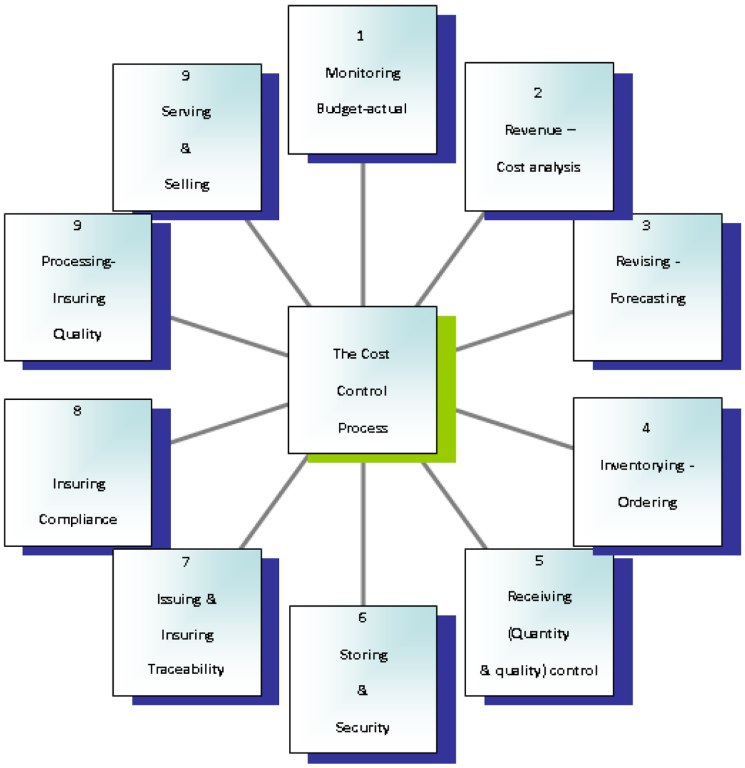
The basic ***tasks of the cost controller***, depending on the type and size of the operation, includes the following:

1. Maintaining cost books as outlined in the policies and procedures manual.
2. Carrying out daily random samples of receiving reports and market lists, investigates quantity and price differences, and reports unresolved discrepancies to the Controller, Chef, Food and Beverage Manager, and anybody responsible for purchases.
3. Updating and distributing purchase price comparisons and sales potential reports as requested by Management.
4. Completing and distributing purchase price comparisons and sales statistics as required.
5. Updating and maintaining production standard worksheets
6. Providing timely month-end accounting information with pertinent observations to enable completion of month-end financial reports
7. Comparing original storeroom requisition against copy from area requisition to eliminate alterations
8. Evaluating Butcher shop requisitions
9. Evaluating inter-kitchen transfer
10. Summarizing beverages for cooking and food to bars
11. Summarizing and reconcile direct food & bar issues.
12. Calculating the cost of staff meals
13. Preparing daily Food and Beverage cost report
14. Providing management with accurate and timely operational cost

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15. Taking physical inventories in the Food – Beverage front-and-back of the house outlets and all food and beverage storerooms
16. Checking any differences between actual physical inventory and book inventory and prepare an over/short report.
17. Pricing, extending, and totaling the storeroom inventories.
18. Summarizing all purchases and reconcile the totals with the cost analysis.
19. Preparing a month-end cost reconciliation for the foods service manager and financial controller
20. Eliminating waste, pilferage, or losses of food and beverage assets in general

Figure 16. The cost control process



1. KEY CONCEPT OF COST CONTROL: WHAT EXACTLY DOES THE COST CONTROL DEPARTMENT CONTROL?

Simply put, the cost control department controls any cost that gives origin to or derives from what we buy to process and resell, what we trade, and the service we provide to patrons. In the absence of any such activities, there would not be a need for a cost-control department as the business would be non-existent. There are several types of cost and cost determinants. Experts continue to argue about the exact classification of certain costs such as variable and fixed, semi-variable, and semi-fixed. Whatever the classification may be, the bottom line will never change; instead, it will only be affected by these costs' size or percentage level. It is common practice to identify the cost determinants first. Then we identify

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the type of cost associated with those determinants, and then we identify the "***subsets of cost"*** referred to as "***variable or semi-variable costs***." Again, it is important to reemphasize that regardless of what attribute we associate with each cost or category, the bottom line will not change. These costs will change according to the external and internal activities that either directly or indirectly affect the deviation from the cost in dollar or in percentage as set in the budget.

2. COST DETERMINANTS

Several factors, mostly extrinsic, affect the cost of goods and services we buy. The ultimate price the customer pays for the product offering in the foodservice industry is dependent on several factors but not limited to the following:

1. Food cost
2. Beverage cost
3. Labor cost
4. Merchandise cost
5. Other costs

In turn, the costs are affected by production, distribution, and other relevant factors driven by the constituent of the food supply chain. Using the food distribution channels as an example, food is produced at farms as a raw ingredient; it is either immediately packaged or processed first and then packaged and then distributed to the end-user through various channels. Every time the food changes hands or is subject to a transformation during the journey, a surcharge is added. All charges from the farm until it arrives at the restaurant affect the cost of food. The major drivers that determine the cost from the point of origin until its destination are generic factors, each with specific relevance that affect the foodservice industry.

1. The volume and volatility of farm production
2. The demand for specific food products
3. Seasonality of production
4. The perishability or shelf life of the product
5. Degrees of vertical integration
6. Trade cost impact
7. The increasing costs of regulatory compliance
8. Increasing safety requirements
9. Technology and innovation
10. Market dynamics
11. Value-chain integration
12. Globalization, specialization, and customization
13. Increasing scale efficiency in quality production
14. The growth of the private quality label in food products
15. Higher demand for healthier products
16. The quest for lifestyle solutions in food
17. Demand for organic and environmentally friendly foods

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18. The zero-mile farm and restaurant concepts

3. CLASSIFICATION OF COST

a. Controllable Cost (Variable and Semi-Variable)

Under the controllable cost, we classify those which the person responsible for it has direct control and uses all techniques, tools, manuals, and policies to ensure that these costs are controlled and are in line with the budget and the strategic plan. The cost can be controlled by using standardized recipes, accurate measurements, accounting for waste, and proper use of by-products. The person responsible for each type of cost must be aware that even if a cost is controllable in theory, it can still fluctuate due to uncontrollable external factors. For example, the banquet department has committed to a wedding price within 6 months, whose main course consists of salmon filet. The wholesale price for a whole salmon gutted head-on was $5.00 per pound for a six lb average weight. These salmon specifications are subject to a 33% trimming loss or a 66% net yield; therefore, the actual price per pound would be $6.65 ($5.00 + 33% make–up cost for trimming loss). Thus, the net weight of the salmon is about 4 lbs. The serving size is 6 oz per serving, yielding about 10 servings per salmon. Each portion's cost is $2.49 (Cost of salmon per pound after trimming $ 6.65 divided by 16 oz (1 pound) times 6 oz, the portion of the filet = $2,49.

What could the chef do if the Department of Fish and Game put a moratorium on fishing, causing the salmon price to inflate to $15.00 per pound? Can the banquet department tell the wedding party that the price will increase? Indeed, it is after a signed contract, and the restaurant is legally bound to it? What can the chef do? About the general manager, owner, etc.? The foodservice industry is extremely vulnerable to these kinds of situations.

Although the food cost, in this case, the salmon, is totally controllable after it has arrived at the restaurant, no one in the food and beverage operation could have predicted the soaring price of the salmon. Now it will be up to the chef, manager, and cost controller to come up with strategies to recuperate this potential loss. However, the cost of the salmon is considered ***fixed cost*** in terms of cost percentage but a ***variable cost*** in terms of dollars. The reason is that when computing selling prices, the cost percentage of the food always remains constant per budget; it is the actual cost of the food in dollars that will increase or decrease according to the portion size being served. Since the salmon filet needs to be cooked and served with a side dish, a garnish, the costs of those complimentary items are ***fixed – variable.*** For example, the recipe calls for a drizzle of emerald oil (extra virgin oil infused with parsley), the chef can modify the recipe to use ½ ounce drizzle instead of one full ounce. This will allow for the cost of the oil per portion to be lower than the recipe states; thus, the cost, although fixed, becomes fixed variable, in this case, ***fixed semi-variable***. Meaning that the emerald oil cost is fixed because it is an integral part of the recipes; however, its quantity used becomes variable. In a different scenario, the chef plans to serve the same salmon recipe as a daily special; however, he/she decides to omit the emerald oil, and then the drizzle becomes a ***variable cost***.

b. Non-Controllable Cost

These are costs for which the management cannot do anything about in tactical terms; however, it can control them long-term. A typical non-controllable cost is the yearly company car lease payment, the

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management fee, the Saturday night entertainment fee for the pianist, or the liquor license insurance liability bond. There are some non-controllable costs that can be controlled if planned well in advance. For example, if the restaurant has planned to have an open kitchen with a visible chicken rotisserie that needs to stay on all night, the cost of running the rotisserie both for the electricity and gas becomes fixed. If the restaurant only sells a few chickens, the entire fixed cost of the utilities will be absorbed by those chicken dishes. The more chickens the restaurant sells, the lower the unit cost of the utilities distributed to each chicken. Thus, the fixed cost of running the rotisserie becomes a variable decreasing cost. This type of cost allocation is referred to as ABC costing (Activity-Based Cost) allocation. Experts argue herewith as to what exactly constitutes a non-controllable – controllable cost? And again, it does not matter because the bottom line will not change. In the scenario above, the cost of the utilities is affected because the management failed to recognize that rotisserie is not successful and should not have been part of the restaurant concept.

c. Fixed Cost (Perpetual Cost)

A perpetual cost is a reoccurring cost with no definite end or a stream of payments that continues forever. For example, a restaurant concept in the Middle East where the annual average climatic temperature in some countries reaches about 90^0 F will be in constant need of air conditioning. The total cost of electricity to power the AC system is a perpetual cost that will be there for as long as the restaurant will operate. The cost will never be reduced; instead, will perpetually increase with national inflation. These kinds of costs cannot be negotiated and cannot be reduced by any tactical or strategic means.

d. Prime Cost

The highest and most significant cost in a foodservice operation is the cost of food and labor. Together these two costs must be kept within the 60% to 65% range to be profitable. They are called prime because, without food, a restaurant cannot serve any food, and whiteout labor cannot produce any food. They are directly related to food production, sales, and profits. In fact, many inexperienced managers immediately attempt to reduce the cost of food and labor during economic downturns. The cost of food should not be reduced by cutting quality and quantity for a higher price because the long-term can have an adverse effect on the operations' profits. Moreover, labor should be one of the last costs to be reduced by terminating employees. In the short run, the cost of termination and hiring new employees may outweigh the savings; however, in the long- run, the management may have to decide on strategies to survive, including staff termination.

e. Product Trade Cost (Transaction Cost)

Food is traded and marketed globally, and variety and availability are no longer restricted by the diversity of locally grown food or the limitations of the local growing season. Many countries are now economically dependent on food exports. This global phenomenon affects the world food prices index and transaction cost, which are non-controllable in a restaurant operation. To reduce this type of cost, the restaurant should rely more on locally purchased products and less on imports.

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f. Inventory, Product Flow, and Measurement Cost

To hold an inventory at an appropriate level, the goods need to be purchased and stored; the establishment needs to determine the basic requirements such as par stock levels, space available, staff requirement, cost of holding inventories, and total investment cost referred to as ***opportunity cost*** or ***cost of capital*** for the entire inventory. The management must consider that the higher the inventory levels, the higher the investment will be tied to the inventory. If the investment is fully paid for, then it will be considered dead capital because it does not earn any interest. It is financed by any form, internally or externally, and then it will subject to an interest charge. The management also needs to estimate cost related to product flow and the control and measurement mechanism.

The typical inventory costs associated with the entire procurement and holding of goods are also referred to as ***carrying costs,*** including purchasing and installing storage equipment, insurance cost, utility cost, and safety and security cost. All cost associated with keeping and running the inventory. To keep the total inventory cost at the minimum, the purchasing department must establish the ***Reorder Point*** (RP) for each item, place orders with the correct amount to keep the flow at optimum performance and must ensure the purchase and delivery of high-quality products with the longest shelf life to avoid spoilage and expiration of the product's life cycle.

g. Realistic Cost

A ***realistic cost*** computation is a "***method for determining the true cost of a product***" using comparative data to conduct the cost analysis. It is used to plan ***realistic cost reduction*** strategies by conducting a definitive comparison of own data set with others from similar operations against the food industry standard average of the foodservice industry. This technique provides realistic parameters for cost-cutting objectives and insight into which products in the category mix are or are not realistic and whether they should be kept or eliminated. It is an additional tool that analyzes the actual operation's cost performance to determine if it is realistically comparable with similar operations and the industry average.

h. Hidden Cost

These are costs that usually do not belong to the category currently carrying them or are cost that the company should not be carrying at all. For example, a supplier offers to buy juice from their new organic products line because they are the latest trend in healthy eating. The commitment is a two-year contract for 100 gallons monthly consumption and a free-on-loan refrigerated juice dispenser. Since the supplying company must buy the machine, it must recover the cost somehow. Therefore, the supplier estimates that selling a minimum of 100 gallons of juice a month with a ***"Hidden Lease Cost,"*** it will make the product attractive, thus recuperating the machine's cost. Several problems occur here. 1. The cost of leasing the machine is embedded in the cost of juice; therefore, the food cost is unrealistic because it contains the cost of an ***FFE (Furniture, Fixture, and Equipment***). 2. The cost per juice unit is higher, and therefore the selling price needs to be set higher, causing the corruption of the total cost mix and sales mix. 3. There will be an income tax implication; the restaurant will be paying for an asset that it will never own for which the cost cannot be depreciated; therefore, their income tax will be higher. 4. The supplier will benefit from the contract in which it has secured a two-year sales contract for which it will own an asset, thus increasing its company's assets value. 5. The agreement is legally binding;

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therefore, restaurant managers and owners should be very cautious in signing such contracts. Even f the restaurant is sold at one point in time, the owners may still be contractually liable for the cost of the lease of the juice dispenser unless a release from liabilities can be negotiated.

i. Opportunity Cost (See Also Cost of Capital)

In financial terms, it means: "The best alternative that is forgone because a particular course of action is pursued." An example is the interest income that is given up when large balances are kept in a checking account. Likewise, purchasing high-quality goods at a better and lower price means that more money is available for other investments, and the dead capital in the storeroom will be lower.

j. Switching Cost

Several studies have been conducted about the topic of switching costs in the foodservice industry. Switching costs are costs a company incurs to develop loyalty programs that affect service and customers' behavior. Switching cost strategy can be expensive at first; however, it does offset the lost performance cost due to less business volume because of a specific cause. These costs are expenses a customer incurs to switch over from one product to another. Companies strategically create high switching costs to "lock-in" customers to generate repeat business. The more customers are locked in, and the more likely a company can pass along added costs without risking customer loss to a competitor. For example, the cost of coupons used to promote sales in restaurants costs the company incurs to promote new menu items to diversify the product and position the product quality or brand in the customers' minds.

k. Sunk Costs

These are "money that has already been committed or spent and can't be avoided or recovered once incurred. Experts argue that sunk costs are irrelevant to decision-making. Only new costs, they say, should be considered. Others argue that sunk costs do indeed affect the bottom line and future decisions. (See Wedding Price Commitment Scenario in **controllable cost** section above.) However, conventional wisdom teaches us to use remedies when discrepancies occur due to uncertain futuristic events. It is argued that the longer the planning range, such as the wedding, the more time will be available to managers to strategize on remedial actions. Meaning that the sunk cost problem has been identified from the time the commitment date, everything could be adjusted, and sunk costs could be eliminated. Nevertheless, when sunk costs occur, strategic decisions must be made:

i. Consider all possible alternatives to recuperate the actual losses.
ii. Absorb the sunk cost quietly to build customer loyalty.
iii. Carefully plan for future events and do not commit prices until it becomes.
iv. Necessary and according to the market conditions.

l. Direct and Indirect Costs (See also Prime Cost)

A direct cost is a cost that can be relatively easily identified with a product or job, e.g., cost of food and labor. Indirect (overhead) cost is a cost that cannot be easily identified with a product or job, e.g., the

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cost of gas and electricity to cook food. ***Activity-Based Costing (ABC)*** is a technique used to allocate indirect costs among the various products in the processing line. However, ABC has been tested in vain in food service preparation, and practitioners argue that it is a compelling task. The reason is that a kitchen chef, for example, is multitasking, and many dishes do not require constant attention, e.g., a roast prepared in a computerized oven does not require the chef's attention at all; in fact, it automatically starts, roasts, and holds the roast until it is ready to be served. This process makes it difficult to allocate labor to a specific product being processed.

Furthermore, while the roast is "processing itself," the chef may have multiple products on the preparation line that may or may not require human attention; therefore, it is difficult to allocate labor costs. ABC costing works well for indirect overhead allocation such as administrative wages and salaries of the Human Resources Department allocated to all departments. Other indirect cost allocations include accounting department labor and all office expenses, telephone, and fax charges, IT charges, etc. However, this technique needs to be controlled because, more than often, cost allocation is overstated and may not allow for a realistic reflection of each department's true performance.

m. Labor Cost

Labor is one of the largest expenses an employer incurs and is a controllable cost if the right tools are in place. In a way, the cost control department is not directly responsible for controlling labor costs and depending on the structure and organization of the accounting department, ***labor cost control*** nowadays can also be outsourced. The payroll is directly tied to the staff work schedule and the number of covers served. Therefore, each department manager is fully responsible for it because they can monitor firsthand how the payroll is performing concerning the revenue. Today's most advanced point of sales systems can tabulate the basic payroll determinants such as an hour worked, breaks, and overtime. However, many small to medium-sized foodservice operations chose to hire payroll companies specializing in restaurant payroll services. They can track hours worked, overtime and provide real-time payroll reports with detailed analysis. They also issue W-2s and provide other services. The data can be downloaded over web-based applications, and reports are provided online immediately after the business day cycle is closed. Automated Time & Attendance and workforce management systems can monitor and produce full payroll reports by clocking-in and-out using Barcode and magnetic stripe time clocks, Biometric hand readers, Proximity time clocks, Palm-PDA, PC Key-in, and Web-based kiosk. There can be many advantages for not processing and controlling the payroll in-house. Time and attendance systems continuously change, just as the business landscape does. Automated capabilities can analyze employee's time spent working on specific duties and time spent on breaks and provide electronic evidence in case of payroll discrepancies.

Tools and Techniques Required in Cost Control Analysis

For the cost controller to perform all duties related to his/her task, the department must provide him/her with all the necessary tools used in preparing analysis, evaluations, and reports. The person holding this position must understand all functions related to cost control and prepare for education, training, and industry experience. Several analytical tools and techniques are presented in Tables 18 and 19. In this chapter, in the section "A refresher course in basic business math" on page 16 above, we have discussed

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Table 17. Analytical tools and techniques presented in this Chapter

Analytical tools and techniques in chronological order as they appear in this Chapter	
Computing percentage	Computing average
Computing moving average	Computing variance and variance percentage
Computing ratio analysis	Computing mark – up
Using sales and percentage variance forecasting methods	Forecasting food and beverage sales as a percentage of hotel rooms sales
Forecasting Food Sales not from rooms	Breakeven Point Formula (BEP)
Profit Target Formula	Cost target formula
Annual rate of return	Future value
Present value	The Economic Order Quantity (EOQ) formula

Table 18. Analytical tools and techniques

Analytical tools and techniques	
The anatomy of the balance sheet and income statement	Equity equation
Solvency	The income statement
Revenues	Total Expenses
Profits	The statement of cash flows
The cash flows from operating activities	The cash flows from investing activities
The cash flows from financing activities	Free cash flow
Liquidity, Profitability, Activity, Leverage, and Solvency ratios	Analysis computation: Vertical, Horizontal
Gross Profit Ratio	Net Profit Ratio
Operating Ratio	Expense ratios
Return on Equity Capital (ROEC) Ratio	Earnings Per Share (EPS) Ratio:
Current Ratio	Acid Test or Quick Ratio
Inventory Turnover Ratio (ITR)	Average inventory
Cost of Goods sold	Accounts Receivable Turnover Ratio
Average account receivables	Fixed Assets Turnover Ratio
Working Capital Turnover Ratio	Debt to Equity Ratio:
Fixed Assets to Proprietor's Fund Ratio	Debt Service Ratio
Under-Capitalization:	Over-Capitalization:
Gross Profit Ratio	Net Profit Ratio
Operating Ratio	Expense ratios
Return on Equity Capital (ROEC) Ratio	Earnings Per Share (EPS) Ratio:
Current Ratio	Acid Test or Quick Ratio
Inventory Turnover Ratio (ITR)	Average inventory
Cost of Goods sold	Accounts Receivable Turnover Ratio
Average account receivables	Fixed Assets Turnover Ratio
Working Capital Turnover Ratio	Debt to Equity Ratio
Fixed Assets to Proprietor's Fund Ratio	Debt Service Ratio
Under-Capitalization Ratio	Over-Capitalization

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Table 19. Statistical tools and techniques

Statistical tools and techniques	
Nominal variable measurement	Interval variables measurement
Ordinal variables measurement	Ratio measurement
Decision modeling	Types and sources of data
Types of statistical analysis	Analysis of guest satisfaction survey
Competitive analysis	Productivity analysis
Product pricing strategy	Restaurant industry ratio analysis
Restaurant guests to hotel guests' ratio analysis	Menu engineering modeling
Beverage sales analysis	Beverage check average
Food check average	Total check average
Gross margin	Net profit
Any cost percentage	Sales variance
Sales variance percentage	Average food inventory
Mark – up	Mark – up percentage

Table 20. Sample beverage inventory evaluation

BELVEDERE HOTEL										
Month-end physical inventory - December 31, 20xx										
Category	**Inv. Ref: #**	**Item Code**	**Department - Outlet**						**Unit cost**	**Total value**
			Lobby bar	**Banquet bar**	**Pool bar**	**Night club**	**Main Store**	**Total count**		
VODKA										
STOLICHNAYA RASPBERRY	1	fb-201	1	0	1	2	2	6	$24.00	$ 144.00
STOLICHNAYA ORANGE	2	fb-202	1	1	1	2	1	6	$25.45	$ 152.70
STOLICHNAYA VANILLA	3	fb-203	1	1	1	1	1	5	$25.45	$ 127.25
STOLICHNAYA BLUEBERRY	4	fb-204	1	1	0	1	0	3	$23.25	$ 69.75
STOLICHNAYA ORANGE	5	fb-205	1	1	1	0	0	3	$23.25	$ 69.75
42 BELOW KIWI VODKA	6	fb-206	1	1	1	1	1	5	$17.59	$ 87.95
ABSOLUT 100	7	fb-207	2	3	1	3	4	13	$24.00	$ 312.00
BELVEDERE	8	fb-208	1	0	0	2	2	5	$35.50	$ 177.50
CHOPIN	9	fb-209	1	1	1	2	2	7	$38.67	$ 270.69
GREY GOOSE	10	fb-210	1	1	1	2	2	7	$33.25	$ 232.75
KETEL ONE	11	fb-211	1	0	1	2	3	7	$26.00	$ 182.00
TOTAL VODKA			**12**	**10**	**9**	**18**	**18**	**67**		**$ 1,826.34**

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several formulas and techniques used in cost control and statistics to produce analysis, evaluations, various reports, and forecast computation techniques, and are summarized on Table 17.

This section presents additional formulas and techniques used in cost control from a management perspective to let the student/manager have a clear vision of how those formulas and techniques are used and applied to prepare periodical reports for the foodservice manager.

Cost Control Analysis, Evaluations, and Reports Preparation, Performing an Inventory Evaluation

Table 20. shows the month-end inventory evaluation for the beverage category. The inventory summarizes the physical count of all goods in all outlets and the storeroom. It shows the unit cost, the extensions, and the totals as items count and in dollars.

The same format is used for all food and beverage inventory categories, including merchandise, office and maintenance supplies, etc. This is the first step in reconciling the month-end total activities; compute food and beverage costs and prepare preliminary reports for inclusion in the financial report.

Computing the Cost of Food and Beverage From Inventory Usage

Table 21. shows the "End – of – Period" Food and Beverage Actual Cost Computation; however, the actual cost of food and beverage can only be computed if:

1. The ***physical inventory*** for the end-of-period has been taken.
2. All ***deliveries*** have been entered into the inventory.
3. All ***issues*** have been totaled.
4. All in-and-out ***transfers*** have been reconciled.
5. The cost of ***employee meals*** has been credited.

Table 21. "End – of – Period" Food and Beverage Actual Cost

Food and beverage cost computation for the month ending December 31, 20xx (31 days)	
Beginning inventory value	100,000
+ Purchases value	120,000
= Food and Beverage value available for sale	***220,000***
- Ending inventory value	75,000
= Value of food and beverage cost consumed	***145,000***
- Value of Transfers Out	-2,000
+ Value of Transfers In	3,000
- Cost of Employee Meals/Beverages	-9,000
= Net food and beverage cost sold	***137,000***

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The same procedure is used in computing ***any cost of sales*** such as beverage only or merchandising such as T-shirts, Cookbooks, Memorabilia, etc. Many factors affect the food and beverage cost in dollars. One factor is the inventory level. Buying the right amount at the right time at the right price will keep the inventory at the ideal cost-saving level. The lack of balanced inventory levels identifies two problems: overstocking and understocking. Which one may be classified as the worst needs to be determined in a case-by-case situation?

However, carrying excess food and beverage inventory ties up cash and can lead to excessive waste and spoilage. Also, employees tend to become wasteful when there is excess inventory. Overstocking appears to outweigh the benefits of understocking. A restaurant that carries overwhelmingly fresh food does not worry because guests are aware that a fresh market item efficiently runs out of inventory. After all, it is in limited supply. Restaurants that carry overwhelmingly standardize foods cannot lose sales because items are out of stock due to wrong inventory levels.

The best way to determine accurate inventory levels is a two-step process.

Accurate inventory levels and the right product mix will tell the number of days the inventory will last. This will depend on the daily average of product quantity used for the day. This usage will also determine the cost of food and beverage sold.

Computing the *"number of days of inventory"* lasts. To do this, the following information is required:

1. Historical ***average daily food cost***
2. Number of ***days in a period***
3. ***Ending inventory*** value

STEP 1

Computing ***Average Daily Food Cost*** using the information in table 21:

$$\frac{Food\ and\ Beverage\ Cost(\$137{,}000)}{Average\ Daily\ Food\ Cost(\$4{,}419)}\ Number\ of\ Days\ in\ Period(31)$$

STEP 2

Computing ***"number of days of inventory."***

$$\frac{Ending\ Food\ Inventory(\$75{,}000)}{Average\ Daily\ Food\ Cost(\$4{,}419)} = 16.97\ number\ of\ days\ of\ inventory$$

Accordingly, the ***inventory will last 16.97 days, rounded down: 16.00 days.***

The example shows a non-realistic ***"number of days of inventory"*** because, on average a restaurant that serves mostly fresh food, the inventory lasts up to a maximum of 7 days. This means that the entire stock rotates "turns over" weekly.

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Computing cost of food and beverage as a percentage of sales
The formulas used to compute any cost percentage in relation to sales is:

$$\frac{Part(cost)}{Whole(sales)} = Percent$$

This formula can be used to compute any cost of sales percentage in the income statement.
Example total cost computation using the total cost and sales in Table 22.

$$\frac{\$58{,}785}{\$193{,}950} = .03031 \; or \; 30.31\%$$

Cost target formula
Sales x target cost percentage
Cost target computation using the food sales and percentage in Table 22.
Food Sales $60,750 x 30% food cost percentage = $18,825 **Target cost**

Computing Cost and Selling Prices

With the evolution of technology and new marketing tools available, the costing of recipes and setting of selling prices can be done more effectively than when all of this was done by hand. Up to the early 90s, it took months to plan a new menu, get it printed, and launch it. Often, the sales mix included items that were priced either too low or too high, and because of the high cost of printing a menu, the prices could not be changed; they were adjusted by promoting daily specials. Low-priced items caused food costs to increase and be over budget, and high price items did not sell. With the help of computerized programs, the food service manager and the chef can prepare menus, costing, and pricing and can change them with the famous "click of a mouse." The following scenario shows how one recipe template can replace hours of manual work with extreme efficiency. For this exercise's purpose, the scenarios below emphasize more on the techniques, costing, and pricing and less on the content or the quality of the recipe.

A program that can pull all information from various data sources into one template allows the chef and the cost controller to finalize recipes with proper costing and selling prices in a fraction of the time it took decades ago. Regular Microsoft Office software such as Excel and Access can handle such tasks. Setting up an ideal selling price structure to meet the desired budget, achieving the desired revenue, and keeping the cost percentage at the ideal level involves several factors. One must not consider target sales, cost, and profit as per budget alone because, as explained earlier in the chapter, budget is just a "wish"; *"it is an estimate of income and expenditure within a time period."* Other factors that affect pricing are tactical and strategic. Others consider strategic marketing, competition, the state of the economy, and unexpected events such as the so-called "Acts of God" that can affect crops, animals, and the environment in general. The first scenario below shows a standard recipe with costing and selling prices. In an operation where the management enjoys the availability of supporting departments staffed to capacity, the process of costing and setting prices would be as follows:

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Table 22. Sample computation of food and beverage cost in a spreadsheet

Item #	Sales mix	Food Sales	Beverage sales	Total sales
1	Sales	$60,750	$133,200	$193,950
2	Cost of sale in dollar	$18,825	$39,960	$58,785
3	Cost of sale in percentage	30%	20%	30.31%

1. The food and beverage team discusses strategies for a new menu or the change of only a few new menu items.
2. The executive chef develops ideas for the menu based on creativity, dining trends, product availability, seasonality, price index, customer behavior, market trends, sales history, forecasting, and popularity index of menu items that should always be included in the menu. For example, some argue Americans are meat-eaters; therefore, a steak must always be included in any menu. Steaks have always been popular, even if not prepared from red meat. In many instances, the food and beverage team consider these factors as well.
3. The chef proposes the menu to the team.
4. The team agrees, and the chef prepares the recipes.
5. The cost controller will cost out the recipes and makes several selling price suggestions, which will be based mostly on the target budget cost but also on marketing factors such as competition, consumer behavior, product positioning, and other factors.
6. The executive chef reviews the cost and prices and meets with the food and beverage team to finalize the menu.
7. The chef will prepare all new dishes according to the recipes and arrange for a "test tasting" for all involved.
8. The critique will be summarized, and the recipes will be adjusted for ingredients and taste, cooking efficiency, possible wine pairing, and service instruction.
9. The cost control will revise the cost and prices and submit them to the foodservice manager and financial controller for revision and final approval.
10. The purchasing department will be informed of the dishes and the product requirement.
11. The food and beverage team and marketing team will decide on the date when to launch the new menu.
12. Following the launch, the sales and cost mix will be analyzed daily, and suggestions for improvement will be considered.
13. Possible changes in the menu and dish preparation may require additional costing and pricing revision.
14. Finally, the menu is fully in place, hopefully producing higher revenues, higher guest satisfaction, and higher profits.

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The Importance of Standardized Recipes in Costing and Pricing of Menu Items

Appropriate control in balancing the required sales with the ideal food cost is through standardized recipes and using ***recipe cost cards***. Since restaurants no longer use manual cost cards, computerized recipe costing worksheets are used to record recipes for costing, pricing, and sales analysis. Table 23 shows a typical ***"Recipe Costing and Pricing Worksheet."*** The excel template contains formulas linked to a database that stores products ***as purchase*** **(AP)** prices, yield percentage, number of servings per recipe, total cost, and portion size. In this scenario, the cost percentage has been assigned a range from 20% to 38% at 2% percent increment in each line. The reason for using a range is that many dishes have a very low-cost factor, while others have a high-cost factor. The cost controller has programmed the costing and pricing to be automatically computed. Once the cost and prices of all recipes on the menu have been finalized, the average cost and sales mix will be computed.

In this costing and pricing sample, the management considered all 14 factors described above and decides that due to the location and the few competitors in the area, the ideal price for a "Beef Brochette" should be $ 22.00, which carries a 26% food cost. Using the actual historical food cost percentage of 30% from Table 22 as the base, the potential cost-benefit could be +/- 4% points.

However, even if the planned cost has been set at around the desired percentage of 26%, the actual cost computed after the sales have happened may be different. This is due to the actual sales mix, which will change according to each item's amount. Table 24 shows a sample of weekly beverage sales and cost analysis.

The above ***analysis*** depicts a scenario for analyzing beverage sales and for establishing future ***costing and pricing***. The ***sales mix*** shows a significant negative variance in liquor and cocktail sales, which have a low-cost factor. Although wine shows a positive variance, it has a ***high-cost factor***. This variance could mean that the bar staff cut down on portion servings to save costs. Not a good tactical move since patrons could notice the difference in the quantity and poor taste of cocktails. Note that because of the low alcohol and liquor sales and the higher wine sale, the overall beverage. The ***Cost Mix*** has increased by a .09% point. It appears to be minimal; however, consider .09% of $1,000,000 in beverage sales, the potential loss in departmental profit would be $90,000. If this problem existed across 10 units in the corporation, the loss would be close to $1,000,000. In sum, an immediate ***tactical corrective action*** would be to maintain the present high wine sales; however, the service staff should make sure to upsell cocktails and liquor when wine sales occur. Bar staff must also be told that cutting down on quality will affect customer satisfaction and sales volume. With the existing and future technologies available, the ***cost control department*** can program these types of reports to be generated on demand. It can assist the manager in improving future results.

Mark-Up Costing and Pricing Methods

This method is ideal in costing and pricing menu items on demand, such as market-fresh fish, or meat sold by weight any size instead of a fixed portion size.

Mark-Up Formulas

Mark-up = Sales-Cost

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Table 23. "Recipe Costing and Pricing Worksheet"

RECIPE COSTING WORKSHEET				**RECIPE NAME:**	**Beef Brochette**			
TOTAL YIELD IN LBS-VOL:		6.38				CATEGORY:	MAIN COURSE	
PORTION SIZE:		0.750				DATE:	April 20, 20XX	
NO. OF SERVINGS:		8.5				CHEF:	John Last	
QUANTITY		UNIT OF MEASURE	GIV E FORMULA	INGREDIENTS	EP VALUE=(AP-LOSS)	TOTAL YIELD (weight or volume)	UNIT COST IN $	EXTENDED COST
1	6.25	LB	6.25	BEEF TENDERLOIN TAIL X 1" CUBE	0.75	4.69	$4.50	$ 28.13
2	2	OZ	0.13	GARLIC CLOVES MASHED	1	0.13	$0.03	$ 0.06
3	3	OZ	0.1875	SALT	1	0.19	$0.01	$ 0.03
4	2	OZ	0.125	PAPRIKA	1	0.13	$0.28	$ 0.56
5	0.25	OZ	0.25	GROUND BLACK PEPPER	1	0.25	$0.01	$ 0.00
6	16	FLUID OZ	16.00	RED WINE	0	0.00	$0.35	$ 5.60
7	2	EACH		BAY LEAF	1	0.00	$0.01	$ 0.02
8	1	tsp		THYME DRY	1	0.00	$0.05	$ 0.05
9	10	EA-110 CT	1.00	BAKED POTATOES	1	1.00	$0.35	$ 3.50
10	10	PORTION		GRILLED ASPARAGUS	0.75	0.00	$0.95	$ 9.50
	10	oz		Shorttening allowance		0.00	$0.10	$ 1.00
Comments				Total yield in Lbs-Volume		6.38		
				RECIPE COST				$ 48.45
				PORTION COST				$ 5.70
				Desired percent	Proposed selling prices			
				20%	1			$ 28.50
				22%	2			$ 25.91
				24%	3			$ 23.75
				26%	4			$ 21.92
				28%	5			$ 92.53
				30%	6			$ 19.00
				32%	7			$ 17.81
				34%	8			$ 16.76
				36%	9			$ 15.83
				38%	10			$ 15.00
				SELECTED SELLING PRICE				$ 21.92
				SELECTED PRICE ROUNDED UP				$ 22.00
				FINAL COST PERCENTAGE				25.91

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Table 24. Sample weekly beverage sales mix and cost mix analysis

BLUE MOON TAVERN AND BAR BEVERAGE PRICING AND SELLING STRATEGY														
SAMPLE WEEKLY BEVERAGE SALES MIX AND COST MIX ANALYSIS														
BUDGET					ACTUAL				VARIANCES					
Beverage Sales Category	Budget Cost % Per Category	Budget Sales In $$	Category %	Budget Cost In $$	Actual Sales (From Sales Report)	Category %	Actual Cost In $$	Actual Cost % Per Category	Sales Variance In $$ (-) (+)	Sales Variance In % (-) (+)	Cost Variance In $$ (-) (+)	Cost Variance In % (-) (+)	Cost % Per Category Variance	Category % Variance
Liquor	15	1000	0.21	150	800	0.14	108	13.5	-200	-20%	-42.0	-0.28	-1.5	-0.07
Cocktails	10	500	0.11	50	300	0.05	33	11	-200	-40%	-17.0	-0.34	1.0	-0.05
Wine	40	2000	0.43	800	3000	0.53	1350	45	1000	50%	550.0	0.69	5.0	0.10
Beer	25	1000	0.21	300	1300	0.23	416	32	300	30%	116.0	0.39	7.0	0.02
Non-Alcoholic	10	200	0.04	20	300	0.05	24	8	100	50%	4.0	0.20	-2.0	0.01
Totals	**100**	**4700**	**100%**	**1320**	**5700**	**100%**	**1931**	**109.5**	**1000**	**21%**	611.0	**0.65**	9.5	
Average	**20**							**21.9**		**4%**		**0.13**		

Mark-Up Percentage = Gross Profit/Cost x 100

Example Costing and Pricing

Data

n. Cost of an 8 oz steak = $6.00 Edible Portion (EP) uncooked
o. Cost of 1 oz steak = $.75 (EP) Uncooked
p. Selling price of a steak at 30% cost = $6.00/30 x 100 = $20.00

Computation

- Mark-up = (sales – cost) = ($20.00 - $ 6.00) = $14.00
- Mark-up % = $14.00 / $ 6.00 x 100 = 233%
- Test: $6.00 + 233% = $20.00 (+/-)

Exercise

Q. A guest wishes to order a 14 oz steak grilled rare; what is the selling price based on the above data?

A. 1 oz steak = $.75 x 14 = $10.50
Cost of a 14 steak $ 10.50 + 233% = $35.00 +/-

Test it

(Selling price – cost) = mark-up ($35.00-$10.50) = $24.50

Mark-up /cost x 100 = mark-up percentage ($24.50 / $14.00) x 100 = 233%

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Yield Formulas and Terminology

These abbreviations are used in purchasing and cost control. The most used abbreviations are AP (As Purchased), EP (Edible Portion), APP (As purchased Price), and EPC (Edible Portion Cost). Other terms are listed in the legend below.

1. P - Price
2. I - Inventory
3. C - Cost
4. S - Size
5. N - Needed
6. W - weight
7. Y - Yield
8. I - Inventory
9. CL - Cooking loss
10. AP - As purchased
11. AP - As purchased
12. AN - As needed
13. EP - Edible portion
14. EI - Edible inventory
15. ASP - As Served Price
16. PD - Portion divider

Yield formulas are used to compute net yields by separating trimming from raw weight and in pricing edible portions of food served. Purchasing literature provides information about products' yields, which are necessary for computing Edible Portions' cost (EPC). Many operations that use portion-controlled purchasing systems do not use yields because, as stated, everything they process is already portioned. Although this system may serve standard portion sizes, it may not be the ideal system in fine dining where the chef needs portion flexibility. For example, two guests order filet mignon. The standard portion size is 8 oz. However, one guest wishes to have it cooked well done and the other rare. When these two filets are served using portion control, one will look very petit on the plate and the other much bigger. The well-done steak has lost all its water content, and the size shrank to a small filet. If a yield purchasing system is in place, the chef could adjust both filets' weight to give a different eye appeal on the plate. The rare filet would be cut in a 7 oz size and the well done in a 9 oz size. Agreeing that this may cause an ethical issue, it is a technique frequently practiced in the industry. Although yields are readily available, many operations with a yield system in place regularly perform ***"Butcher's Tests."*** These tests reassure the cost controller and the chef that not only are the yields accurate, but the portions are cut the right size as per menu specifications.

When Performing Butcher's Tests, the Basic Yield Formula Applied is

Raw weight – trimmings = net weight

E.g.:

Raw asparagus: 5 pounds – minus trimmings: 1 pound = net weight 4 pounds

Yield percentage = net weight 4 pounds / raw weight 5 pounds = 80%

Trim weight percentage = trimmings 1 pound / raw weight 5 pounds = 20%

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Steps to compute edible portion cost (EPC) and selling price

Formula = PP / Yield % = EPC

Using a 10 lbs whole salmon (AP) as an example, we follow these steps:

1. A (AP) 10-pound whole salmon yields 66% net weight or 6.6 pounds or 105.6 oz (6.6 x16)
2. Cost of a 10-pound whole salmon at $5.00 per pound = $50.00 / 66% yield = EPC (whole) $75.75
3. Portion serving size = 6 oz
4. Total servings = 105.6 / 6 = 17.6 (17.0 rounded up)
5. EPC per pound = $75.75 / 6.6 pounds = $11.48
6. EPC per oz = $.72
7. EPC per serving = 6 oz x $.72 = $4,32
8. Selling price at 30% cost = $4,32 / 30 x 100 = $14.40
9. ASP As served Price = $14.00

The same procedure can be used for any product that carries a loss from trimming. Whether the yields are obtained from the literature from the butcher's test, they are the major component and determinants of food cost and prices. The Chef and the cost controller must work toward the common goal of controlling not only what comes in and goes out, but how much comes in and goes out.

A chef should always look at the plates coming back from the dining room; if there is food left on it that the guests did not eat, that could be an indication that portion control needs to be checked. Table 25 shows other formulas used in cost control to compute yields when performing butcher's tests. These formulas are applicable to both fish and meat products that carry a loss/trim factor.

Table 25a. Cost control formulas for meat and fish yield

BASIC YIELD PERCENTAGE	REMAINING WEIGHT / ORIGINAL WEIGHT X 100
AGING YIELD PERCENTAGE	WEIGHT AFTER AGING / WEIGHT BEFORE AGING
LIVE YIELD PERCENTAGE	USABLE WEIGHT / LIVE WEIGHT X100
BONING YIELD PERCENTAGE	BONELESS WEIGHT / BONE-IN WEIGHT X 100
EDIBLE YIELD PERCENTAGE	EDIBLE WEIGHT / AS PURCHASED WEIGHT X 100
COST PRICE COMPARISON /ADJUST.	AP PRICE / YIELD PERCENTAGE X 100
COOKING YIELD PERCENTAGE	WEIGHT AFTER COOKING / WEIGHT BEFORE COOKING X 100
SERVING YIELD PERCENTAGE	SERVING WEIGHT / WEIGHT AFTER COOKING X 100
TOTAL YIELD PERCENTAGE	SERVING WEIGHT / AP WEIGHT X 100
FULL TRIM YIELD	FULLY TRIMMED MEAT / AP MEAT X 100
PARTIAL TRIM YIELD	PARTIALLY TRIMMED MEAT / AP MEAT X 100
TRIM LOSS PERCENTAGE	(FAT + BONES + TENDONS +SKINS) / AP MEAT X 100
USABLE TRIM PERCENTAGE	USABLE TRIM / TOTAL TRIM
NEW FABRICATED COST PER POUND	COST A P / YIELD PERCENTAGE X 100
NEW FABRICATED COST FACTOR	NEW FABRICATED COST / AP COST
PORTION	PORTION DIVIDER - FACTOR (TOTAL WEIGHT / # OF SERVINGS)

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Controlling the Cost of Labor

Labor cost control is very is critical since the labor expenses represent approximately one-third of revenues. In this part, we discuss the actual cost of labor related to the percentage of sales and productivity. Labor force planning, turnover ratio, attrition rate, and other human resources issues are discussed in Chapter 3, Human Resources. It is essential to emphasize that if the highest costs of running a restaurant, being labor and food costs, are not efficiently controlled, many extrinsic factors beyond the manager's control can affect the size of the payroll. For example, when hiring an hourly paid employee, it is not enough to control the hours worked only and ensure that the employees do not work overtime. The employer is also responsible for many other payroll liabilities beyond the total hours on the work schedule. The responsibility includes payroll taxes, which continue even after paychecks have been issued to employees.

The company is also responsible for paying the employer's share of payroll taxes, depositing tax dollars withheld from the employees' paychecks, preparing various reconciliation reports, accounting for the payroll expense through their financial reporting, and filing payroll tax returns. Moreover, worst of all, the employers do not get compensated for doing government work. Labor legislation frequently changes as more dispute cases become law. In foodservice, it is essential to control labor hours and productivity and the overall labor cost. Some argue that instead of hiring one full-time person for an 8-hour shift, it would be less costly to hire two part-time employees at 4 hours each because the productivity is high. This is arguable because the cost associated with hiring 2 employees may be far higher than hiring one; even the hourly productivity may be higher. When considering hiring cost, training, uniforms, benefits, loyalty to the job, and possible higher turnover, it may be wiser to hire one full-time employee. These thoughts, however, cannot be generalized across the foodservice industry as each situation is different. Employers are responsible for paying their contribution of payroll taxes; this is beyond the regular labor hour cost that incurs during operating hours. These payroll taxes are an added expense over and above the expense of an employee's gross pay. The employer portion of payroll taxes includes the following taxes (Note that because of the ever-changing employment legislation and tax codes, actual percentages have been excluded from the list below):

1. Social Security taxes
2. Medicare taxes
3. Federal unemployment taxes (FUTA)
4. State unemployment taxes (SUTA)
5. Federal Insurance Contributions Act. (FICA) taxes
6. (Other deduction according to new State Laws and Federal Regulations like health care)

The FICA tax consists of both Social Security and Medicare taxes. Social Security and Medicare taxes are paid both by the employees and the employer. Both parties pay half of these taxes.

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Labor Cost Determinants

Payroll costs are determined by several factors:

1. The hourly rate of pay
2. The level of employer voluntary benefits
3. Statutory benefits
4. Employee productivity
5. Unforeseen circumstances

While factors 1, 2, and 3 above are essential in controlling labor, a key factor for the cost controller is ***productivity***. Employee productivity is important because it defines how much an employee accomplishes for each hour he/she is paid to do the work. Restaurant operations are continuously challenged and find it difficult to achieve optimum productivity due to the fluctuating business volume. Therefore, the management needs to pay special attention to this critical area. Employee productivity has attracted many scholars who have researched and published extensively in the quest to find a solution with labor cost and productivity.

Productivity can be negatively affected by many factors, some of which are controllable by management:

1. Fluctuating daily volume of business
2. Size of the menu
3. Lay-out of the facilities
4. Unsafe workplace
5. Inexperienced workforce
6. Lack of training
7. Low work moral

Payroll costs can be reduced if productivity can be increased. By reversing the effect of the above factors, the productivity would greatly improve. Although the cost controller can play a vital role in identifying problems by preparing reports with suggestions for improvement, management's responsibility is to make decisions. The management's ability to make continuous changes to reduce labor costs as a percentage of sales to improve productivity will be conducive to optimizing profits as well. This technique can also be used to compute productivity from a labor cost point of view. Often productivity is not the function of the employee but a function of the management to let the employee perform to the optimum level. Figure 17 shows a pizza delivery productivity analysis highlighting the highest productivity by delivery and shift hours. These types of analyses too can be run by the manager on demand as it is required. The cost controller's role would be to flag any shortcomings and make suggestions for improvement.

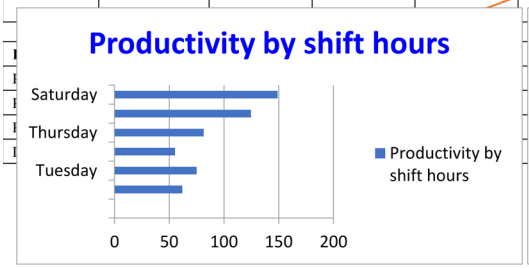
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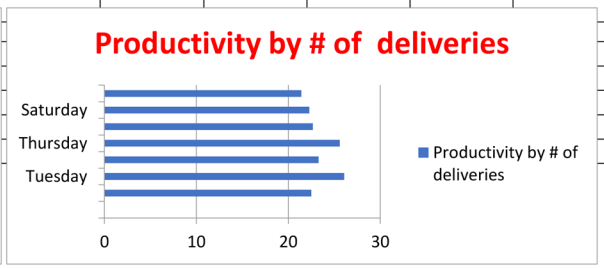
Figure 17. Pizza delivery productivity analyses

Pizza delivery productivity statistics

Legend: collect data over a 7 day period using the technique of "Count Data".

		Factors						Productivity analysis		
Number of days	Week days	Daily shift hours: 2 shifts x 8 hours	Miles driven	# of deliveries	# of pizzas delivered	Pizza unit selling price in $$	Total revenue in $$	Productivity by miles	Productivity by # of deliveries	Productivity by shift hours
1	Monday	16	130	44	66	15.00	990.00	7.615	22.50	61.88
2	Tuesday	16	140	46	80	15.00	1200.00	8.571	26.09	75.00
3	Wednesday	16	100	38	59	15.00	885.00	8.850	23.29	55.31
4	Thursday	16	148	51	87	15.00	1305.00	8.818	25.59	81.56
5	Friday	16	230	88	133	15.00	1995.00	8.674	22.67	124.69
6	Saturday	16	280	107	159	15.00	2385.00	8.518	22.29	149.06
7	Sunday	16	80	28	40	15.00	600.00	7.500	21.43	37.50
	Grand totals	112	1108	402	624	15.00	9360.00	8.448	23.28	83.57





Other Scenarios of Productivity Computation

Sanitation Associate Productive Analysis in the Dishwashing Department

If a 100-seat fine-dining restaurant performs at 80% average capacity for each meal period, then the total number of tabletop utensils used by dining room guests would be (45x80 = 3600); this is without taking into consideration all kitchen utensil, tools, and equipment. Hypothetically a double rack automatic dishwasher running a 5-minute wash cycle to wash 50 pieces of utensils would require 6 hours of continuous cycles to wash all dishes.

Sample Dishwasher Productivity Computation

(3600: 50) = 72 x 5: 60=6

Where:
3600 is the number of restaurant utensils to be washed for a meal period
50 is the number of utensils washed per cycle
5 is the running time of each wash cycle
60 is how many minutes are in an hour

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Since the sanitation department also washes kitchen utensils, tools, and equipment, a second dishwasher would be required. Thus, to forecast the number of dishwashers needed, we would use the number of wash cycles at a capacity of 50 pieces of tableware for each wash cycle as a factor. In the above scenario, we can assume that the restaurant needs 2 dishwashers for each shift for an estimated 8 hours per shift. A shift may consist of 2-hour work before the meal period, 3-4 hours during the serving period, and 2 hours after the meal period. Once the number of employees required for a specific job for each shift has been determined, we need to compute how many days a year these hourly paid employees actually work (See also table 27). In this scenario, we need 2 dishwashers for each shift/meal period or 4 for each day.

Table 25b. Computing number of days employees do not work

	Days employees *do not work* in a year period	**Number of Days**
i.	Statutory holidays	6
ii.	Days off a year	104
iii.	Workdays vacation	5
iv.	Days sick leave	7
v.	Total days	122
vi.	Total days employees are available for work	243

Computing the number of employees to be hired for the 4 dishwashing positions available

$$\frac{4}{243} \times 365 = 6$$

Where:

4 is the number of dishwashers needed to cover 2 meal periods each day

243 is the number of days each employee is available to work

365 is the number of operating days of the restaurant

6 is the number of employees to be hired**

**Note: the 2 extra dishwashers will replace the 4 dishwashers needed during all their time off.

Computing Full-Time Equivalent (FTE) Labor Cost

FTE or "full-time equivalent" is a statistical technique for calculating labor measurement. It is applied to distinguish between full-time employees and part-time or (***full-time equivalents***). The number of FTEs is related to a threshold in the number of worked hours per week/year. An employee working more

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than the threshold number of hours is counted still as one FTE. Persons working less than the threshold are accounted for as a proportionate percentage of an FTE. The technique may focus primarily on the time-based approach and not the income-based approach. Therefore, assessing the level of income per employed person or FTE may only be considered a complementary analytical indicator.

Example

If the restaurant employs 50 full time (working 40 hours a week) and 16 part-time associates (working 20 hours a week), the formula to calculate the total full-time employees on the payroll, including the **FTE's** is as follows: 50 + (16x20)/40 = 58

Computing FTE for Salary and Annual Leave

The establishment must define or follows the law what a "full-time" employee is, meaning how many hours he/she works and what the benefits entitlements are. Assuming that an employee is considered full-time when working 37 hours a week, the part-time employee would, by definition, work less than 37 hours. Hence, for an employee working 18.5 hours a week, per week for 52 weeks, the FTE would be calculated as follows:

$$\frac{18.5}{37} = 0.5FTE$$

0.5 x Full time salary = Pro-rated salary

0.5 x Annual leave entitlement = Pro-rated annual leave

Employees' Scheduling

Payroll control starts with the proper scheduling of staff. A restaurant schedule is essential to the restaurant operation. The schedule will define which employees will work what shifts; the schedule is an essential tool to complement the efforts in generating daily sales. It is the tool to control labor costs and ensure that the operation is adequately staffed to give the workforce support needed in each department. Adequately staffing a restaurant requires skills. Many managers describe the task of scheduling as one of the most challenging of their overall responsibilities. A staff schedule needs to reflect the business needs first. This includes the quality of service given to patrons and keeping labor costs under control and in line with the budget. However, the foodservice business's nature requires many operations to hire both full-time and part-time staff.

It is common knowledge that a part-time employee may be less dedicated to work because it does enjoy the full benefits of a full-time employee. In case the part-time employee has a second or third job, he/she will be more dedicated to the job that requires less from him/her, thus giving them the highest reward. After all, labor, seen from an employee's point of view, is an investment. Part-time employees may use temporary employment as a lifesaver or to earn extra money during the holiday season or to pay – off a debt. This may cause a high staff turnover with all kinds of consequences. Therefore, the manager

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in charge of scheduling always needs to have a plan "B." In other words, it needs a contingency plan with a list of highly trusted employees that will fill-in the needs of the operation should the need arise.

Part-time employees are known not to show up to work more frequently than full-time employees for the same reasons highlighted above. It is detrimental to the operation when it is understaffed. Guests will not, and they do not need to understand why a restaurant is understaffed. Consider that after all efforts being made to bring a guest into the restaurant, the guest feels dissatisfied because the restaurant is understaffed because of an inadequate level of service quality, it will cause a negative image in the long run. As a result, managers have the tendency to overstaff to make sure they have the right level of staff to operate efficiently.

Overstaffing the restaurant may assure optimum level of service; however, it can cause labor costs to reduce profits. On the other hand, managers are tempted to understaff as viable alternative to save on payroll. This tactical solution can lead to employee burnout and a lower standard of service. In the end, the benefits of saving on payroll by understaffing may abuse harms to the business in the long run. Finding the balance and the ideal staffing levels requires skills and experience through practice. The ideal staffing level will also depend on the quality of employees that have been hired, the standard of the restaurant operation, and the quality of patrons, the flexibility of the budget, and other factors. Practitioners learn the hard way because there is no literature that can provide a perfect tool for proper scheduling. And because every operation is very different from another, even if it is the same size and layout of the building within a franchised operation, there always are differences in the demographics, in the location, type of guest, and other influential factors.

Tools and Techniques for Creating the Ideal Schedule

First, consider all the tools available and the information needed. A simple schedule is always the best. The most important information is the business projection in terms of the volume first, meaning the number of guests to be served and the dollar. It is essential that every job during every shift be staffed adequately. Also, keeping in mind the difference between hourly paid employees and salaried employees. The basic difference is that a salaried employee is not replaceable. This means that a manager is late for work or needs to temporarily step out of the operation; the operation can still perform without the manager. However, if an hourly paid employee, e.g., a cashier, is not at the cashier's desk, the guest cannot pay the bill; therefore, that cashier's job depends on being continuously staffed. That is why it is a "replaceable position, while the manager's position is not.

In preparing an ideal schedule, the manager needs to have information about the following:

1. The staff available according to the type and number of staff on the payroll, e.g., full time. Part-time etc.
2. The Sales projections for the period, week, month
3. Sales history
4. The payroll budgets
5. Any other analytical data
6. The list of employees on sick leave, maternity-paternity leave
7. The list of employees available to work only during a specific shift
8. List of employees who are cross trained to perform multiple jobs

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9. In some occasion the gender is required; (many hotels do not like to schedule female employees during the night shift to workroom service delivery for obvious reasons)
10. The age of the employees who may need to be scheduled to serve alcohol
11. The list of employees who are disabled
12. The list of employees who need childcare
13. List of employees on vacation or who will take a vacation
14. List of employees' requests for a special day off, for doctor's appointments, etc.
15. In some cases, the weather forecast depending on the location of the business
16. Transportation schedule if employees need to be transported from and to work
17. Seniority list if the operation has an organized labor force (although this is recommended to be considered even in non-organized operations)
18. Any other vital information that may be uniquely helpful depending on the operation

Make use of the Technology Available

As explained earlier in this section, modern technology simplifies the process of scheduling, allowing for daily and weekly labor cost computation either in-house or outsourced. These technologies can integrate work schedules with sales projections and labor budgets. It can monitor all staff activities from clocking-in and out to take breaks, how long has a guest check been open, entire productivity by the hour, by shift, by table, by section, and much more.

Make use of Predictive Analytics Techniques

Besides the so-called Murphy's Law than anything that can go wrong may go wrong, managers must consider that what happened in the past could reoccur in the future. For example, if the Thanksgiving brunch was overstaffed the previous year due to fewer covers served because of rain, the manager can consider this probability for the next schedule. When preparing the schedule for the next Thanksgiving, the staff will be advised whether they are required to work or not, depending on the weather forecast. After all, the manager's goal is to schedule a well-functioning operation with the best financial results.

Respecting Employees When Scheduling

Make sure all employees receive enough hours so they will not look for another job. If possible, do not schedule staff on split shifts, nor back-to-back shifts, nor give split days off. Keep in mind that scheduling is regulated by law, e.g., there must be enough break time between one shift and another. In some cases, traveling to and from work is also part of the shift break. Many managers have mastered their staff schedules in a way that is unprecedented in the foodservice industry. They have been able to promise and give weekends off every so many periods according to the number of staff on the payroll. This raises employees' morale, gives them a sense of care, and they can spend time with their families or friends or simply go away for a weekend. These innovative ways to schedule employees have reduced labor cost, reduced payroll, and have increased customer satisfaction.

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The Schedule as a Means of Communication Between Managers and Employees

Work schedules must be prepared according to the company's policies and procedures and according to the labor law at all federal, state, and local levels. Employees have the right to be informed about the schedule in a timely manner and according to the law. Everyone needs to know when to work and how long. The managers must follow these regulations and keep employees informed about

how the schedule will be used, where it will be posted, how it can be altered, and how often a new one will be made. Consider all possible factors in communicating any scheduling information to employees. Proper compliance can save time, money, prevent lawsuits, prevent EEOC (Equal Employment Opportunity Commission) investigations for wrongdoing, and prevent other possible problems because of favoritism, preferential treatments of specific employees, acts of retaliation in scheduling, and more. After all, it is all about people who work for the operation, and without them or causing unnecessary problems can be detrimental to the company.

Schedules are prepared according to the frequency the operation sees it fit. Some restaurants post a new schedule weekly, others monthly. Whichever the case may be, employees need to have access to it all the time. A good idea is to use the email system and send a copy to all employees or use the company intranet and have the schedule posted online to access it from anywhere. No one should alter the schedule unless with mutual consent by managers and employees. Although experience in the foodservice sector tells us that regardless of the time and effort put into creating the ideal work schedule, it will always be subject to change. There will always be requests for change for specific reasons generated either by the employee or by management. Whichever the case, the management must have a clear and written, and posted policy that only managers can alter the schedule and when and if necessary, with mutual consents of the employee and the manager.

Sample Scheduling

Depending on the size and type of the operation, often a restaurant will use a schedule that shows all work areas that need to be staffed. This is referred to as the "Master schedule," which will show briefly how many employees will be working for each day in the entire operation.

Table 26 shows a sample schedule without names but numbers. This is ideal for a foodservice operation that may have staff with multiple needs, who have more than one job, and many special requests. For the manager to complete the schedule, he/she drafts the labor requirements according to the variables Nr. 1-18 listed above, and instead of using names, he/she assigns numbers. In this way, the schedule will ensure that each area is staffed according to the forecast. This draft schedule is also useful when starting a new restaurant.

Table 27 shows a formula to compute the staff requirement according to each position that needs to be filled for each shift and depending on the days of operation per year. This computation is only done when the budget is prepared or when a position is analyzed for productivity, efficiency, and in case of changes in labor legislation. Regardless of the tools available to create an ideal work schedule, a manager always needs to have a contingency plan in place. This is important in case of unexpected events such as an employee becoming sick, accidents, sudden work shortage, labor dispute, strike, work blockage etc.

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Table 26. Samples work schedule grid for 14 kitchen employees required nightly for dinner only

Name	MO	TU	Wed	THU	FRI	SAT	SUN
1	**Off**	**Off**					
2			**Off**	**Off**			
3					**Off**	**Off**	
4	**Off**						**Off**
5		**Off**	**Off**				
6				**Off**	**Off**		
7						**Off**	**Off**
8	**Off**	**Off**					
9			**Off**	**Off**			
10					**Off**	**Off**	
11	**Off**						**Off**
12		**Off**	**Off**				
13				**Off**	**Off**		
14						**Off**	**Off**
15	**Off**	**Off**					
16			**Off**	**Off**			
17					**Off**	**Off**	
18	**Off**						**Off**
19		**Off**	**Off**				
20				**Off**	**Off**		
	14	**14**	**14**	**14**	**14**	**15**	**15**
	6	**6**	**6**	**6**	**6**	**5**	**5**

When dealing with human capital, managers need to be cautious that working, for most people, is the livelihood to maintain lives, and it will always be the most critical issue in doing business, especially in the foodservice industry, which is extremely dependant specialized labor that machines cannot replace. It is the human factor that keeps many restaurants going concern. The work schedule is a key component of most work-related scheduling activities.

Table 27. Sample number of days employees work per year based on 365 days operation

Days off: 52 weeks x 2 = 104	104
Vacation: 7 days a year (calendar days not work days)	7
Statutory holidays (varies by state)	7
Absenteism due to sickenes-no show etc…)	7
Total non working days:	125
Actual working days; 365 - 125 = 240	240
To compute the staff requirement use the following formula: 1 /240 x 365 = 1.5	
Number of employess required for the job/Number of days employees work x number of operating days	

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Table 28. Restaurant cooks weekly labor schedule and cost sheet

Restaurant cooks weekly labor schedule and cost sheet											
Week beginning March 15, 20xx											
Employee name ID #		Hourly rate	Projected hours according to schedule							Totals	
			MON	TUE	WED	THY	FRI	SAT	SUN	Hours	$$
1	Anthony Cirillo	15.00	0.00	0.00	0.00	7.00	8.00	8.00	8.00	31.00	$ 465.00
2	Joe Burns	19.00	8.00	8.00	0.00	0.00	8.00	8.00	8.00	40.00	$ 760.00
3	Amy Klein	15.00	7.00	7.00	8.00	8.00	0.00	0.00	8.00	38.00	$ 570.00
4	Linda Finley	19.00	0.00	8.00	8.00	8.00	8.00	8.00	0.00	40.00	$ 760.00
5	Matthew Steiner	19.00	8.00	0.00	0.00	8.00	8.00	8.00	8.00	40.00	$ 760.00
6	Bill Mallet	24.00	8.00	8.00	8.00	0.00	0.00	8.00	8.00	40.00	$ 960.00
7	Keith Obrey	15.00	6.00	6.00	8.00	8.00	8.00	0.00	0.00	36.00	$ 540.00
8	Kim Baggeley	15.00	0.00	0.00	8.00	8.00	8.00	8.00	8.00	40.00	$ 600.00
9	Mario Garcia	24.00	8.00	8.00	0.00	0.00	8.00	8.00	8.00	40.00	$ 960.00
10	Dimitrius Skinsky	19.00	8.00	8.00	8.00	8.00	8.00	0.00	0.00	40.00	$ 760.00
Total projected hours			**53.00**	**53.00**	**48.00**	**55.00**	**64.00**	**56.00**	**56.00**	**385.00**	
Total projected cost in $$											$ 7,135.00
Total project sales			$ 5,000.00	$ 5,000.00	$ 4,000.00	$ 5,500.00	$ 9,000.00	$ 9,900.00	$ 5,500.00		$ 43,900.00
Projected sales per labor hour			$ 94.34	$ 94.34	$ 83.33	$ 100.00	$ 140.63	$ 176.79	$ 98.21		$ 114.03
Total employees on duty			7.00	7.00	6.00	7.00	8.00	7.00	7.00		
Prjected sales per employee			$ 714.29	$ 714.29	$ 666.67	$ 785.71	$ 1,125.00	$ 1,414.29	$ 785.71		
Labor % of Sales											16.25

Table 28 shows the ***weekly labor schedule and cost sheet*** for a kitchen brigade. From this template, the manager can print a schedule to be posted for the staff or can extract the work schedule and email it or post it online. The same template can be used for a ***master schedule*** by adding additional employees. Notice that for a 14-kitchen staff average daily requirement, about 23 staff must be hired. (Please refer to table 27).

Additional Formulas to Compute Labor Dollars, Labor Productivity, and Percentage

1. Forecasting Servers, according to forecasted covers:
   (Forecasted covers/total shift hours) / Covers assigned per server = required servers
2. Forecast labor dollar available per period:
   Forecasted sales per period\ labor cost percent as per budget = labor dollar available per period

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3. Actual labor cost percent:
   Actual labor cost in dollar / total sales x 100 = labor cost %
4. Employee productivity by sales
   Total sales / total number of employees
5. Total staff productivity ratio
   Number of guests served / total number of employees
6. Sanitation productivity
   Number of covers served / number of labor hours
7. Bar productivity
   Bar sales / total number of bar employees
8. Room service productivity
   Number of bills produced / number of employees on duty (Note: one delivery = one bill)
9. Banquet productivity
   Total number of covers / total number of banquet staff
10. Labor cost percentage
    Total labors cost / total sales x 100
11. Guests served per labor dollar
    Total guests served / total cost of labor
12. Guests served per labor hour
    Guest served / labor hours used
13. Sales per labor hour
    Total sales / total labor hours used
14. Percentage of sick leaves
    Number of sick leaves/ number of employees x 100
15. Percentage of employees in a specific outlet
    Total employees in the outlet / total number of employees x 100

OTHER COST-CONTROL MEASURES FOR THE ENTIRE OPERATION

Controlling Costs With Risk Management or Loss Prevention Management

Risk Defined

Risk in business terms is the possibility of a loss or other adverse event that can interfere with an organization's ability to perform.

Risk Management Defined

Risk management ensures that an organization identifies and understands the risks to which it is exposed. Risk management also guarantees that the organization creates and implements an effective plan to prevent losses or reduce the impact if a loss occurs. A risk management plan includes strategies and techniques for recognizing and confronting these threats.

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Benefits of Managing Risk as it Relates to Cost Control

(see also chapter 5 Legal Considerations)

Risk management provides a clear and structured approach to identifying risks. Having a clear understanding of all risks allows an organization to measure and prioritize them and take the appropriate actions to losses. Risk management has many benefits for a foodservice organization, and the cost control department can play an essential role while measuring and analyzing costs. The cost controller can make recommendations and contribute to:

1. Saving resources (water, air, energy)
2. Lowering cost (food, beverage, other costs)
3. Preventing thefts, embezzlements (alcohol theft, money theft)
4. Preventing or reducing legal liability (accidents prevention, carrying too much weight)
5. Protecting people from harm and reduce insurance cost (staff safety and security, injuries)
6. Protecting the environment (discarding material
7. Enhancing the ability to prepare for various circumstances
8. Other benefits beyond the scope of cost control

An effective risk management practice does not eliminate risks. However, having an effective and operational risk management practice shows an insurer that your organization is committed to loss reduction or prevention.

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Chapter 9
Finance

ABSTRACT

This chapter deals with the principles of finance as applied in the foodservice industry. It discusses the concept of revenue management, financial analysis and reporting, financial control, principles of budgeting, and forecasting. Specifically, it discusses finance in general and of the financial system and the meaning and application of financial management. It introduces the basics of the advantages and disadvantages of the different types of organizations. The important topics presented are the relationship of finance to other business disciplines, basic financial information in decision-making, understand financial statements, and financial ratios. It applies several analysis tools and techniques to learn about the time value of money, interest, and interest rates.

1. INTRODUCTION TO FINANCE

This chapter, to a certain extent, covers basic principles of finance for nonfinancial managers. It introduces basic financial tools and principles of financial and statistical analysis as it relates to a foodservice operation. It highlights the importance of financial management and the need to understand how businesses can be affected by dreadful financial decisions. Just as in every other business, the management of a food service company is compelled to either employ an executive with sound financial knowledge or to have a finance expert on the middle management team.

The chapter discusses in detail the meaning of financial and statistical analysis, which is an integral part of a company's success, and how to apply financial and statistical analysis to their department or operation to avoid financial pitfalls, which can lead to severe negative consequences, more than often, irreversible. The chapter further provides useful information and references about income statements, financial and statistical analysis techniques, how to apply them, what the results mean, and to a certain extent, how to take preventive or corrective actions.

Foodservice managers need to allocate ample time to analyze the daily, weekly, monthly, and yearly results and compare them to other departments where applicable to other properties in case of a multiunit operation and industry-related data to determine the results organization is obtaining. This should be

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done regularly and "as needed," meaning as a preventive measure to future financial shortfalls and as corrective measures to shortfalls already occurred.

The evaluation should determine how well the foodservice operation is performing and where improvements should be made. Consequently, priorities, objectives, methods, and deadlines for corrective and further preventive actions can be made (Engwall, 1988; Abrams, 2000). Key indicators, in other industries, also called Key Performance Indicators (KPI, also called "flags" red for negative, green for positive. These KPIs show the degrees of efficiency and effectiveness in cost minimization, revenue optimization, and profit maximization.

"Red Flags" indicators must be investigated immediately and in great depth, and corrective adjustment must be considered. One must ask the question: what and when do we need to do it? What if we do it, and what if we do not act? Like many other important decisions, these are decisions that managers, together with financial analysts, must take regularly. For example, the need to drop a price, to substitute an expensive functional product with a less expensive to remain profitable, and the list could go on.

A thorough discussion of top management, finance department, middle management, and line operating personnel is conceivably most needed to develop mutual understanding and suggest solutions to the problems. In cases where all key indicators are satisfactory, such as revenue optimization and cost minimization, but the profit is not maximized adequately, then it may be necessary to examine the operation for possible inefficient purchasing and/or receiving practices, wrong menu pricing, incorrect records or financial statements, incorrect inventory method and computation of inventory value, production waste, on use of by-products, too big plated portions, pilferage, embezzlement etc.

These financial and statistical-operational analysis guidelines can be applied in a single food service establishment for self-analysis, by the unit manager of a multi-unit operation or by the foodservice/ director of food and beverage in a hotel operation.

The Importance of Understanding Finance Within the Context of Foodservice Management

Finance and economic thinking are found everywhere in our daily lives, from personal investing at a young age, such as investing in education, investing in buying a car, marriage, a house, a boat, a vacation home, etc. Finance will always play a role. Once we receive an education, our doors are open to whatever we may wish to become. It is different from decades ago when people held the same job at the same company after high school until retirement.

Today's career paths are different, unpredictable, and changeable, with duality and variety due to the possibility of multitasking and an increasingly dynamic and fast-paced economy. Many attend college, study the topics that will support their future career plan, and eventually become managers, owners, investors, or whichever career path may choose to follow. Therefore, financial decisions are taken daily. In private life, deciding whether to buy something that is wanted but not needed may reduce the balance on the savings account; that decision may be a new gadget such a new mobile phone, a new television set etc. In business life, such as decisions may have different effects on the firm's balance sheet.

Crucial decisions are taken for different reasons; they can take a firm to the next level or can drive it out of business. Should the firm invest in a new product? How much should an innovative company invest in research and development? What will be the return on investment? Will the new discovery be profitable? Should the management explore outsourcing? About international expansion and what would be the financial burdens/benefits for the years ahead?

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The preceding questions have no easy answers; however, they are a catalyst to managers' strategic financial decisions on a regular basis. This chapter will explain some of the most important aspects of financial management and present the necessary tools a foodservice manager can use to make financial decisions.

What is "Finance"?

Academically, the term finance may be defined as "teaching and learning the discipline of funds management"; in other words, teaching the management of money capital. In scientific business terms, it may be defined as "The Science of Funds Management." In practical business terms, a "fund" could be interpreted as the "means" to provide "funding" or monetary capital for a project, a person, a business, or any other private or public institution. Thus, finance is about a corporation's financial decisions, an individual, a public or private entity, including governments. The players face two basic financial questions in the daily financial environment: 1. what investments should be made? 2. How to pay for those investments? The secret of financial management success is to increase value for the entity. However, it seems simple if said than done. It is not investing in the stock market and making a profit by buying low and selling high; how to do it? If "finance" was so simple, why isn't everyone rich or at least financially independent?

Financial management is a complex task, ever challenging, and usually affected by factors beyond the management's internal control and capability. More than often, good financial decisions are not based on experience alone and certainly not on good luck; they are based on how the situation presents itself. More than often, they are extrinsic in nature and are affected by unprecedented events one could have never planned for an act of terrorism; a new city by-law to close a street to create a pedestrian's zone while eliminating all parking spaces for existing businesses; or merely disasters such as a hurricane or a tsunami. No contingency plan can deal with such an economic disaster. Despite the unexpected one hopes never to experience, the study of finance gives the future finance manager the necessary tools to make good-sound financial decisions. One must also keep in mind that finance is not about a firm's survival, money and markets, and increasing value, but also about people. The financial success of anyone in business depends on how well financial decisions are made and how well everyone is involved in the financial decisions making process.

The main objective is to get everyone to work towards a common goal with the best results that will be mutually beneficial to all stakeholders. When the management cannot agree on sound financial decisions, it usually is because of the lack of accurate information and difference of opinions. Hospitality finance and especially foodservice finance is a difficult and complex task. From raising capital to starting a new business venture and investing and producing above-average returns, the management must carefully investigate, analyze, critically synthesize the pros and cons, and make the right decision. For example, if an individual owns a $1 million diversified portfolio investment with an average yearly return of 7% interest before tax, that individual enjoys the yearly increase in value and still owns the $1 million invested initially. If the individual invested in a restaurant venture with the promise of earning 10% interest in return, he/she would take a perilous decision because of the new venture fails, the contingency plan for an early exit strategy would return only 20 cents on the dollar of the total investment. That is why regular banks are reluctant to lend money to independent restaurant operations. Statistically, the rate of failure during the first year of operation is very high.

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Within this textbook's scope, this chapter explains the principles of finance in the context of revenue and profit management, statistical analysis, budgeting, and forecasting within the frame of managerial finance in foodservice operations. Nevertheless, one cannot solely explain the topic of finance without emphasizing "Financial Economics." It is the branch of economics studying the interrelation of financial variables, such as prices, interest rates, and shares, instead of those concerning the real economy.

Financial economics concentrates on the influences of real economic variables on financial ones, in contrast to pure finance. It deals for example, with the valuation of an asset, its risk, the money it cost and will produce, its comparability to similar assets and their prices on the market, and if such an asset is cash flow dependent so much so that it may affect other assets or events? Therefore, the Financial Manager's task, also referred to as the Chief Financial Officer (CFO) of a firm, is not an easy one. Financial decisions can affect anything, the true existence of a firm, and peoples' lives. There may not be a CFO in the organization chart; therefore, the tasks and all financial responsibilities remain with the general management and often with the ownership. The negative consequences of badly taken financial decisions are irreversible.

If a restaurant entrepreneur has invested his/her own funds and family borrowed funds in opening a new venture that eventually fails, bankruptcy may be the only option; therefore, the consequences, both financial and emotional, can be very severe and may hurt all stakeholders for years following the event.

What is Managerial Finance?

It deals with finance techniques' managerial significance; in other words, financial decision techniques and it is focused on assessment rather than technique. What is then the main difference between a "managerial approach" and a "technical approach"? The technical approach concerns itself with techniques of measurements, or reporting, or data interpretation, while the managerial approach is concerned with the quantity of funds raised and spent and where the excess funds (profit) have been allocated (Chenhall, and Langfield-Smith, 1998). The managerial approach also deals with financial responsibility, ethics, and going concern (Weygandt, et al., 2009. The latter, however, is borrowed from the field of "Managerial Accounting." The financial manager may want to know what the figures mean and how the technical, financial decisions may impact the firm's tax liabilities, profit, growth, and sustainability. A financial manager might also compare the returns with competitors. If so, what is the source of our competitive advantage or problem? Do we have the same profit margins? If not, why? Do we have the same expenses? Why, why not? Do we pay more for something than our competitors pay? A financial manager may also look at changes in asset balances, identifying red flags that indicate problems with bill collection or bad debt. Finally, he/she will analyze working capital to anticipate future cash flow problems. In sum, "managerial finance" is an interdisciplinary approach that borrows from managerial accounting and corporate finance. What are the professional qualifications of a financial manager? In a large corporation, the minimum qualifications would be:

1. A degree in business administration and a concentration in accounting and finance
2. A degree as MSF (Master of Science in Finance)
3. A degree as MFE (master's in financial economics) or MFA (master's in financial administration)
4. Business certifications such as CPA (Certified Public Accountant, a US certification); a CCA (Chartered Certified Accountant, a UK certification); CFA (Chartered or Certified Financial Analyst

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5. There are many other degrees and certifications which cannot be fully discussed in this chapter as they are beyond the scope of the topics intended to be covered.

The above professional qualifications are general requirements a professional Vice President of Finance or CFO employed by a large organization; individual foodservice operators/general managers should not feel discouraged or even unqualified from taking financial decisions. Often it is prudence and commonsense with due diligence that sound financial decisions are made. Nevertheless, and because of the complexity of the foodservice industry, operators must ask the question? Do we need someone who fully understands finance? Can we do it ourselves? Can the Comptroller do it? Does the comptroller have the qualifications to guide us in the right direction concerning financial decisions? Or should we outsource the services? Without a doubt, anyone investing in a business and especially in the restaurant business, should have sound knowledge about financial matters. It does not mean that the entrepreneur or manager or owner must be a CFA; to the contrary, he/she must not; however, the knowledge of financial statements and their interpretation is of utmost importance. This is what managerial finance is concerned with; not to prepare a balance sheet but to interpret it and make sound financial decisions.

REVISITING THE "THE BUSINESS ENTITY"

The Four Types of Business Entity

There are four major firms' entities: Sole Proprietorship; Partnership; Limited Liability Company, and Corporations. Each of these organizational forms, including a non – profit entity, is explained in detail in chapter 5, "business entity," pages 12-15. For practical purposes, a concise highlight of a comparison between the different forms of business entities is presented in Table 1.

Table 1. Types of Business Organization

Sole Proprietorship: A Sole Proprietorship consists of one individual doing business. **Advantages:** 1. Low start-up costs 2. Ownership of all profits **Disadvantages:** 1. Unlimited liability 2. Limited commercial life	**Limited Liability Company (LLC):** A relatively new, hybrid-type of legal structure that provides the same limited liability features of a corporation. **Advantages:** 1. limited liability and Tax Efficiency 2. Operational Flexibility of Partnership **Disadvantages:** 1. Formation is complex and very formal 2. Limited to two characteristics or a typical corporation. Limited Asset liability; continuity of life, centralization of management, and free transferability of ownership interests.
Partnership: A Partnership is made up of two or more individuals doing business together. **Advantages:** 1. 1. Access to greater amounts of capital 2. Possible synergism **Disadvantages:** 1. Same as with sole proprietorships 2. Partnership disputes	**Corporation:** A Corporation is a legal entity doing business. It is made up of many owners and is organized under articles of incorporation. **Advantages:** 1. Limited liability 2. Unlimited commercial life **Disadvantages:** 1. Higher organization cost 2. Restrictions on company

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Business entities are the primary focus in finance study because according to what type of entity a business is registered as, it will have a different tax implication, a different return on investment (ROI), and a different earning per share (EPS), among other implications. Since the Enron scandal and several other corporate accounting scandals, the U.S. Government is monitoring corporations operating on U.S. territory to ensure that corporations are operating ethically under the corporate governance they are committed to and under the law. To ensure that corporations operate in compliance with the law and to protect investors, employees, and all stakeholders of a corporation, in 2002 the Bush Administration passed into law the "The Sarbanes-Oxley Act of 2002 (Pub.L. 107-204, 116 Stat. 745, enacted July 30, 2002), also known as the Public Company Accounting Reform and Investor Protection Act of 2002 and commonly called Sarbanes-Oxley, Sarbox or SOX. The Act establishes the Public Company Accounting Oversight Board (Board) to: (1) oversee the audit of public companies that are subject to the securities laws; (2) establish audit report standards and rules; and (3) inspect, investigate, and enforce compliance on the part of registered public accounting firms, their associated persons, and certified public accountants. Sec. 101 of the Act prohibits board membership from including more than two certified public accountants.

How Does a Firm Operate and Control its Finances?

Regardless of the size or entity, its business purpose of what type of industry a business is dealing in, each organization must have all functionalities required to stay "Going Concern"; meaning that even if it does not physically have all departments, it must perform all necessary business functions to stay alive and profitable. Thus, a small food service company may employ an accountant who also performs as a financial analyst, human resources manager, accounts payable, receivable, and State and Federal financial reporting. In the following sections, the reader will notice that many terms and topics may appear repetitive since they are also highlighted in Chapter 8, Accounting and Cost Control. Although one may think that accounting and finance are the same things, it certainly is not. A large corporation, however, must have all required departments to function effectively.

The Controlling Body: The Financial Accounting Standards Board (FASB)

The "FASB" is a non-governmental body with the authority to promulgate Generally Accepted Accounting Principles (GAAP) and reporting practices (Garrison & Noreen, 1999). These are published in the form of FASB Statements. Practicing (Certified Public Accountants) CPAs must follow the FASB pronouncements in their accounting and financial reporting functions. The FASB is *independent* of other companies and professional organizations. The American Institute of certified public accountants (AICPA) and the Securities and Exchange Commission (SEC) officially recognize the Financial Accounting Standards Board's Statements. One of the main objectives stated in the ***Objectives of Financial Reporting by Business Enterprises*** **"Concepts Statement No. 1"** is*: "...Financial reporting should provide information that is useful to present and potential investors and creditors, and other users in making rational investment, credit, and similar decisions. The information should be comprehensible to those who have a reasonable understanding of business and economic activities and are willing to study the information with reasonable diligence"*. The FASB was established in 1973 to succeed the Accounting Principles Board (APB).

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Generally Accepted Accounting Principles (GAAP)

These are standards, conventions, and rules accountants follow in recording and summarizing transactions and preparing financial statements. GAAP derive, in order of importance, from (1) issuances from an authoritative body designated by the AICPA Council (for example, the FASB Statements, AICPA APB Opinions, and AICPA Accounting Research Bulletins); (2) other AICPA issuances such as AICPA Industry Guides; (3) industry practice; and (4) accounting literature in the form of books and articles. Principles also derive from tradition, such as the *concept of matching*. The "Matching Principle" (costs with revenues) is the accounting concept of pairing revenues with the costs that were incurred to generate the revenues. For example, wages and materials bought to construct a restaurant are depreciated over the period the building generates income, not during the construction period. In the audit report, the CPA must indicate that the client has followed GAAP consistently (Abdel-Khalik, 1999).

The Financial Statement

In accounting and finance terms, it is a report produced by the Accounting Department containing financial information about the organization. They are written records of the financial status of a business. The financial statement includes a *balance sheet* and an *income statement* (or *operating statement* or *profit and loss statement*) and may also include a *statement of cash flow*, a *statement of changes in retained earnings*, and *other analyses*. They may be combined with a supplementary statement to describe the financial status or performance of the organization. An example of a supplementary statement is an *inflation-adjusted financial statement*. Some supplementary material is required only for publicly held companies and not for independently owned foodservice establishments.

The Balance Sheet

The balance sheet is also known as the "*statement of financial condition*," basically shows how much a company owns (its assets) and how much it owes (its liabilities). The difference between what it owns and what it owes is its equity, also commonly known as "net assets," "stockholders' equity," or "net worth." The balance sheet provides the investor with a snapshot of a company's financial health as of the date provided on the financial statement. Meaning that the balance sheet shows the company's position at that point in time only. A comparative balance sheet shows the variances between two or more dates or periods it was produced. Since a company continuously generates revenue and disburses payments, the balance sheet changes regularly. In broad analysis terms, if a company has lots of assets relative to liabilities, it is in good shape; in finance and accounting terms, it is described as "Solvent" (will explain this term and the topic of "solvency" in details later). There are three basic components of the balance sheet: assets, liabilities, and investors' equity.

Assets

There are two main types of assets: *current assets* and *noncurrent assets*. There are numerous subcategories in these two categories: cash and cash equivalent, short–term investments, accounts receivables and inventories, and other current assets such as pre-paid liability insurance for the following months, usually six months. Current assets are likely to be used up or converted into cash within one business

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cycle -- usually defined as one business year, also known as "Fiscal" or "Calendar Business" year. For example, food and beverage inventory is classified as current assets because they should be sold within a specific period and less than a year because they are perishable except certain inventory items like "wine." Noncurrent assets are defined as long-term assets because it is unlikely, they will be consumed or converted to cash within a year. Such assets include money investments like bonds, stocks etc., tied up to a twelve-month commitment term, and Property, Plants and Equipment (PPE), also assets called Furniture, Fixture, and Equipment (FFE) and Tools and Utensils (TU).

Liabilities

Like assets, there are two main categories of liabilities: *current liabilities* and *noncurrent or long-term liabilities*. Current liabilities are obligations the company must pay within a year. For example, all food and beverage inventory, Noncurrent liabilities are the reverse of noncurrent assets. These liabilities represent money the company owes one year or more in the future. For example, a restaurant may borrow money from a bank to add 20 more seats in the dining room and to increase its wine cellar capacity, which must be repaid during a period longer than a year.

Equity

Equity, in terms of money, is described by the formula commonly known as

Assets = Liabilities + Owner's Equity

More importantly

Equity = Assets – Liabilities

Equity represents the company's part that the single owner or shareholders own; thus, it is commonly referred to as shareholders' equity. As described above, equity is difference between total assets minus total liabilities. Although there are several categories within the equity, the two main categories are *paid-in capital* and *retained earnings*. Paid-in capital is the amount of money the original owner put into the business when it started and, in the case of a publicly held company, the shareholders paid to buy their shares when the stock was offered publicly. It basically represents how much money the firm received when it was created and sold its shares. Retained earnings represent the total profits the company has earned since it began, minus whatever has been paid to the owner or shareholders as dividends. Because this is a cumulative number, if a company has lost money over time, retained earnings can be harmful and would be renamed "accumulated deficit."

Solvency

Solvency means for a company to have sufficient assets to cover its liabilities. Solvency is often confused with liquidity, but it is not the same thing. Solvency is often measured as a ratio, the "current ratio," which is the total current assets divided by the total current liabilities. To be solvent and cover liabilities, a business should have a current ratio of 2:1, meaning that it has twice as many current assets as

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Table 2. Sample Balance Sheet Template

SAMPLE BALANCE SHEET				
Assets			**Liabilities and Equity**	
Current Assets			**Current Liabilities**	
Cash in bank	$		Accounts payable	$
Accounts receivable	$		Interest payable	$
Inventory	$		Taxes payable	$
Prepaid expenses	$		Notes, up to 12 months	$
Other current assets	$		Current part, long-term debt	$
			Other current liabilities	$
Total Current Assets	$		**Total Current Liabilities**	$
Fixed Assets			**Long-term Debt**	
Machinery & equipment	$		Bank loans payable	$
Furniture & fixtures	$		Notes payable to stockholders	$
Leasehold improvements	$		LESS: Short-term portion	$
Land & buildings	$		Other long-term debt	$
Other fixed assets	$			
(LESS depreciation)	$		**Total Long-term Debt**	$
Total Fixed Assets (net of depreciation)	$		**Total Liabilities**	$
Other Assets			**Owners' Equity**	
Intangibles	$		Invested capital	$
Deposits	$		Retained earnings - beginning	$
Goodwill	$		Retained earnings - current	$
Other	$			
Total Other Assets	$		**Total Owners' Equity**	$
TOTAL Assets	$		**Total Liabilities & Equity**	$

current liabilities. This ratio recognizes the fact that selling assets to obtain cash may result in losses, so more assets are needed. In the old days, this was referred to as the "Golden Bank Rule" for every dollar of liability. One needs two dollars of assets. In personal finance, solvency is also referred to as "being debts free," meaning that individuals should spend up to a maximum of one dollar less than what they earn to be personally financially safe.

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The Income Statement

The income statement reports how much money a company has received, "revenues," how much it has spent "expenses," and the difference between the two, "the profit or loss." It shows the company's revenues and expenses over a specific period, such as three months, two quarters, or a year. The income statement contains the information most frequently discussed in financial reports. In the case of a public company, it discusses the total revenue, net income, or earnings per share. The income statement contains information about how well the business is performing. Or, in simpler terms, "Is the business making money?" A company must bring in more money than it spends; otherwise, it will not be viable. Companies with low expenses relative to revenues -- and thus, high profits relative to revenues -- are particularly desirable for investment because a more significant piece of each dollar the company brings indirectly benefits the shareholder. In the case of a restaurant operation in a hotel setting, the profit from a successful coffee shop operation may help support the costly fine - dining outlet that is not making a profit. The following sections highlight each of the three main components of the income statement.

Revenues

The revenue section is typically the most straightforward part of the income statement. Revenues are also commonly known as sales. In the consolidated income statement, there is often just a single number representing all the money a company brought in during a specific period. Foodservice operations, however, whether the revenues are shown for a single outlet or for an independent restaurant, the revenues are broken down into details. In foodservice, business revenues may depend on each category, and the management needs to analyze it continuously. For example, beverage revenue is often generated as a function of the food revenue. When people eat, they must drink and, depending on what kind of beverage they drink or what quantity, it will directly affect the total sales and, of course, the profit. Regardless of what kind of beverages patrons consume in the restaurant industry, they generate higher profit than food. When comparing categories, beverage revenues are analyzed as a ratio to food sales. Since beverages bring in more profit, the principle of revenue maximization must be applied: every dollar received in food should be matched with one dollar of beverage; thus, the higher the beverage revenue, the higher the profit.

Total Expenses

Although there are many types of expenses, the two most common are the *cost of sales and the administrative and general expenses.* The cost of sales, which is also called the cost of goods sold, is the expense most directly involved in creating revenue. Total expenses are subdivided into fixed and variable and semi-variable, direct and indirect, controllable and non-controllable. This section of the report shows the management's ability and capability regarding being capable of controlling cost and expense, especially when sales a lower than expected, and profitability must be maintained. However, there is a philosophical approach to controlling expenses. The personal experience as director of food and beverage taught me that cutting costs and expenses were manageable.

Nevertheless, when the standard of quality and quantity are established and applied, cutting cost means cutting quality or quantity; therefore, I had developed standards and set the parameters. If the cost and expenses for a specific period had a standard deviation of one percentage point higher or lower

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than budgeted, I had to find out why? If the cost were lower, it meant someone in the kitchen and bar cut corners and lowered quality. If the costs were higher, then someone was either wasting food in the bar's kitchen had too much spillage or breakage. In sum, the expense report is considered, most of the time, more important than revenue itself. The simple reason that while revenue maximization depends on several intrinsic and extrinsic variables, controlling expenses may depend on one person alone, who has the power to control expenses, delegate others to act, motivates others to participate, and together generate optimum results.

Profits

In its simplest form, profit is equal to total revenues minus total expenses. However, there are several commonly used profit subcategories both operators and investors should be aware of. Gross profit is calculated as revenues minus the cost of sales. It shows how much money is left over to pay for operating expenses and, hopefully, generate profit for stakeholders. Operating profit is equal to revenues minus the cost of sales and the administrative and general expenses. This number represents the profit a restaurant made from its actual operations and excludes certain expenses and revenues that may not be related to its central operations. When a restaurant is a profit center for a large operation such as a hotel, it is subject to other undistributed expenses. Namely, the cost allocation for the human resources department, the sales department, utilities, and other costs, according to the operations profit centers standard of operation and cost allocation. In a hotel setting, the director of food and beverage should realize that regardless of how undistributed expenses may be allocated to the foodservice operation, the bottom line for the entire hotel operation, meaning the total profit, as shown in the consolidated income statement, does not change. For example, the director of food and beverage realizes that his/her department is charged a large portion of workers' compensation in payroll expenses because it employs the most significant number of employees with the highest risks of having accidents. The general manager and the financial controller could well sympathize with him/her and reduce the allocation to keep the director of food and beverage motivated; however, the total profit does not change. As mentioned in the expense section, the only area the director of food and beverage has total control to positively contribute to the overall profit in total expenses. Once again, they have a direct impact on the total profit. Net income generally represents the company's profit after all expenses, including financial expenses. This number is often called the "bottom line" and is generally the figure people refer to when they use the word "profit" or "earnings."

The Statement of Cash Flows

The statement of cash flows provides information about how much cash went in and out of the company's account during a time frame, such as a quarter or a year. This is commonly referred to as the statement of all money inflows and outflows. One may wonder why there is a need for such a statement because it sounds very similar to the income statement, which shows how much revenue came in and how many expenses went out. On the contrary, the statement of cash flows provides the information the income statement cannot provide. The difference lies in a complex concept called the "accrual accounting method." According to the GAAP, Accrual Accounting requires companies to record revenues and expenses when transactions occur, not when cash is exchanged. While that explanation seems simple enough, it is quite complex in practice; thus, the statement of cash flows helps operators and investors better understand

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the theory of money inflows and outflows (Graham & Harvey, 2000). The statement of cash flows is very important because it shows how much actual cash a company has generated.

On the other hand, the income statement often includes non-cash revenues or expenses, which excludes cash flows. One of the most critical aspects of analyzing it is the information it provides, whether the company can generate cash. Many restaurants have shown profits on the income statement but stumbled later because of insufficient cash flows. Because companies can generate and use cash in several different ways, the statement of cash flows is separated into three sections: cash flows from operating activities, from investing activities, and from financing activities. These are probably the most critical factor when buying or selling, or even refinancing an existing restaurant business; knowing where the money comes from?

The Cash Flows From Operating Activities

This section shows how much cash the company generated from its core business instead of peripheral activities such as investing or borrowing. In the case of a foodservice operation, cash comes from food and beverage sales. In the case of a food and beverage department in a hotel setting, cash may be generated from food and beverage sales and space and equipment rental, merchandise sales, commission, etc. Financial analysts look closely at how much cash a company generates from its operating activities because it reflects how well its core business is producing cash that ultimately benefits the ownership.

The Cash Flows From Investing Activities

This section shows the amount of cash a foodservice operation may spend on investments. Investments are usually classified as either capital expenditures (Capex) money spent on items such as new FFEs' or anything else needed to keep the business running. They can also represent monetary investments such as the purchase or sale of money market funds if the operation has a cash surplus.

The Cash Flows From Financing Activities

This section includes any activities involved in transactions with the company's owners or debtors. For example, cash proceeds from new debt, including infusions by present stakeholders or dividends paid to investors, would be reported in this section.

Free Cash Flow

This is a term every restaurant business operator needs to be very familiar with. In simple terms, it represents the amount of excess cash a company generates, which can be used to enrich shareholders or invest in new opportunities for the business without hurting the existing operations; thus, it is considered "free." Many business entities who fully own operations assets, such as land and building, capitalize on their strategies to expand by reinvesting every dollar they earn from existing operations. These strategies have led hospitality companies to become owners of huge asset portfolios, which later were sold at a higher value-generating enormous cash profit. Although there are many methods of determining free cash flow, the most common method is taking the net cash flows provided by operating activities and subtracting capital expenditures, as shown in the "cash flows from investing activities" section above.

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Table 3. Sample Monthly Statement of Cash Flow

	Month 1	Month 2	Month...12
Beginning Cash Balance		$0	$0
Cash Inflows (Income):			
Cash Collections			
Credit Collections			
Investment Income			
Other:			
Total Cash Inflows	$0	$0	$0
Available Cash Balance	$0	$0	$0
Cash Outflows (Expenses):			
Advertising			
Bank Service Charges			
Insurance			
Interest			
Inventory Purchases			
Maintenance & Repairs			
Operating Supplies			
Payroll			
Payroll Expenses			
Sales Commissions			
Professional Fees			
Communications Equip.			
Rent			
Office Supplies			
Permits & Licenses			
Utilities & Telephone			
Travel			
Taxes			
Other:			
*New sales force training			
Subtotal	$0	$0	$0
Capital Purchases			
Loan Principal			
Owner’s Draw			
Other:			
Subtotal	$0	$0	$0
Total Cash Outflows	$0	$0	$0
Ending Cash Balance	$0	$0	$0

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The formula is:

Free Cash Flow = Cash from Operations or Net Income – Capital Expenditures

2. RATIO ANALYSIS OF FINANCIAL STATEMENTS

Financial Statement Analysis

This analysis enables the financial statement user to make informed decisions about a company. Besides the operation's technical skills, successful food service management requires many financial skills. As discussed earlier, a foodservice manager needs to be a CPA of a CFA; however, he/she needs to understand the company's financial situation. The least needed is to understand financial ratios, interpret the results, and discuss such results with others involved in the operation's financial stakes. Critical thinking and financial decisions go together as well.

Dun and Bradstreet's studies show that incompetence, mismanagement, and lack of business experience, especially in critical situations, are the primary causes for most foodservice businesses' failures.

Therefore, it is safe to assume that one of the leading causes of failure in many failure cases is lack of knowledge about financial control. Furthermore, without control, a business such as a restaurant with too many doors will be just swept away, and the owner may never know precisely why? Financial ratios can help the management solve problems, prevent failure, plan, and make appropriate changes along the way. One must remember, though, that no physical work can be done; therefore, accurate analysis of a company's financial position will depend on the accurate information being provided and the tools available to conduct the analysis. Once all information and tools are available, an ***accurate analysis*** is feasible and probable.

Some key factors to consider in financial analyses are:

- Insufficient revenue/ sales
- High operating costs
- Inadequate credit and collection policy
- Too many fixed assets, therefore dead capital not producing a return
- Too much inventory with improper stock rotation
- Loss of vision of the core business, without paying attention to distractions

To remain viable, the management needs to continually analyze, interpret, and evaluate, synthesize, and summarize all data to decide what actions/decisions to take. If the results are positive, the management should capitalize on the good outcome and develop strategies to make it sustainable. If the results are negative, then immediate corrective actions must be taken to deal with the shortfall. The following ratios will be valuable tools for the foodservice manager to thoroughly understand the income statement, the results, and what to do with them. Other significant indicators to analyze the day-to-day operation and short-term results and additional statistical analysis techniques are presented in the Accounting and Cost Control chapter.

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An investor, a banker, a business owner could choose to analyze financial statements according to any given methods they may decide to use. However, in the professional field of finance, analysts respect and use the specific methods and procedures widely accepted under the FASB and GAAP guidelines. What aspects of the documents and how specific components are generally analyzed? In general, three significant individualities of a business are considered and evaluated:

1. Liquidity
2. Profitability (also known as operating ratios), and
3. Solvency.

These individualities are then compared with other financial results "within the company," "within the industry," and other companies. In financial analysis terms, they are called **Intracompany, Industry Average, and Intercompany Comparative Analysis**

Three basic techniques are applied to conduct thorough comparative analyses:

1. Horizontal,
2. Vertical, and
3. Ratio analysis techniques.

Horizontal Analysis

When comparing financial information for two or more years within the company, the analysis process is referred to as *horizontal analysis*. It compares single line items across statements from previous years, such as revenues, cost, expenses, and profit. The analysis compares both dollar amounts and percentages' variances across fiscal years for all financial statement balances, such as cash and inventory. This technique is referred to as a *trend analysis*. Trend analysis is determined by calculating each year's financial statement balances as percentages of the first year, also known as the base year.

When expressed as percentages, the base year figures are always 100 percent, and percentage changes from the base year can be determined.

Vertical Analysis Using a Common Size Comparative Balance Sheet

A vertical analysis is performed by calculating each item on a single financial statement as a percentage of a total. The term *vertical analysis* is applied in the sense that each year's figures are listed vertically on a financial statement. The total used on the income statement as net sales revenue, while on the balance sheet, it is total assets. This analysis technique is also known as *component percentages* and produces *common-size financial statements*. Common-size balance sheets and income statements are easier to compare, whether across the years within the company or different companies. One application of the *vertical analysis* idea is to state the separate assets of a company as percentages of total sales. A sample common type statement is shown below:

Accessed February 26, 2021, at https://www.sec.gov/Archives/edgar/ https://investor.darden.com/investors/

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Figure 1. Sample Horizontal and Vertical analyses
Source: SEC Filings, Darden Restaurants, Income Statement Year ending March 31, 2020

To facilitate review of our results of operations, the following table sets forth our financial results for the periods indicated. All information is derived from the consolidated statements of earnings for the fiscal years ended May 31, 2020 and May 26, 2019:

	Fiscal Year Ended		Percent Change
(in millions)	May 31, 2020	May 26, 2019	2020 vs 2019
Sales	$ 7,806.9	$ 8,510.4	(8.3)%
Costs and expenses:			
Food and beverage	2,240.8	2,412.5	(7.1)%
Restaurant labor	2,682.6	2,771.1	(3.2)%
Restaurant expenses	1,475.1	1,477.8	(0.2)%
Marketing expenses	238.0	255.3	(6.8)%
General and administrative expenses	376.4	405.5	(7.2)%
Depreciation and amortization	355.9	336.7	5.7 %
Impairments and disposal of assets, net	221.0	19.0	NM
Goodwill impairment	169.2	—	NM
Total operating costs and expenses	$ 7,759.0	$ 7,677.9	1.1 %
Operating income	47.9	832.5	(94.2)%
Interest, net	57.3	50.2	14.1 %
Other (income) expense, net	151.6	—	NM
Earnings (loss) before income taxes	(161.0)	782.3	NM
Income tax expense (benefit) (1)	(111.8)	63.7	NM
Earnings (loss) from continuing operations	$ (49.2)	$ 718.6	NM
Losses from discontinued operations, net of tax	(3.2)	(5.2)	NM
Net earnings (loss)	$ (52.4)	$ 713.4	NM
(1) Effective tax rate	69.4%	8.1%	

NM- Percentage change not considered meaningful.

Ratio Analysis

Ratio analysis enables an analyst to compare items on a single financial statement or to examine the relationships between items on two or more financial statements. Once the ratios for each year's financial data have been calculated, the analyst can then examine trends for the company across the years. Since ratios adjust for size, this analytical technique's application makes it easier to compare data within the intercompany and intracompany operations. As mentioned previously, ratios are often classified as *profitability ratios* (also known as operating ratios), *liquidity ratios*, and *solvency ratios*. Profitability ratios indicate the company's operating success for a given period. Liquidity ratios measure the company's short-term ability to pay its financial obligations when they are due and to meet unanticipated cash needs. Solvency ratios indicate the company's ability to meet its long-term obligations continuingly and thus to survive over a long period. To determine how a company is performing, the ratios are compared to historical performance and industry-wide statistics.

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Summary and a Cautionary Note About Ratios

Financial statement analysis can reveal relevant and useful information about the future viability of the company. However, one must be careful with specific and essential considerations about financial statements and the use of these analytical techniques (Hirst & Koonce, 1996). For example, the value of certain types of assets and other items listed in the financial statement may be based on actual costs. It may not reflect replacement costs or inflationary adjustments. Furthermore, many items may be only estimated, for example, future insurance expenses and even customers' bad debts. Besides, companies frequently establish a fiscal year-end that coincides with the low point in operating activity or inventory levels.

Therefore, year-end data may not be typical of the financial condition during the year. It is important to understand that ratios and percentages' applicability will depend on how well a financial statement has been prepared. Financial statements can be prepared either optimistically or conservatively. In other words, they should not be artificially embellished to make the company's situation look good. One must also consider that comparing one company's financial statements to industry statistics could deliver different and often inaccurate results, given that different companies may use different methods of accounting for inventories' evaluations, although equally acceptable by the GAAP and FASB.

These financial analysis techniques are relatively easy to apply; however, the interpretation of the financial statements' content is not. There are several classes of ratios that analyze the general and overall profitability of a company. Next, we will discuss four classes of ratios that will include subcategories of ratios pertinent to the purpose this book is intended to serve. However, the list of ratios in the subcategories may not be exhaustive. Nevertheless, it offers all necessary formulas to analyze financial statements in detail and deduct the necessary information needed for the decisions. The ratios are classified as:

1. Profitability ratios
2. Liquidity ratios
3. Activity ratios
4. Leverage ratios or long-term solvency ratios

COMPARATIVE DATA ANALYSIS PROCEDURES, DEFINITIONS OF TERMS AND FORMULAS

1. Profitability Ratios

Gross profit: this formula is needed to compute the gross profit ratio (see below). It is computed by subtracting the total cost of goods sold from total sales:

Sales – Cost = Gross profit

Gross Profit Ratio

The gross profit ratio may indicate to what extent the selling prices of goods per unit may be reduced without incurring losses on operations. It reflects the efficiency with which a firm produces its products.

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As stated above, the gross profit is calculated by subtracting the cost of goods sold from net sales. There is no defined range for an ideal gross profit ratio for financial evaluation; however, the higher the gross profit, the better the chance of producing high net profits. Gross profits may vary from business to business and according to other operational factors beyond this section's scope. However, the gross profit generated should be sufficient to cover all operating expenses and to build up reserves after paying all fixed interest charges and dividends.

Formula to calculate gross profit ratios:

Gross Profit Ratio = (Gross profit / Sales) × 100

Example:

Sales = $500,000; Cost of goods sold $400,000

Gross profit ratio calculation:

Gross profit = 500,000 – 400,000 = 100,000

Gross Profit Ratio = (100,000 / 500,000) × 100 = 20%

Determinants of Variance in Gross Profit Ratio

The following factors may cause an increase in the gross profit ratio.

1. An increase in the selling price of goods sold without any corresponding increase in the cost of goods sold, although impossible in terms of cost control terms, means that the cost of goods remains constant. One example could be the food of beverage inventory donated to the business and sold to customers.
2. A decrease in the cost of goods sold without a corresponding decrease in selling price.
3. The omission of purchase invoices from accounts; goods delivered were not entered into the inventory.
4. Undervaluation of opening inventory or overvaluation of closing inventory.

On the other hand, the decrease in the gross profit ratio may be caused by the following factors.

1. Decrease in the selling price of goods, without a corresponding decrease in the cost of goods sold. Ii cost control terms, the cost of goods has not decreased proportionally; they have remained constant.
2. Increase in the cost of goods sold without any increase in selling price.
3. Unfavorable purchasing or markup policies.
4. Inability of management to improve sales volume, or omission of sales, or pilferage.
5. Over valuation of opening inventory or undervaluation of closing inventory.

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Hence, an analysis of ***gross profit margin*** should be carried out considering the information relating to purchasing, mark-ups, markdowns, credit, collections, and merchandising policies.

Net profit: this formula is needed to compute the net profit ratio (see below), it is computed by subtracting the total cost of goods sold, plus total expenses from operation divided by total sales:

Sales – (Cost + Expenses) / sales x 100 = Net profit ratio expressed in Percentage

Net Profit Ratio

The net profit ratio is used to measure the overall profitability, and hence it is beneficial to owners and investors. The ratio is very useful in determining that if the net profit is not sufficient, the company may not be able to achieve a satisfactory return on its investment. This ratio also indicates the firm's capacity to face adverse economic conditions such as price competition, low demand, etc. Obviously, the higher the ratio, the better is the profitability. However, while interpreting the ratio, one must also consider that the performance of profits must also be evaluated in relation to the firm's investments or capital and not only in relation to sales. Management has much more control over operating expenses than its cost of sales outlays. Thus, investors need to scrutinize the operating profit margin. Positive and negative trends in this ratio are, for the most part, directly attributable to management decisions.

Formula to calculate net profit ratio

Total sales – (Total Cost of Goods Sold + Total Expenses) / Total Sales x 100

Example:

Sales = $500,000; Cost of goods sold $150,000; Expenses 310,000

500,000 – (150,000 + 310,000) / 500,000 x 100 = 8%

Pre-Tax Profit Margin

Use the same computation as for net profit ratio; however, all values include taxes. The percentage represents the amount of each dollar of revenue that results in Income Before Taxes. Many investment analysts prefer to use a pretax income number for reasons like those mentioned for operating income. In this case, a company has access to a variety of tax management techniques, which allow it to manipulate the timing and magnitude of its taxable income.

Operating Ratio

Operating ratio shows the operational efficiency of the business. Lower operating ratio shows higher operating profit and vice versa. Foodservice Operating ratios range dramatically across the competitive landscape; that is why the restaurant failure rate is very high, especially during the first year of

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inception. An operating ratio ranging between 75% and 80% is generally considered as standard for a business other than foodservice. However, a foodservice operation is analyzed based on the typology of the operation. There are few, from full service to limited service, with many subcategories, including limited or upscale coffee shops etc. The operating ratios range between 84% to 86% from full-service operations and 78% to 80% for limited-service operations. These ratios, however, are considered not to represent a true percentage of the net income; instead, they represent EBITDA (earnings before interest, taxes, depreciation, and amortization) and/or EBITDAR (Adjusted EBITDA before rent expense). The operating ratio is considered a yardstick of operating efficiency, but it should be used cautiously because it may be affected by several uncontrollable factors beyond the management's control.

Formula to compute operating ratio:

Operating Ratio = [(Cost of goods sold + Operating expenses) / Total sales] × 100

Cost of goods sold $150,000 + Operating Expenses 310,000 x 100 = 92% ***

Total Sales 500,000 x 100

****These ratios, however, are considered not to represent an actual percentage of a net income; instead, they represent EBITDA (earnings before interest, taxes, depreciation, and amortization) and EBITDAR (Adjusted EBITDA before rent expense).*

Expense Ratios

Expense ratios indicate the relationship of various line expense items compared to net sales. The *operating ratio* instead reveals the percentage of all expenses. However, management can control certain variable expenses according to business volume, and because some of the expenses may be increasing while others may be falling, the ratio of some expenses may vary. Hence, expense ratios are calculated by dividing each expense item or group of expenses with the net sales to analyze the cause of variation of the operating ratio. The ratio can be calculated for individual items of expense or a group of items of a particular type of expense like the cost of sales ratio, administrative expense ratio, selling expense ratio, advertising cost ratio, etc. The lower the operating ratio, the larger is the profitability and, the higher the operating ratio, the lower is the profitability. When analyzing individual expense items ratio, one must consider that for a fixed expense like rent, the ratio will decrease as sales increase, and for a variable expense, the ratio in proportion to sales shall remain nearly the same. For example, if the cost of a three-ply paper napkin with the logo for each cocktail served is $.03, this variable cost will be associated with each cocktail served, and as a ratio, the percentage will not change. This cost, however, will increase if the bartender uses 2 napkins for each cocktail served; in this case, this ratio will increase over proportionally. The following practical example shows a scenario in which the cost of decorating a cocktail would be virtually invisible or not identifiable as part of the operating ratio; however, if computed as a single expense item, it identifies its significance.

The formula for calculating an expense ratio is:

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Specific Expense / Sales) × 100

Example:

Cost of variable expense items for decorating a cocktail:

Stir stick .03; paper umbrella .03; drinking straw .02; fruit wood pick .02, napkin .03

Cocktail selling price $4.00

Cocktail Decorating Expense Ratio:

(.03 + .03 + .02 + .02 + .03) / 4.00 x 100 = .033%

Return on Equity Capital (ROEC) Ratio:

This ratio is very significant to the equity shareholders interested in precisely knowing the break-down of profits earned by the company and the profits that can be made available to pay dividends to them. Ordinary shareholders are the real owners of the company. As owners, they assume the company's highest risk by investing personal capital and, therefore, should receive the highest return. The rate of return on investment varies with the availability of profits. These shareholders are interested in the profitability of a company and not necessarily in the performance alone. Therefore, a company should be evaluated based on the return on equity capital of the company and not on the performance. Return on equity capital which is the relationship between the profits of a company and the equity invested by the stakeholders, is calculated as follows:

Return on Equity Capital =

(Net profit after tax – Preference dividend) / Equity share capital × 100

Equity share capital is the total value of equity shares. As the calculations' profit is the final profits available to equity shareholders as a dividend, the preference dividend and taxes are subtracted to compute the profits.

Example:

Equity share capital ($1): $2,000,000; 9% Preference share capital: $1,000,000; Taxation rate: 50% of net profit; Net profit before tax: $800,000.

Calculation:

Return on Equity Capital (ROEC) ratio

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$(800,000 – 400,000 – 90,000) / 2,000,000) \times 100 = 15.5\%$

Earnings Per Share (EPS) Ratio:

Earnings per share ratio (EPS Ratio) measures how much each share returns are a small variation of return on equity capital ratio and is calculated by dividing the net profit after taxes and preference dividend by the total number of equity shares. The earnings per share is a good indicator of profitability, and when compared across similar companies, it gives a view of the firm's comparative earnings or earnings power. EPS ratio calculated for several years indicates whether the company's earning power has increased or decreased.

Types of EPS

There are several types of EPS. They are as follows:

1. **Trailing EPS:** it includes numbers from the previous year and represents actual EPS earned.
2. **Current EPS:** it includes numbers from the current year, representing near future projections for the stocks.
3. **Forward EPS** – it includes long term projection for the stock.

The EPS is computed as follows:

EPS = Net Profit After Tax / Number of Equity Shares

Example:

Net profit after tax: $400,000.

Number of equity shares: 62,000

EPS = $400,000 / 62,000 = $6.45 per share.

2. LIQUIDITY RATIOS

Current Ratio

This ratio is the most frequently used ratio of the primary and extended financial analysis. It is easy to calculate, and it provides a preliminary but essential answer to the analyst's or investor's inquiry. It is usually defined as the relationship between current assets and current liabilities; it is also known as the "***working capital ratio***." It is a measure of general liquidity and is most widely used to analyze a firm's short-term financial position or liquidity. It is calculated by dividing the total of the current assets by

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the total of the current liabilities. The two basic balance sheet items of this ratio are current assets and current liabilities. As per the balance sheet, Current Assets include cash and those assets which can be easily converted into cash within a short period, generally one year, such as marketable securities, receivables, inventories, work in progress, etc. Prepaid expenses such as liability insurance premiums should also be included in current assets because they represent payments made in advance, which will not have to be paid soon.

Current liabilities mirror the principle on which the current assets are based. They are obligations that must be paid within a short period, generally one year, including outstanding expenses, bills payable, bank overdraft, accrued expenses, sales tax payable, dividend payable, etc. However, experts dispute whether an overdraft should be regarded as a current liability or not. Because some firms may have overdrafts for longer than they expect, they may be treated as a long-term liability. The argument here is that an overdraft service may be canceled at any time by either party. For this reason and the ongoing argument in the interpretation of the issue, it seems appropriate to include overdrafts in current liabilities. The formula to compute the current ratio is:

Current Ratio = Current Assets / Current Liabilities

Example

Current assets are $2,400,000 and current liabilities are $1,200,000.

Calculation:

Current Ratio = 2,400,000 / 1,200,000 = 2

Or expressed in ratio terms = 2: 1

The ratio of 2: 1 means that the firm has two dollars of assets for every dollar of liability. This reflects the ***golden bank rule*** discussed earlier and demonstrates that the company is financially sound. However, a firm with less than 2: 1 ratio is not in financial trouble. Instead, it could have better liquidity than firms with a higher than a 2: 1 ratio. This could be explained by the fact that a current ratio measures the ***current assets' quantity*** and not the ***quality*** of the current assets. If a firm's current assets include bad debts that cannot be recovered or inventories that are slow-moving or obsolete, the current ratio may be high. However, it does not represent a good liquidity position. This quick measure of liquidity of a firm represents the margin of safety or cushion available to the creditors as it indicates the firm's financial stability. It is also an index of technical solvency and shows the strength of working capital.

Limitations of Current Ratio

This ratio measures the liquidity and should be interpreted with caution because it has many limitations, and it should not be used as the sole index of short-term solvency.

1. It can only measure the quantity and not the quality of the current assets.

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2. Even if the ratio is favorable, the firm may be in financial trouble because of prep work in process, which is not easily convertible into cash, and therefore firm may have less cash to pay off current liabilities.
3. Valuation of current assets, such as ***wine inventory value*** and window dressing, is another problem. Wine inventories are especially troublesome. The unrealistic and inflated index price suggested by trade magazine may suggest that the prices for specific wines have increased; thus, the actual purchase price according to the "First-in, First-out" (FIFO) inventory evaluation procedure reflects the actual book value. This ratio can be very easily miscalculated by overvaluing the current assets. An equal increase in both current assets and current liabilities would decrease the ratio, and similarly, an equal decrease in current assets and current liabilities would increase the current ratio.

Acid Test or Quick Ratio

"Acid Test Ratio" or "Quick Ratio" is the ratio of liquid assets compared to current liabilities. True liquidity refers to a firm's ability to pay its very short-term obligations as and when they become due. The two balance sheet components to compute this ratio are liquid assets and liquid liabilities. Liquid assets typically include cash, bank, receivable, marketable securities, and other temporary investments. In other words, they are current assets minus inventories and prepaid expenses. Inventory is usually not considered liquid assets because it cannot be converted into cash immediately without value loss. In the same manner, prepaid expenses are also excluded from the list of liquid assets because they are not expected to be converted into cash or to receive back future liquidity instead of prepaid service.

Similarly, liquid liabilities mean current liabilities, E.g., bills payable, outstanding expenses, income tax payable, dividends payable, and bank overdraft (only if payable on demand and treated as "current liabilities"). Adding to the argument discussed in the "Current Ratio" section earlier, sometimes bank overdraft is not included in current liabilities, on the experts' disagreement that bank overdraft is generally a permanent way of financing and is not subject to be called on-demand. In such cases, the overdraft will be excluded from current liabilities. "Acid Test Ratio" or "Quick Ratio" is calculated as follows.

Liquid Ratio = Liquid Assets / Current Liabilities

Example:

Cash on hand $180; Inventory $1,800; Marketable securities $1,500; Payable $470; Accrued expenses $1,150; Tax payable $950.

Liquid Assets = 180 + 1,500 = 1,680

Current Liabilities = 470 + 1,150 + 950 = 2,750

Liquid Ratio = 1,680 / 2,750 = .61: 1

The above example shows that the current liquid assets can only cover 61% of the liabilities; in other words, for every dollar, the company owns it only has 61 cents to repay it. These kinds of circumstances are not uncommon in the business world.

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Significance

The quick ratio/acid test ratio is very useful in measuring the liquidity position of a firm. It measures the firm's capacity to immediately pay off current financial obligations and is a more rigorous test of liquidity than the current ratio. It is used as a complementary ratio to the current ratio. The liquid ratio is more rigorous because it does not consider inventories and prepaid expenses as a part of current assets. Usually, high liquid ratios indicate that the firm is liquid and can meet its current or liquid liabilities in time, and, on the other hand, a low liquidity ratio represents that the firm's liquidity position is not good, as shown in the above example. As a convention, generally, a quick ratio of "one to one" (1:1) is satisfactory.

However, a liquid ratio of 1:1 does not necessarily mean a firm's satisfactory liquidity position if all receivable is not paid in time when liabilities are due.

Conversely, a low liquid ratio does not necessarily mean a bad liquidity position as inventories is not non-liquid. In the restaurant business, the liquor and wine inventory, especially for items with a long shelf life, inventory value becomes one of the most critical issues in liquidity analysis. Hence, a firm having a high liquidity ratio may not have a satisfactory liquidity position if it has slow-paying debtors. On the other hand, a firm that has a low liquid ratio may have a good liquidity position if it has fast-moving inventories. Nevertheless, this ratio does complement the liquidity analysis as it is an improvement over the current ratio. Unfortunately, this ratio too has the same limitations as the current ratio.

3. ACTIVITY RATIOS

Inventory Turnover Ratio (ITR)

Every foodservice operation must maintain a certain level of inventory to meet the production requirement and customer demand. However, the level of inventory should neither be too high nor too low. A too high inventory means higher inventory costs and a higher risk of stocks becoming obsolete, whereas too low inventory could mean loss of business. It is essential to keep sufficient stock in the business. In most cities around the United States, suppliers can deliver six days a week and may be available to deliver in emergencies, even on Sundays or holidays. Indeed, there is no need to keep high inventory levels except for large operations that are subject to fewer fresh foods and depend on foods with a long shelf life. It is essential to mention that inventory levels are affected by the storage capacity, how much inventory, and what necessity or priority can be stored. Inventory represents dead capital, which could be applied to interest-earning investments, thus changing the entire company's financial positions. Many manufacturing firms have "inventory on-demand" and build manufactured goods as they are ordered.

A prime example and one of the many pioneers of inventory on demand is Dell Computers. Unfortunately, the foodservice industry is a different business, and not all inventories can be ordered on demand for obvious reasons. The inventory turnover ratio measures the relationship between the costs of goods sold during a particular period and the cost of average inventory during a particular period. It is expressed in the number of times: "how many times did that particular inventory turned over"? It also evaluates the efficiency with which an operation can manage its inventory.

This ratio indicates whether an investment in inventory is within the proper limit or not. The inventory turnover ratio measures the rate of conversion of inventory into sales. Usually, a high inventory turnover

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rate indicates efficient inventory management; the more fry which would be tied in keeping high inventory frequently the inventory is sold, the lesser amount of money is required to finance the inventory. Thus, the money usually tied to finance high inventory can then earn interest by being invested differently. A low inventory turnover ratio indicates inefficient management of inventory. A low inventory turnover implies over-investment in inventories, poor quality of goods, slow-moving items accumulation, and low profits as compared to total investment.

The inventory turnover ratio is also an index of profitability, where a high ratio signifies high profit; a low ratio signifies low profit. After conducting extensive research across industries, the general understanding is that there is no standard for interpreting the inventory turnover ratio. The norms may vary for firms and operations depending on location, distribution channels, infrastructure, and volume of business being generated by the buyer. However, the study of the comparative or trend analysis of inventory turnover is still useful for financial analysis and evaluation. The data for the components needed to compute this ratio, as shown in the sample below, is taken from the inventory "end of period reconciliation" in the accounting chapter used to prepare the periodic Profit and Loss statement (P&L). The data are useful to compute the ***average inventory*** and the cost of goods sold.

Average Inventory

Average inventory is calculated by adding the value of the beginning of the accounting period plus, that of the ending inventory during the accounting period and dividing them by two.

Example:

Open inventory: 40,000

Closing inventory: 60,000

Average inventory = (40,000 + 60, 000) / 2 = 50,000

Cost of Goods sold

The cost of goods sold is calculated as follows:

Opening inventory + Purchases – Closing inventory = Cost of goods sold

Example:

Opening inventory: 40,000; Purchases: 560,000; Closing inventory: 60,000

Cost of goods sold = (40,000+560,000) – 60,000 = 540,000

To compute the "Inventory Turnover Ratio," the following formula is used.

Inventory Turnover Ratio = Cost of goods sold / Average inventory

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Cost of goods sold: 540,000; Average inventory: 50,000

Inventory Turnover Ratio = 540,000 / 50,000 = 10.80 times

Sometimes the cost of goods sold may not be known from the published financial statements. In such a case, the inventory turnover ratio may be calculated by dividing net sales by average inventory at cost. This, however, should be done only if the real numbers are not available and should be noted in the financial analysis report. The formula is as follows:

Inventory Turnover Ratio (for exceptional circumstances only) =

Sales / Average Inventory at Cost

Accounts Receivable Turnover Ratio

A business may sell goods on a cash basis and on credit. Credit is one of the essential elements of sales promotion, and to marketers, it is known that sales volume can be increased by following a moderate credit policy. The effect of a moderate credit policy may result in tying up substantial funds of a firm in the form of receivables. Receivables are expected to be converted into cash within a short period and are included in current assets. Hence, the liquidity position of a firm concerned with paying its short-term obligations in time depends upon its debtors' quality.

It is essential to mention that with the evolution of technology, payments in foodservice operations are now credited in real-time and at "the speed of light." Credit or debit cards transactions in restaurants allow funds to be transferred across the globe as payments occur. Of course, it is different with large payments transfers or in cases where a credit agreement for direct billing has been established, and this is when the Accounts Receivable Turnover Ratio analysis becomes very useful. In cases when receivables transactions happen outside the country, and specifically when a letter of credit is involved, a much different approach must be taken. The reason is that the transaction will depend on several variables, including customs clearance, goods delivered in perfect conditions, no damage, nor loss etc. Of course, a restaurant is not concerned with these kinds of transactions except for sales of merchandise that may be shipped outside the home country. This merchandise could be signature specialty food items, cookbooks, T-shirts, etc.

The *accounts receivable turnover ratio* indicates the velocity of debt collection of a firm. In simple words, it indicates the number of times average debtors (receivable) are turned over during a year. For example, if the restaurant operation direct billing credit policy states that payments are due within 30 days from the date the transaction was made, but the debtors pay any time after 30 days, the company needs to analyze that and decide whether a less conservative credit policy should be implemented?

Formula for accounts receivable turnover ratio:

Accounts receivable turnover ratio = Net Credit Sales / Average Accounts receivable

To calculate the accounts receivable turnover ratio, two basic figures are needed; they are: net credit annual sales and average account receivables.

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Average account receivables:
The average account receivables are calculated by adding the opening balance of the account. receivables and closing balance of account receivables and by dividing the total by two.

Example:

Opening accounts receivable 1,000; closing accounts receivable 7,000

Average accounts receivable = (1,000 + 7,000) / 2 = 4,000

Example how to calculate accounts receivable turnover ratio:

Credit sales 54,000; Average accounts receivable 7,000.

Accounts receivable turnover ratio = 54,000 / 7,000 = 7.7 times

The accounts receivable turnover ratio indicates the number of times the debtors are turned over a year. The higher the value of debtors' turnover, the more efficient is the management of debtors or the more liquid the debtors are. Similarly, low debtors' turnover ratio implies inefficient management of debtors or less liquid debtors. It is a reliable measure of the time of cash flow from credit sales. There is no rule of thumb, which may be used as a norm to interpret the ratio as it may be different from firm to firm. As indicated in the inventory turnover ratio section above, numerous industry operations have been researched, and the general understanding is that there is no standard for interpreting the inventory turnover ratio. The norms may vary for firms and operations depending on credit policy, banking and IT infrastructure, and credit volume given to debtors. However, the study of the comparative analysis of accounts receivable turnover is still useful for financial analysis and evaluation. This topic is also discussed in depth in Chapter 8, in the Cost Control section

Fixed Assets Turnover Ratio

Fixed assets turnover ratio is also known as the sales to fixed assets ratio. This ratio measures the efficiency and profit-earning capacity of the business. The higher the ratio, the greater is the exhaustive utilization of fixed assets. A lower ratio means the under-utilization of fixed assets. The ratio is calculated by using the following formula:

Fixed Assets Turnover Ratio = Cost of Sales / Net Fixed Assets

Example:

Cost of sales: as per income statement 8,175,000.

Net fixed asset value as per balance sheet 20,703,000

Fixed Assets Turnover Ratio = 8,175.000 / 20,703,000 = .27

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Working Capital Turnover Ratio

The working capital turnover ratio indicates the rate of the utilization of the net working capital. This ratio represents the number of times the working capital is turned over in a year and is calculated as follows:

Working Capital Turnover Ratio = Cost of Sales / Net Working Capital

To compute the working capital turnover ratio, two main figures are needed**: the** cost of sales from the income statement and the net working capital from the balance sheet.

The net ***working capital*** is calculated by subtracting the total current liabilities from the total current assets.

Example:

Total current assets = 5,857,800.

Total current liabilities = 3,520,500

The net working capital = 5,857,800 - 3,520,500 = 2,337,300

Working Capital Turnover Ratio = 8,175,000 / 2,337,300 = 3.5

4. LEVERAGE RATIOS LONG TERM SOLVENCY RATIOS

Debt to Equity Ratio

The debt-to-equity ratio indicates the relationship between the external equities or outsiders' funds and the internal equities or shareholders' funds. It is also known as the ***external, internal equity ratio***. It is determined to ascertain the security of the long-term financial policies of the company. The debt-to-equity ratio indicates the proportionate claims of owners and the outsiders against the firm's assets. The purpose is to get an understanding of the safety cushion available to outsiders on the liquidation of the firm. However, the interpretation of the ratio depends upon the financial and business policy of the company. The owners want to do the business with a maximum of outsiders' funds to take the lesser risk of their investment and increase their personal earnings per share by paying a lower fixed rate of interest to outsiders.

On the other hand, the outsiders want that shareholders (owners) invest and risk their share of proportionate investments. A ratio of 1:1 is usually considered to be a satisfactory ratio, although there cannot be a rule - of - thumb or standard norm for all types of businesses. Theoretically, if the owners' interests are greater than that of creditors, the financial position is highly solvent. The formula used to calculate the debt-to-equity ratio is as follows:

Debt Equity Ratio = External Equities / Internal Equities

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Or

Outsiders' funds / Shareholders funds

As a long-term financial ratio, it may be calculated as follows:

Total Long-Term Debts / Total Long-Term Funds

Or

Total Long-Term Debts / Shareholders Funds

To calculate the ***debt-to-equity ratio,*** 2 figures are needed: outsiders funds, i.e., external equities, and shareholders' funds, i.e., internal equities. The outsiders' funds include all debts/liabilities to outsiders, whether long term or short term or whether in the form of debentures, bonds, mortgages, or bills. The shareholders' funds consist of equity share capital, preference share capital, capital reserves, revenue reserves, and reserves representing accumulated profits and surpluses like reserves for contingencies, sinking funds, etc. If any, the accumulated losses and deferred expenses should be subtracted from the total to precisely determine the shareholders' funds. It has been argued that current liabilities are not actual long-term liabilities, and they should be excluded from outsiders' funds.

Conversely, current liabilities should indeed be included in the outsider's funds because, like long-term borrowings, current liabilities also represent the firm's financial obligations to outsiders, and they are an essential determinant of financial risk. It depends on the ownership of how these funds should be reported. The ratio calculated based on outsider's funds, excluding liabilities, is defined as the "*ratio of long-term debt to shareholders' funds."*

Example:

External Equities / Internal Equities

= 1,200,000 / 18,000,000

= 0.66 or 4: 6

It means that the external debts are equal to 0.66% of shareholders' funds.

Fixed Assets to Proprietor's Fund Ratio

A fixed asset to proprietor's fund ratio determines the relationship between fixed assets and shareholders' funds. This ratio's function is to indicate the percentage of the owner's funds invested in fixed assets. Please note that the value of the fixed assets to be used in this ratio is the book value. The ratio of fixed assets to net worth indicates how shareholder's funds are sunk into the fixed assets. Generally, the purchase of fixed assets should be financed by shareholder's equity, including reserves, surpluses, and retained earnings. If the ratio is less than 100%, it implies that owners' funds are more than fixed assets, and the shareholders provide a part of the working capital. When the ratio is more than 100%, it implies

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that owners' funds are not sufficient to finance the fixed assets, and the firm must depend upon outsiders to finance the fixed assets. There is no standard or rule of thumb for this ratio; however, a range between 60 to 65 percent is considered acceptable.

The formula is as follows.

Fixed Assets to Proprietors Fund = Fixed Assets / Proprietors Fund

Example:

Depreciated book value of fixed assets is $ 46,000; proprietor's funds are 58,000.

Fixed assets to proprietor's fund are: 46,000 / 58,000 = 0.79 or 0.79: 1

Debt Service Ratio

The debt service ratio puts the fixed interest charges concerning the income earned by the business. It indicates whether the business has earned sufficient profits to pay periodical interest charges. The debt service ratio is essential information from the lender's point of view. It indicates the number of times interest is covered by the profits available to pay interest charges, and it indicates the financial strength of a business. A high debt service ratio assures the lenders the payment continuum of periodical interest due. However, a low ratio may create concerns for the finance manager in raising funds from lenders. The debt service ratio is calculated by using the following formula.

Debt Service Ratio = Net Profit Before Interest and Tax / Fixed Interest Charges

Net profit before tax $75,000; fixed interest charges on long-term borrowings $10,000

Debt Service Ratio = (75,000 + 10,000) / 10,000 = 16 times

UNDERSTANDING THE CONCEPT AND ANALYSIS OF "OVERCAPITALIZATION" AND "UNDERCAPITALIZATION"

Rationale

In business, the total amount of funds available should be neither too much nor too little. Capitalization deals with having an adequate balance of funds for the company; in other words, it attempts to determine the amount of capital the company should have to be going concern. The total amount of long-term funds available to the company is the capitalization of the company.

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Undercapitalization

If the capital owned by the business is less than the borrowed capital, it indicates that the company may be undercapitalized. This means that the company's owned capital is disproportionate to the scale of its operation, and the business is dependent upon borrowed money. ***Under-capitalization*** may be the result of many different factors that affect the capital owned by the company.

Undercapitalization is Usually Characterized by

- Low proprietary Ratio
- Low Current Ratio
- High Return on Equity Capital

The Effects Undercapitalization Could Have on the Company Could be

- Payment of excessive interest on borrowed capital
- Use of old and out-of-date equipment because of the inability to purchase new ones etc.
- High cost of production because of the use of old equipment and the inability to pay a low price due to financial constraints caused by undercapitalization.

Overcapitalization

Overcapitalization happens when a company's earnings are not sufficient to justify a fair return on the amount of share capital and debentures that have been issued. A company is considered **overcapitalized** when the ***total owned and borrowed capital*** exceeds the value of fixed and current assets. It is recorded as the accumulated losses on the assets side of the balance sheet. An overcapitalized company is one that cannot maintain its equilibrium; it is prone to many problems. Unless the condition of overcapitalization is restructured, the company may find itself in great financial difficulty.

Over Capitalization is Usually Characterized by

- **Idle funds:** The company may have funds not properly allocated in its investment portfolio.
- **Over-valuation:** The fixed assets, especially goodwill, may have been acquired at a cost much higher than that warranted by the services which that asset could render. In foodservice, business companies sell their Name as goodwill; however, once the business changes hand, the goodwill loses its value if the loyalty was built on the people/management running it and not on the brand. Another item may be the overpayment for the alcohol license. In the U.S., Alcohol Licenses are issued according to the population density. However, if the granting authorities decide to issue more licenses because of population growth, then the license purchased at a higher price may lose its economic value, although it may still have a high book value.
- **Fall in value:** Fixed assets may have been acquired at a time when prices were high. Over time prices may have been fallen so that the asset's real value may also have come down substantially even though in the balance sheet, the assets are being shown at book value less depreciation written off. Then the book values will be much more than the economic value.

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- **Inadequate depreciation provision:** Adequate provision may not have been provided on the fixed assets; with the result, the profits shown in the books may have been distributed as dividends, leaving no funds with which to replace the assets when needed.

Over-capitalization, however, can be mitigated by reducing its capital to obtain a satisfactory relationship between proprietors' funds and net profit. In case over-capitalization is the result of over-valuation of assets, then it can be remedied by bringing down the values of assets to their proper values.

4. MANAGING WORKING CAPITAL

Internal and Corporate Managerial Reports

Generally, current assets and current liabilities are the "Working Capital" of a company. Current assets are the Gross Working Capital, and the Net Working Capital is the difference between current assets and current liabilities. The company should always be concerned when the working capital is negative, meaning that the current liabilities are higher than the current assets.

The Foodservice Manager must be very familiar with all periodical financial reports, such as daily, weekly, monthly, yearly, and time series. Most importantly, the manager must immediately read and analyze all reports directly related to the food and beverage operation, such as menu items sold (also called menu engineering), labor cost reports, flash cost reports, spot check reports, and emergency reports.

Depending on the IT infrastructure of the establishment, these reports can be generated internally according to a specific issuing schedule and on-demand in real-time. Also, depending on whether the operation is free-standing or part of a hotel complex, managerial reports for other operations such as Rooms, SPA, and Sports Facilities etc., are usually distributed to all departments' Managers as well. In this way, each manager can compare all costs and revenues across all operations and, especially significant for a hotel food and beverage director, are Performance Ratios Computation such as Restaurant Guests to Rooms' Guests Ratio. Other reports, such as corporate reports, including bank reconciliations and other sensitive information, are usually accessible only by top management. After the top management has analyzed and read these reports, it will decide what information can be disseminated at levels of the management structure and what action should be taken.

The basic reports a foodservice manager should be receiving daily are:

1. Food and beverage revenue reports, also called "Profits and Loss" or P& L, both, all outlets total, and single outlets totals and should include but not limited to:
    a. Food Revenue
    b. Beverage Revenue
    c. Other income
2. Food and Beverage and Labor Cost reports
    a. Food cost
    b. Beverage Cost
    c. Other Cost
    d. Labor Cost
3. Budget and actual comparisons

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4. Team and individual outlet goal reports
5. Any other report**

**Note: for cost-saving purposes, the Risk Management Department should also prepare a general report about possible accidents that may have happened, such as injuries, thefts, and other essential losses that may affect the end of the month/ period financial results. These losses may be caused by guests and by employees. For example, the workers' compensation policy may have $1,000.00 deductibles for each accident when an employee is injured while on duty. If the employee needs to be transported to the hospital, the ambulance transportation cost, E.g., $800.00, will be absorbed by the establishment. Thus, the total profit for the period may be reduced by $1,000.00. If the foodservice manager is informed immediately about the accident, he/she may take preventive action to ensure that similar accidents do not reoccur in the future. In foodservice operations where there is no Risk Management Department, every effort should be made to keep a logbook in the management office to ensure that the management is made aware of such occurrences. It is expected that independent foodservice operations do not retain a corporate lawyer, and, therefore, they do not budget for potential liability cases. Foodservice managers should have a contingency plan in place and strive to keep communication open to reduce and maintain the level of liability to the lowest possible.

The Need for Cash Control and Overall Control

Cash is the most vulnerable asset; therefore, the need for cash control is extremely important for a foodservice operation. For a single operation, the total cash assets may be controlled by one department. For corporations, cash control is typically centrally controlled. At the corporate level, cash can be wisely invested by looking at the company's overall performance and not at a single operation. The cash control involves the management of float, on-time payment of obligations, speed in which receivables are received, how disbursements are made, and for what purpose, bank charges, discounts, credit cards charge-back, uncollectable receivables, etc.

Furthermore, proper credit policy management must be in place and the management of the company's credit rating or score. Often the foodservice operation has no control over the credit score, except for the financial credit score. However, advances in technology have allowed for many different score systems produced and issued by independent and unrelated entities. These scores are computed by algorithms that analyze data collected online from many factors: financial performance, employees' turnover ratio, reputation, image, online satisfaction star ratings, and, most importantly, the concepts of being complaint with sustainability, diversity, and inclusion. Websites that provide these kinds of services have caused serious concerns to many foodservice operations that have been defenseless in business losses, reputation damage, and scrutiny by regulatory agencies because they received negative scores.

Nevertheless, in terms of financial analysis, all factors must be considered, regardless of if a control system is in place, whether internally, externally, at the business unit level, and corporate level. Foodservice operations are known for taking a large amount of cash; however, what good does it do if there is no excess cash left at the end of the period, also known as a profit. Hence, the profitability of a company, to a great extent, is directly tied to its financial control system. Thus, one way of analyzing a company is to look at the financial performance, years of longevity, and possible future prosperity and sustainability, and overall viability. Every foodservice operation needs a control system that monitors sales, cost, inventory, assets, including human capital (Camillo, Connolly, & Kim, 2008).

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There are many ways to control an operation; however, regardless of the typology, a control system may be either Manual, Semi-automated, or Fully automated. With new technologies constantly evolving, control systems are more sophisticated and more reliable than ever before. With the introduction of the Radio Frequency Identification Devise technology (RFID), food service operation has improved their control systems while minimizing losses and increasing profits. However, cash consists of coins, currency (paper money), checks, money orders, and money on hand or deposit in a bank or similar depository, remains the most vulnerable of all assets a business owns.

Manual Control Systems

In small operations, where the manager or the owner works hands-on and is always present in operation, a manual system may still be an option. Therefore, an investment in advanced computer systems may not be considered, given the high initial investment and cost of maintenance. However, financial results are affected by unavoidable human errors. Most new start-ups, whether franchised or independently owned and operated, install computerized systems that control cash, payroll, inventories, and even generate cost reports.

Semi-Automated Control Systems

In large operations, such as in a hotel setting, maintaining internal control by observation and individualized verifications may no longer be feasible. In semi-computerized accounting systems are less expensive; however, there are a few disadvantages; there is no interface with the other department like a back office or other single operated cash register or computer terminal.

Fully Automated Systems

In large operations, manual or semi-automated systems are not feasible due to the massive number of transactions, their control, and a large amount of money associated with them. Imagine the complexity of managing and controlling a large foodservice operation in a gaming hotel in Las Vegas? Thus, with the implementation of a fully automated system, the operation is provided with adequate internal control and information flow because all computers are electronically connected. The significant advantage of a fully automated system is, among other endless possibilities:

1. On-line information is always available
2. No need for re-entering data because it can be stored, retrieved, and transferred on demand
3. It is programmed to work with minimum human involvement
4. it requires the least physical internal control requirement

Fully automated and modern cloud-based c**ontrol systems** include:

1. Cash Forecast
2. Cash flow reconciliation
3. Bank daily balances and other issues
4. Other forms of payments besides cash, such as credit cards, checks etc.

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5. Direct billing
6. Money wiring
7. International currency
8. And much more

5. FINANCIAL ANALYSES GROWTH STRATEGIES IN PRACTISE

Economists and business experts agree that regardless of size, whether a business is independently or corporately owned, growing the economy through business growth is key to personal, company, and long-term economic success. Private and small foodservice companies expect growth and success each year; however, many fail because they do not have a formal business growth model with strategies to achieve that. Chain-run operations, however, have a better chance of achieving success because they may indeed have a strategic business growth model in place. Businesses operating in emerging economies with the right business model can enjoy a high growth without limit, sometimes 100, 200, and even over 300% a year. For foodservice businesses, such growth may remain a dream, especially in countries where economies are mature and based more on survival models than growth models. It is believed that an acceptable growth rate for the hospitality business, in general, is about 15% yearly. However, many hospitality businesses, especially if they are in specific geographical areas without growth opportunities, concentrate more on increasing shareholders' value rather than overall growth despite the strategy, whether, for growth, stability, or survival, companies must have a comprehensive strategic plan. To develop a growth model and implement the right strategies, with the right business policy, the management should follow a well-defined strategic management model. A model may consist of the following: internal and external environmental scanning, strategic formulation, strategic implementation, and strategic control. Before any model can be developed, the company must first determine the status quo of the following:

- Its financial position
- The marketing strategies presently in place
- Its operation's internal efficiency

To begin the planning process for future development and growth, a detailed analysis of the following items should be conducted:

- Resources available
- Experience of the management and staff
- Controls and systems presently in place
- Innovation capability
- Leadership strength

Regarding business growth, management should not be influenced by the occasionally poor financial performance of the organization. The results simply mean that management must be persistent and plan differently; even good performance experienced in the past does not guarantee success. To create an efficient growth model, a company can benchmark on others' models, or it can create one of its own;

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whichever the case, the model must be based on the strength and capabilities of the core competencies it possesses:

- People
- Resources
- Innovation and ideas
- Marketing
- Operations
- Finance

Once the strengths have been assessed and the present performance has been analyzed, the management can answer the question: How good is the business in terms of its human capital, finance, marketing, operations, and overall potential for growth?

Potential for Growth and Assessment

Overall, the company needs to be analyzed in terms of experience, leadership, and the controls currently in place.

Experience

Years in business and management experience in:

- Borrowing funds
- Product development and innovation
- Type of market the business is dealing in
- Use of external resources
- Expansion
- Managing growth

In Terms of Leadership

- Involvement of senior management
- Age of owner-manager
- The occupational base of owner-manager
- Personal objectives and ambition in line with the vision of the future
- Education and training
- Attitude to staff development
- Family influence, if applicable
- Management style
- Attitude to change
- Degree of strategic awareness and understanding of the immediate and remote environment

Control

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- Adequacy of information and control systems
- Ability to use information
- Degree of professionalism and responsibilities of management
- Adequacy of planning and monitoring
- Level of delegation
- How performance is assessed

Resources

- Liquidity and availability of finance
- Technology level and capability
- Physical assets: age and state
- Product range and life
- Use of and access to appropriate external agents

Innovation and Ideas

- Number and source of ideas innovation being considered
- How they are assessed
- Level of development or market testing of these ideas
- Level of market planning of these ideas
- How creative are they

Before a well-formulating growth model can be developed and presented to potential stakeholders interested in the company's future growth, a basic assessment can be done by simply using a scale of 1, being very poor, to 10, being excellent). Most simplistically, a model can be used as an agenda for positive change because positive changes usually bring growth and higher returns.

6. INVESTMENT FINANCIAL STRATEGIES AND INVESTORS' ANALYSIS

Once the company has reached a specific growth, it will have severe difficulties in keeping pace. Statistics show that growth can rich its pick for any company, in any industry; we have seen it with Starbucks and Chipotle. Nevertheless, growth is possible if companies continue to diversify, innovate, and are willing to continuously change and adapt to markets and specific economic circumstances. The most crucial factor for any company is to create models that ***increase shareholders' value***. For investors making the right investment decisions requires that the company shows a/an:

1. Change in the company culture
2. Change in the organizational structure
3. Change in human resource management
4. Integrated approach to investment analysis including people, technology and product, and process quality issues
5. Elimination of the short-term investment mentality with the application of long – term strategies.

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According to the Restaurant Finance Monitor, in the last several years, the foodservice industry has seen an explosion of private equity investment in the restaurant sector. Private investors financed many restaurant chains. Historically, the restaurant sector has attracted angel investors, family members, and friends as stakeholders. This could be explained by the fact that banks do not lend venture capital to restaurant entrepreneurs, and the ventures have attracted investors that adore the restaurant industry. These are people who invest in the prestige to own a restaurant and other investors who believe the investment will be the next revolution and make them millionaire just like McDonald's. It is known that people who invest in a restaurant venture are emotionally motivated, especially celebrities. Often, they realize that because of lack of experience about the industry, they wish had never invested in such a venture. However, even if investing in a restaurant business is a high-risk undertaking, many private investors have long realized that the restaurant sector, while perhaps not always able to create the next McDonald, can provide a valuable and somewhat unique cash-flow-oriented growth investment. However, understanding how the industry operates is critical.

8. CREATING AND INCREASING STAKEHOLDERS / SHAREHOLDERS

To create a shareholder's value, one must determine what shareholders are looking for in an investment. Furthermore, before a company can borrow from these investors, it must determine if the right synergy can be created.

Investors who are ready to invest in a foodservice company are looking for:

1. A company that generates significant cash flow showing a significant return on investment
2. They expect a rate of return much higher than the average offer in conventional lending
3. They look for a management team that consists of a group of experienced people who have developed a strong concept and know-how to continue to evolve and strengthen the business
4. They like ethical companies, respect employees, customers, and business associate that are free of lawsuits, have no creditor issues, no tax issues, and, in the case of a franchise system, the franchisees are not financially stressed
5. Equity investors like to see clean and transparent corporate structures. They do not like companies that have the concept in one entity and the operating units in another
6. They look for unique concepts with strong core competencies other cannot immediately duplicate or imitate
7. Serious investors who invest in a high-risk venture like to see stability, growth and want others to be attracted as investors; in this way, they feel their initial funding was worthwhile
8. Because historically, restaurants fail at a higher rate than any other business, investors like to see a clear and well-formulated exit strategy
9. Investors look for companies that have expert people on the advisory board
10. Some investors also look for customers' right demographics; they do not wish to finance a business that damages their reputation and good name. In other words, they do not wish to finance a business that is based on values different that the investor has, be religious, moral, or any other value

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Private companies too, share similar goals. Although they may not have investors, they also strive for high return on investment, high cash flow and profit, business longevity with growth and value creation, and fame and reputation.

9. UNDERSTANDING INTEREST AND HOW INTEREST RATES

Interest Rates and Types of Interest

Interest rates are key to understanding the Time Value of Money. Interest is the cost of usage of borrowed or lent money over time; hence, it is a direct measure of money's time value. It is considered an expense for the borrower and income for the lender. Interest is stated as a percentage for a period, E.g., such as 1.7% per month on a credit card or 6.5% per year on a home mortgage. There are different types of interest, calculated in different ways with different formulas.

Simple Interest

Is calculated on the original amount borrowed (called the principal). Simple interest is better suited for short-term borrowing and single payment loans than for long-term installment loans.

Simple interest (where the interest is only charged on the principal) is calculated using this formula:

Simple Interest = Principal (P) x Rate (r) x Time (t)

Example:

50,000.00 loan at 5% interest per year after 5 year(s)

The formula to compute the simple interest amount is as follows:Where:

P: is the principal amount of loan amount, 50,000.00.

r: is the interest rate, 5% per year, which in decimal form is, 5/100=0.05

t: is the term involved, 5-year(s) time periods.

To find the interest, multiply 50,000.00 x 0.05 x 5, which results in the following:

The interest payable is: 12,500.00

The interest is added onto the principal to figure some new amount after 5 year(s),

50,000.00 +12,500.00 = 62,500.00

If the loan needs to be repaid monthly, the monthly payment, including interest and principal, will

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be computed as follows:

5 years x 12 months = 60 months

$62,500 / 60 = 1,041.67 monthly repayment

Conversely, if a restaurant had an excellent profit during a prosperous business year and wished to invest $50,000 at 5% interest rate for 5 years, it would have earned $12,500 interest and the original amount plus interest at the end of 5 years would have been $ 62,500.

Compound Interest

It is like simple interest, except that interest is earned both on the fixed principal amount and the interest as it accumulates. Saving accounts and mortgages use compound interest, for example. Investing $100 at an interest of 10% per month, after the first month, the total investment with interest earned would $110, after the second month $121, after the third month $133.10, etc. Accordingly, the money invested increases at an accelerating rate since the investment earns interest on interest; that is the true meaning of the power of compound interest.

How to calculate Compound Interest

The formula to compute the compound interest amount is as follows:

Compound Interest = $P\ (1 + r/100)^{nt}$

Where:

P: is the principal amount or loan amount

r: is the interest rate, x % per year, which in decimal form is x/100=. xx

n: year(s) time periods

t: is the term involved

Compound Interest = $P\ (1 + r/100)^{nt}$

Example interest earned for a $ 10,000 investment

P = $10,000; *r* = 3%; t = 10

What is the new amount at the end of the ten-year investment period?

Using the compound interest formula, the total investment will be:

Compound Interest = 10,000 x $(1+.03)^{10}$ = $13439.16

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Thus, the compound interest earned in total is $13439.16 – a return on investment of 34% over ten years.

"Rule of 78" Interest

Since there are many honest lenders and many not so honest in the money market, we will discuss the "Rule of 78" interest in detail. The reason is that small businesses such as restaurants operation often find themselves in financial distress, and consequently, the management will do anything to survive. While the simple interest loans and compound interest loans are more commonly used and understood by consumers, the "Rule of 78" computation is not, and it is also not as clear to the consumer. Therefore, small business entrepreneurs who find themselves in financial distress should consult a financial advisor before signing any loan agreement. ***The author strongly discourages the use of the "rule 78" interest methodology for both the lender and the borrower***.

The Rule of 78 is a method of allocating interest charges for a loan's life to the periods within the loan. It is the sum of digits of all 12 months (1+2+3.....+12 = 78); it is like the sum of digits depreciation method. It was developed as a simple (but inaccurate) method for calculating interest refunds in case of a loan's early repayment. These kinds of loans were used in the U.S. during early 1900, mostly for car loans. The existence of financial calculators and electronic spreadsheets with financial calculation capability renders this an archaic practice. The Rule of 78 methodology also allocates a slower payoff of the loan and higher interest charges for early payoff than using the outstanding balance. This method was outlawed in the U.S. in 1992 for loans longer than 5 years. Use on loans for less than 61 months is subject to State Laws; therefore, they still exist in many States. Under the "Rule of 78" method, interest is calculated for the life of the loan and then allocated to each month by proportion using a reverse sum of the digit's methodology. The number 78 derives from adding up the numbers of months for the note. For example, in a 12-month loan, counting month 1, plus month 2, and so forth through month 12 is:

1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12

This totals 78, and hence the name, rule of 78s.

To fully explain how this works, let us use the example of a restaurateur who wishes to buy a delivery truck for the outside catering that was just added to the operation. Since the operation is undercapitalized, it needs to finance the purchase because of the lack of funds available. There are two basic types of loans: simple interest loans and pre-computed loans. The Rule of 78s can only be applied to pre-computed loans that are paid ahead of schedule. To understand why this is such a dreadful deal for consumers, one must understand how a pre-computed loan works. With a pre-computed loan, the interest owed over the life of the loan is calculated using a standard amortization table. Once the restaurateur signs the loan agreement, he/she is legally obligated to pay back the principal plus the full amount of interest that will accrue over the entire term of the loan. In contrast, with a simple interest loan, the restaurateur would be charged interest each day based on the balance owed. So, the quicker the loan is repaid, the less interest is paid. A simple interest loan with no prepayment penalties rewards consumers who repay earlier. Instead, if a pre-computed loan that applies the "Rule of 78s" is repaid earlier, most likely, the lender will charge a penalty often disguised as a rebate.

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Example how the Rule 78 Interest is Computed

According to Helistar (2011), the simple interest total for the loan life (as given by the formula: Interest = Rate x Time x Principal) is divided by the sum of the digits (78 in this example) and applied in reverse proportion across the life of the loan. Thus, 12/78 of the interest applies to the first month, 11/78 to the second month, and so forth down to 1/78th at the end of the 12th month.

Mathematical Computation Example of Rule of 78

Let us look at the example of a $20,000 loan for a truck at 5% interest for 2 years. Under the Rule of 78 method, we first add up the months for the note:

1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12 + 13 + 14 + 15 + 16 + 17 + 18 + 19 + 20 + 21 + 22 + 23 + 24 = 300

Now, we calculate the simple interest total for the life of this loan:

- Interest = Rate x Time x Principal
- Interest = 5% x 2 years x $20,000
- Interest = $2,000

Finally, we divide the interest total by the sum of the digits (300) and apply in reverse proportion:

- Month #1: $2,000 x (24/300) = $160
- Month #2: $2,000 x (23/300) = $153
- Month #3: $2,000 x (22/300) = $147
- Month #4: $2,000 x (21/300) = $140
- .....
- Month #22: $2,000 x (3/300) = $20
- Month #23: $2,000 x (2/300) = $13
- Month #24: $2,000 x (1/300) = $7

The above example shows that the amount of interest in the Rule of 78 is higher in the beginning and reduces over the life of the loan (Helistar, 2011).

10. INTEREST RATES EXPLAINED

Periodic Interest Rate

It is a fractional amount of an annual interest rate. The annual rate is divided by the number of periods in the year, such as 12 for a monthly rate and 365 for a daily rate. It is multiplied by the average daily balance to calculate periodic interest charges.

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Annual Percentage Rate (APR)

Is an attempt to standardize the calculation of the cost of borrowing to make comparisons meaningful. APR is an annualized rate that can also include other costs of borrowing and interest charges. APR does NOT reflect the compounding of interest within each year.

Annual Percentage Yield (APY)

It is used for comparing investment yields. While APY is like APR in that it includes costs of investing, it differs from APR by including the effect of compounding within a year.

Nominal Interest Rate

It is the stated interest rate and does not necessarily reflect all borrowing costs, such as fees, mortgage points, etc.

Yield Curve

It graphs interest rates on Y-axis with a term of borrowing (short term vs. long-term) on the X-axis:

- **Upward sloping yield curve** - considered normal; has lower interest rates for shorter-term borrowing and higher rates (gradually flattening) for longer terms.
- **Inverted yield curve** - indicates a "tight" credit market; it has higher interest rates for short-term borrowing and lower rates for longer terms.

Time Value of Money and other Influences on Interest Rates

Why are some rates higher than others? Why do rates change over time? Because interest rates are influenced by:

- **Time value of money**: Is the ability to get a return on investment, which is, in turn, influenced by both supply and demand of/for funds and investments, often shown as a rate of return or interest rate. (See compound interest)
- **Credit risk of the borrower:** Some borrowers will default on payments; those with a perceived higher risk are charged a higher rate.
- **Inflation risk to the lender:** any return to the investor is affected by inflation during the time the funds are loaned. Consequently, the lender might charge a rate that will return the desired rate after inflation. Therefore, interest rates should be higher when inflation is expected to be higher or for long-term loans with more inflation risk than for short-term loans when inflation may be more predictable.

Useful links

1. National Association of State Boards of Accountancy (NASBA): http://www.nasba.org/

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2. ACT-outsource solutions: outsourced accounting provider: http://www.actoutsourcing.com/
3. Restaurant Finance Monitor: http://www.restfinance.com/RFDC/index.html
4. Accounting for management:

http://www.accountingformanagement.com/financial_ratios_formulas.htm

5. All Business: http://www.allbusiness.com/glossaries/objectives-financial-statements/4943391-1.html;

and http://www.allbusiness.com/glossaries/ratio-analysis/4954112-1.html ; and http://www.allbusiness.com/3470944-1.html

6. Answers: http://www.answers.com/topic/financial-statement-analysis
7. Real-time financial data: http://www.advfn.com/
8. The Bankrate Online Network: www.bankrate.com
9. CNN Money: www.money.cnn.com
10. Quicken Money: www.quicken.com
11. Smart Money: www.smartmoney.com

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Chapter 10
Statistics and Analytics Management

ABSTRACT

This chapter introduces the concept of statistical analysis and analytics management in the contest of food and beverage data analysis and business decision modeling. It lays the foundation for a broad understanding of statistical analysis in general, the meaning of analytics, and the advantages of using statistical data analysis. It emphasizes the relationship between a statistical application, analysis, and business relation using basic statistical information in the decision-making process. It shows various formulas, tools, and techniques for self-conducted analysis in small and medium-size foodservice operations.

1. INTRODUCTION

This chapter introduces the basic principles of statistical analysis and business analytics for foodservice managers and foodservice operators. It introduces basic statistical methods, tools, and statistical techniques as they relate to a foodservice operation. It highlights the importance of control and risk management by applying elementary statistics and understanding how businesses can be affected by dreadful events that could have been predicted and prevented. Just as in every other business, the management of a foodservice company is compelled to either employ an executive with basic or even advanced knowledge of statistical analysis or to hire an expert from outside the company (Pagano, 2012).

The chapter discusses, to a certain extent, the meaning of statistical analysis, which is an integral part of a company's success, and how to apply statistical analysis to their department or operation to avoid pitfalls that can lead to severe negative consequences, more than often, irreversible. The chapter further provides useful information and references about statistical analysis techniques, how to apply them, what the results mean, and to a certain extent, how to take preventive or corrective actions. Foodservice managers need to allocate ample time to analyze the daily, weekly, monthly, yearly, and time-series results and compare them to other departments where applicable to other properties in case of a multiunit operation and industry-related data the results that the organization is obtaining. These statistical analysis

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guidelines can be applied in a single food service establishment for self-analysis, by the unit manager of a multi-unit operation or by the foodservice/director of food and beverage in a hotel operation.

In recent years, we have experienced many emerging trends in business schools, from redesigning their programs around shorter and modular courses to introducing quantitative methods. Foodservice business schools have followed suit and included quantitative data analysis and undergraduate level and graduate level. The course modules include elementary statistics using Microsoft Excel and other spreadsheets add-ins and advanced statistics to using more advanced statistical analysis software such as SAS, SPSS, and others.

The aim of this chapter is to provide the student practitioner with basic information about business-related statistical analysis focusing on the practical application of data analysis useful to decision making (Lewis-Beck, 1995). This chapter deals with fundamental and straightforward theories based on information gathered from the field. The examples presented are easy to understand and simple to apply, especially for hospitality professionals who do not embrace mathematics discipline. Foodservice managers often observe problems and associate some prior actions or decisions with the problem's cause. For example, if an advertising campaign for a chain restaurant introducing a new menu happens to coincide with the drop in sales, some foodservice managers may drop the ad campaign quickly without any further analysis. If the sales in some divisions fell from the previous year, the regional manager may blame the sales and marketing staff for not working harder in promoting the new menu. It would be very erroneous to generalize the results of a single event or observation.

A much better approach would be to analytical measure the effort of the ad campaign by applying simple statistical analysis techniques. For example, if the advertising campaign has not increased sales, the campaign expenses and the present business volume must be analyzed to understand the negative effect. If the campaign caused a positive effect, then a simple analysis could explain the relationship between the variables of, e.g., "advertising expenses increase of 5% and an increase in sales of 10%".

Because the increase in sales was a positive outcome, the manager should capitalize on the positive experience by analyzing all related factors as a base for a more successful campaign. Taking such a scientific approach can provide an insight into the understanding of the relationship among the many factors contributing to an event leading to making better decisions. For many managers, thinking statistically may mean additional workload, unnecessary bureaucracy. However, practical experience shows that statistical analysis is not performed based on lack of time alone; they simply lack the knowledge about elementary statistics and how to deal with data and information effectively. Furthermore, even when managers are provided with data gathered through sales records, payroll, customer relations databases, they may not use the data to make sound business decisions. Therefore, understanding statistical processes, knowing how to interpret data, and simulating decision modeling, is essential for the foodservice manager of the 21st century (Bache & Lichman, 2013).

Finally, the author wishes to emphasize that although the chapter focuses mainly on using outside resources for the application of business analytics, it also provides classical tools such as measurement factors and formulas for the conservative practitioner to use.

What is Data Analysis, and Why is it so Important?

Firstly, one needs to understand what data analysis means. The literature offers many definitions of data analysis. The author describes it as: *"Data analysis is the process of collecting, organizing, analyzing, interpreting and presenting data to emphasize the attention to useful information, proposing conclusions,*

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and suggest solutions to facilitate the decision-making process. Data analysis has numerous aspects and approaches, encompassing various techniques under a multiplicity of names, in different business, science, and social science domains." Statistics, however, is generally described as *"a set of methods that are used to collect, analyze, present, and interpret data."*

This example clarifies the process underlying statistical analyses and interpretation. The various techniques and procedures used in the process described above make up the content of this text. Thus, we will first learn about the process of data collection/research design. Second, we will examine the use and interpretation of fundamental statistical analyses used within the context of varying data and design types. Finally, we will examine the process of data presentation. Statistical methods are used in various occupations and help people identify, study, and solve many complex problems. To better understand this topic, it is essential to realize that statistics are divided into two general categories: ***descriptive*** and ***inferential*** statistics.

Descriptive Statistics

Are used to organize or summarize a particular set of measurements. In other words, a descriptive statistic will describe that set of measurements. For example, information gathered concerning gender, race, income, education etc., is compiled to determine the demographic characteristics of the population in a study. This is a sample of how we organize, summarize, and describe a set of measurements.

Inferential Statistics

Are used to gather data from a sample to make inferences about the larger population from which the sample was drawn. We can survey randomly selected guests to find out if they like our new menu; the finding can then be generalized to the entire population because we assume that since our sample likes it, others may like the menu. Opinion polls and television rating systems represent other uses of inferential statistics. For example, a limited number of people selected randomly are polled during an election, and then this information is used to describe voters across the nation.

What is Measurement?

In statistical terms, "measurement" does not mean measuring the length of something, a distance, or a quantity of something such as water. In statistics, the term measurement is used more as "**scales of measurement."** Scales of measurement refer to ways in which variables/numbers are defined and categorized. Each scale of measurement has certain properties, which in turn determine the appropriateness for the use of certain statistical analyses. There are four scales of measurement: *1. nominal, 2. ordinal, 3. interval, and 4. Ratio,* (Woolf, 2020).

Nominal: Categorical data and numbers that are simply used as identifiers or names represent a nominal scale of measurement. A study that includes identifying "Gender," male and female, would appropriately sue a "nominal scale"; e.g., 1 would mean the code assigned to a male subject and 2 the code assigned to a female subject. Thus, the study is using the numbers 1 and 2 to represent categories of data.

Ordinal: An ordinal scale of measurement represents an ordered series of relationships or rank order. If a survey asks a guest to rank the beverages to their liking, the guest could rank wine, 1st, beer 2nd, whisky 3rd etc. This ranking represents ordinal data. A measurement scale in which subjects are asked

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to rate a variable "On a scale of 1 to 5, with one being least satisfied and 5 being most satisfied", also called the Likert scale, represents ordinal data (see Figure 1). Essentially, this type of scale measurement does not represent a measurable quantity but rather the level of, for example, satisfaction. We learn from such data that an individual who responds 1 is less satisfied than the one who responded 5. Therefore, a Likert scales only represent a rank or level ordering.

Interval: is a scale that represents, but does not measure, quantity and has equal units but for which the zero value simply represents an additional point of measurement, and it is an interval scale. The temperature scales, Fahrenheit or Centigrade, are an example of the interval scale of measurement, E.g., 69-degree Fahrenheit or -5 degrees centigrade are interval data. Measurement of Sea Level or atmospheric pressure is also an example of an interval scale. With each of these scales, there is a direct, measurable quantity with equality of units. Furthermore, zero does not represent the absolute lowest value. Instead, it is a point on the scale with numbers above and below it, representing either a warmer climate if above 32 Fahrenheit or a colder climate if below zero centigrade.

Ratio: The ratio scale of measurement is like the interval scale in that it also represents the quantity and has equality of units. However, contrary to the ratio scale, it has an absolute zero; there no negative numbers below zero. Physical measures represent ratio data, such as height and weight. If one measures the diameter of a pizza in centimeters, there is quantity, equal units, and that measure cannot go below zero centimeters. A negative diameter is not possible.

Interval and Ratio: data are at times referred to as ***parametric*** data, and ***Nominal*** and ***Ordinal*** data are referred to as ***nonparametric***. Parametric means that it meets specific requirements concerning the population's parameters; for example, the data analyzed will have a normal distribution or bell-like curve, a data that does not look like a bell curve is described as skewed. Parametric data are analyzed using statistical techniques identified as Parametric Statistics. As a rule, there are more statistical technique options for analyzing parametric data, and parametric statistics are considered more powerful than non-parametric statistics. Nonparametric data lack those same parameters and cannot be added, subtracted, multiplied, and divided. Ordinal data is considered nonparametric and cannot be added, etc. For this chapter, we will limit the explanation of elementary statics and measurements to the preceding highlights as the study of statistics can become very complicated.

Practical Understanding and Application of Statistical Techniques and Procedures

Data drive today's excellent decisions. In all aspects of our lives, and most importantly in the business context, an astounding multiplicity of data is available for inspection and analytical insight. Business managers and especially foodservice managers are increasingly required to justify their decisions based on historical data. They need statistical model-based decision support systems to understand the firm's past, present, and future performance. Analytical skills enable them to intelligently collect, analyze, and interpret data relevant to their decision-making. While statistical application processes and statistical analysis can be learned in the classroom, analytical skills are acquired and improved in the field through experience (Aron-Allen 2021).

Statistical concepts and statistical thinking enable them to:

- solve problems in a wide range of contexts
- add essence to decisions

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- reduce guesswork
- increase sales volume
- increase profit
- promote sustainability and growth

Vast amounts of statistical information are available in today's global and economic environment because of continual improvements in computer technology. To compete globally, managers and decision-makers must be able to understand the information and use it effectively. Statistical data analysis provides hands-on experience to promote statistical thinking and techniques to apply to make educated decisions in the business world. Computers play a significant role in statistical data analysis. From using a simple Microsoft Excel Spreadsheet to a sophisticated statistical software package, today's advanced technology offers extensive data-handling capabilities and numerous statistical analysis routines that can analyze small to extensive data statistics. While the computer will assist in the summarization of data and computation of the output, statistical data analysis focuses on the interpretation of the output to make inferences, predictions, and other business decisions.

Studying a problem using statistical data analysis usually involves four basic steps:

1. Defining the problem
2. Collecting the data
3. Analyzing the data
4. Reporting the results

What is a Decision Modeling?

"A decision model is a logic or mathematical representation of a problem or business situation." Decision models establish relationships between decision-makers' actions and results they might expect, thereby allowing decision-makers to predict what might happen based on the model assumption. For example, a hotel director of food and beverage might want to know how best to use the in-room promotions to attract more in-house guests to the hotel's fine-dining restaurant? The director of food and beverage implements different combinations of in-room promotions (decision variables), and then, if the promotion is effective, he/she observes the increase in several in-house guests covers and increase in sales. Using the data from such an experiment and several statistical techniques, the director can determine if the in-room promotion was effective.

Types and Sources of Data

Because data can be collected from any source and almost any activity over 24 hours, it becomes increasingly difficult for a foodservice manager to collect and analyze data physically. Nevertheless, foodservice directors must spend most of their time in the operation and have little time for office work. Hence, collecting high-quality data is very difficult for a manager who cannot dedicate useful time to office work. However, with the evolution of technologies, many companies now specialize in "Enterprise Analytics" to help managers leverage day-to-day data to create a competitive advantage. These companies use sophisticated analytical tools and applications to meticulously collect, research, collate, and manage millions of records for any size company. The painstaking efforts aimed at accuracy are often impracti-

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cal and too expensive for individual companies to undertake. However, using the Enterprise Analytics approach, foodservice managers, sales, and marketing teams can mine, analyze, interpret, and make sound management decisions by using preselected data for each specific query. The company Agilysys https://www.agilysys.com/ is a leading provider of innovative IT solutions to corporate and public-sector customers, with special expertise in select markets, including hospitality (Agilysys, 2021). The company uses analytics technology — including hardware, software, and services — to help customers resolve their most complicated IT needs. For a detailed list of companies and links, see the useful resources section at the end of this chapter.

Types of Statistical Analysis and Ways to Collect Data

Today's most technologically advanced foodservice operations are equipped with appropriate resources to be able to analyze almost any data; the questions are: what does he/she need to analyze and why? As previously mentioned, analysis is conducted for several reasons: to solve problems in a wide range of contexts, to add essence to decisions needed to be made, to reduce guesswork, to increase sales volume, to increase profit, and promote sustainable growth. Once the question has been formulated, the manager must then determine where from and how the data can be obtained: internally, externally, or both? One must also determine who the subjects involved are: employees, patrons, consultants etc...? Once the groundwork has been laid, the manager must:

1. Define the problem or opportunity
2. Design an instrument for data collection
3. Collect the data
4. Analyze the data
5. Synthesize the data
6. Report the results
7. Use the results for business decisions

Some essential items foodservice managers can analyze are customer satisfaction and related factors, sales volume, profitability, cost and expenses, competitiveness, market share, employee satisfaction, and shareholders' value. The preceding paragraph suggests only a partial list of factors a foodservice manager can analyze; also, he/she may analyze anything that makes business sense whose results will be conducive to either keep and improve what works and eliminate what does not.

For example, a strategic business unit (SBU) or so-called "store" of a multinational chain has produced above-average guest satisfaction results in a particular location, the head office, being satisfied with it, wants to explore if the same results can be achieved in other locations and across all States. Therefore, the foodservice manager of that specific location has been asked to analyze what motivates his customers to patronize the facilities and be very satisfied. In this case, the manager must design a questionnaire that will provide data for a business improvement opportunity and not solve a problem. The Manager consults available literature and believes he can conduct the research himself without hiring a consultant and proposed the questionnaire below. The questionnaire consists of 20 questions we call factors and a rating scale from 1, meaning the least satisfied and 5 meaning most satisfied; not applicable may apply to questions such as # 17, meaning that the restaurant did not offer any special promotion or that during that visit the guests did not promotions being offered. Also, 2 open-ended questions are asked to allow the

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guest to add anything he/she may feel would be important for the management to know. This scaled and open-ended questionnaire offers the management a useful tool that measures not only guest satisfaction but also to what extent the guest was satisfied or not. This type of questionnaire can be administered on location during a face-to-face interview or can be administered online. This is a prime example of how data analysis can benefit a company and all stakeholders.

Figure 1. Sample questionnaire using a Likert-type scale or ordinal scale of measurement

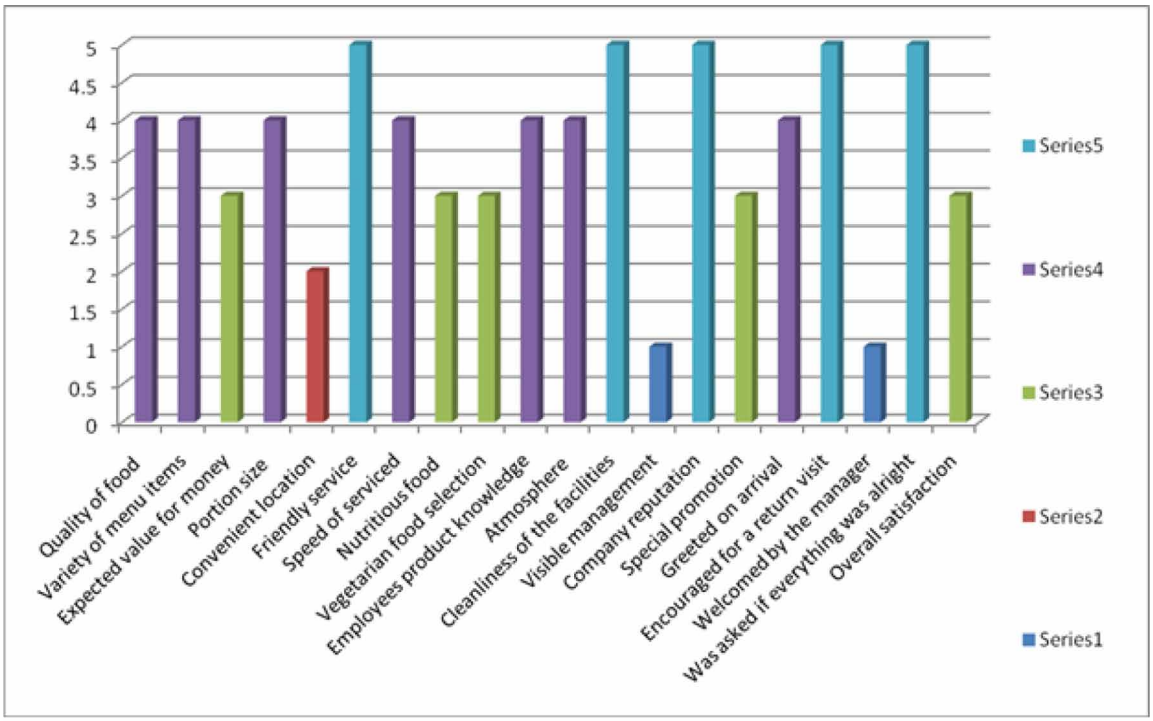
Sample questionnaire using a Likert -type scale or ordinal scale of measurement							
Factors		Level of satisfaction: 1= least satisfied; 5 = most satisfied					
		1	2	3	4	5	Not applicable
1	Quality of food				4		
2	Variety of menu items				4		
3	Expected value for money			3			
4	Portion size				4		
5	Convenient location		2				
6	Friendly service					5	
7	Speed of serviced				4		
8	Nutritious food			3			
9	Vegetarian food selection			3			
10	Employees product knowledge				4		
11	Atmosphere				4		
12	Cleanliness of the facilities					5	
13	Visible management	1					
14	Company reputation					5	
15	Special promotion			3			
16	Greeted on arrival				4		
17	Encouraged for a return visit					5	
18	Welcomed by the manager	1					
19	Was asked if everything was alright					5	
20	Overall satisfaction			3			
21	Is there anything you would like to add that we may have not asked above? NO						
22	If there is anything you would to change in our operation, what could that be? NO						

The above design represents a simple questionnaire that can be administered to all guests patronizing the restaurant. The survey results will tell the top management what this SBU is doing right and determine if the same strategy can apply across all units. In the above example, clearly, there is no visible management around; the guest did not notice any managers around during the dining experience.

The benefits will be:

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Figure 2. Analysis results of guests' satisfaction survey



1. The management will take immediate corrective action regarding the managers on duty
2. Proof of superior guest satisfaction
3. Brand loyalty and image build-up
4. Potential increase in sales and profit
5. Higher employee satisfaction
6. Value creation for all stakeholders
7. A useful tool for possible expansion
8. And more...

Scenario # 1: Competitive Analysis Within the Competitive Set for the Following Factors: Food Quality, Service Quality, Value for Money, and Portion Size

The foodservice manager of Antonio's Restaurant needed to analyze his restaurant's competitiveness within the competitive set of 16 others, including Antonio's. She decides to perform a competitive analysis with the competing restaurants by sending his 3 assistant managers to dine at the competitors' places and fill out an evaluation sheet to gather the data. The head office needed this data to prepare the next 5 years' strategic plan. Once the assistant managers had collected the data, it was entered into an excel worksheet to perform the analysis (see figure 3).

Working with the data: entering the data and creating a chart

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1. Enter the factors and the numerical data into the excel cells.
2. Highlight the cells to be included in the chart
3. On the menu bar, click on the chart symbol and select "bar chart" to replicate the sample as described in figure 3 and click ok. The chart has been created.
4. Now visualize, analyze, synthesize, interpret, and describe the results.
    a. The chart below (figure 3) shows that our restaurant competes with 2 competitors in terms of service quality: La brasserie and La Baguette.
    b. We also determine that the Road House West and La Brasserie offer better value for money
    c. It appears that Milano's Little Italy and La Baguette offer better food quality
    d. It also appears that Roy's Steak House, Ocean's Seafood House, Lulu's Café, and Das Deutsche Haus are competitive with portion size.
    e. Finally, we have determined that we are either superior or equally competitive compared to other competitors in the set.

Results

Among the competitive set of 16 restaurants, the direct competitors are La Baguette and La Brasserie, followed by the Road House West and Milano's Little Italy. The factors which our restaurant Antonio's must improve to stay competitive are Value for Money and Food Quality. In terms of importance, these factors are extremely important because customers want good quality food for the money they pay.

Solution

The management decides to immediately improve the quality of food and revise the pricing policy to stay competitive. Repeat the test within 3 to 6 months to assess if there has been a positive outcome. Replicate this exercise, analyzing any factor worth observing if it may deliver a competitive advantage, higher sales, and higher profits.

Scenario # 2: Sample Productivity Analysis Techniques

Square Table Pizzeria's manager wants to analyze the pizza delivery's productivity and see if the data can be useful in planning for future strategies or taking corrective actions such as cost savings, increasing revenue, and improving profitability. Using the technique of "Count Data," the manager collects the following data over 7 days. In the scenario below, the manager determines that the highest productivity in terms of shift hours is produced on Friday and Saturday, and the productivity per pizza delivery is highest on Tuesdays and Thursdays. This means that drivers delivered on average, more pizzas on Tuesdays and Thursdays than any other day. One seven-day statistical trial is not significant. It cannot be generalized because there may have been unknown factors involved, such as weather conditions, special events such as games etc. Nevertheless, with this data, the manager can further investigate what unknown factors may have contributed to the variances and apply predictive analytics techniques to forecast the expected business volume in the future accurately.

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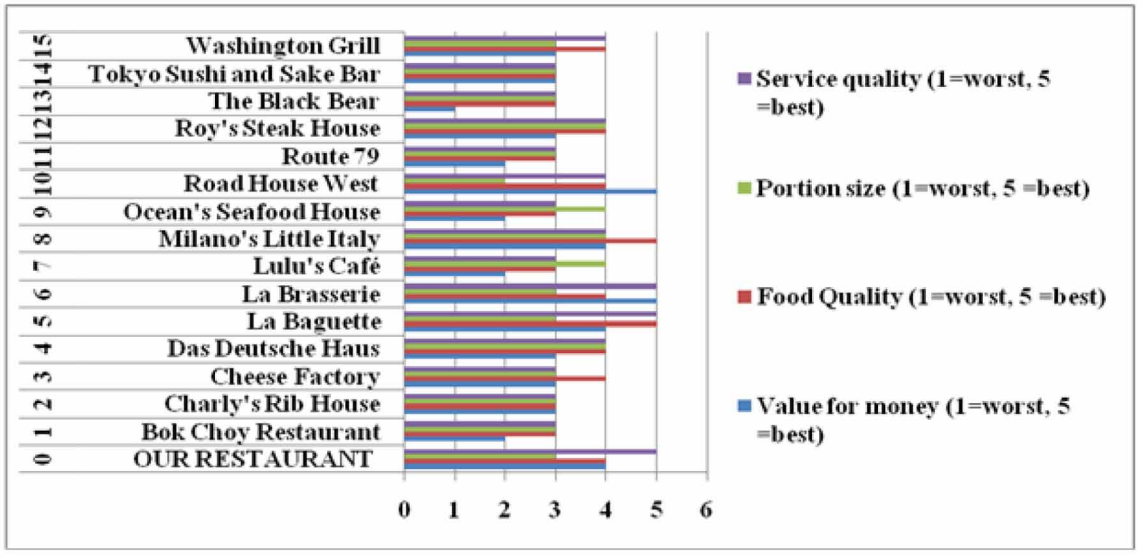
Figure 3. Competitive analysis worksheet

Sample restaurant comparative analysis within the competitive set of 16 restaurants		Value for money (1=worst, 5 =best)	Food Quality (1=worst, 5 =best)	Portion size (1=worst, 5 =best)	Service quality (1=worst, 5 =best)
0	OUR RESTAURANT	4	4	3	5
1	Bok Choy Restaurant	2	3	3	3
2	Charly's Rib Houose	3	3	3	3
3	Cheese Factory	3	4	3	3
4	Das Deutsche Hause	3	4	4	4
5	La baguette	4	5	3	5
6	La brasserie	5	4	3	5
7	Lulu's Café	2	3	4	3
8	Milano's Little Italy	4	5	4	4
9	Ocean's Seafood House	2	3	4	3
10	Road House West	5	4	2	4
11	Route 79	2	3	3	3
12	Roy's steak house	3	4	4	4
13	The Black Bear	1	3	3	3
14	Tokyo Sushi and Sake Bar	3	3	3	3
15	Washington Grill	3	4	3	4

Scenario # 3: Product Pricing Strategy

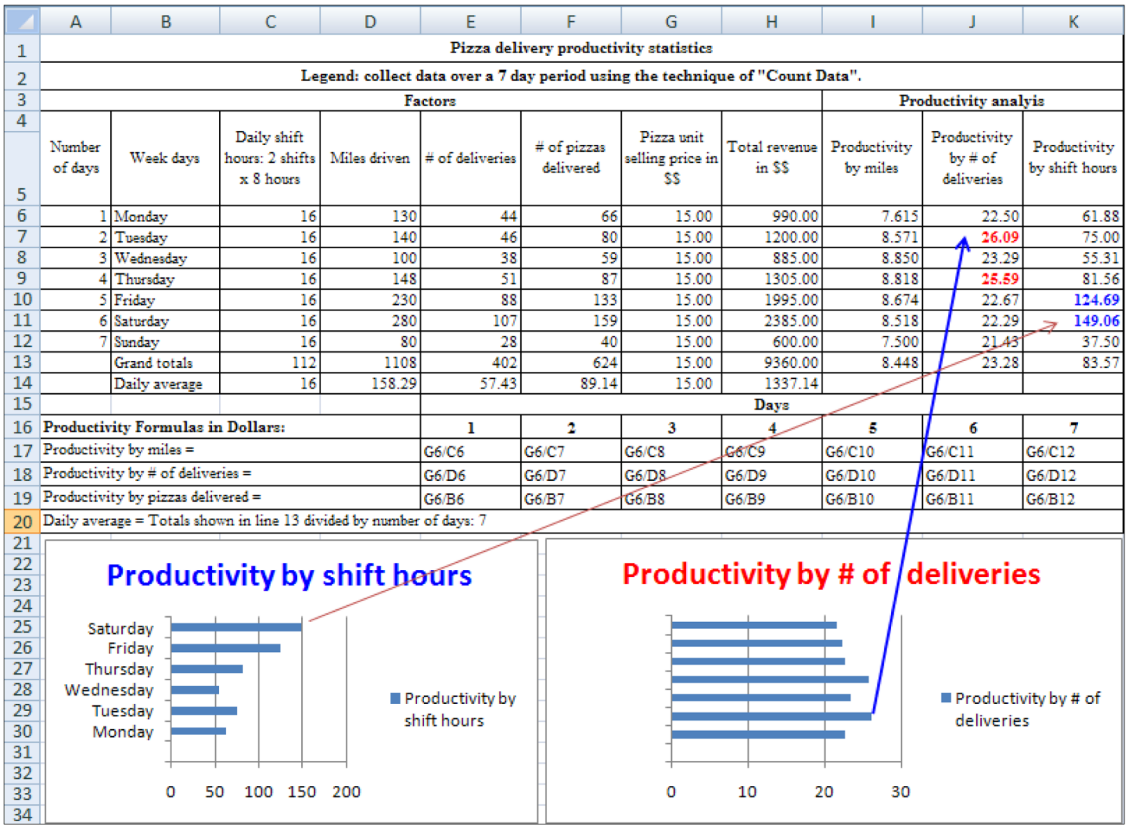
Statistical analysis of past data collected, and industry analysis ratios are useful tools in pricing strategy. The following example shows how a simple excel spreadsheet can provide 9 different food cost percentages and prices. Moreover, by changing one single unit, all derivates change as well.

Figure 4. Bar chart describing the competitive analysis results



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Figure 5. Sample productivity analysis techniques



	A	B	C	D	E	F	G	H	I	J	K
1	Pizza delivery productivity statistics										
2	Legend: collect data over a 7 day period using the technique of "Count Data".										
3	Factors								Productivity analyis		
4	Number of days	Week days	Daily shift hours: 2 shifts x 8 hours	Miles driven	# of deliveries	# of pizzas delivered	Pizza unit selling price in $$	Total revenue in $$	Productivity by miles	Productivity by # of deliveries	Productivity by shift hours
5											
6	1	Monday	16	130	44	66	15.00	990.00	7.615	22.50	61.88
7	2	Tuesday	16	140	46	80	15.00	1200.00	8.571	26.09	75.00
8	3	Wednesday	16	100	38	59	15.00	885.00	8.850	23.29	55.31
9	4	Thursday	16	148	51	87	15.00	1305.00	8.818	25.59	81.56
10	5	Friday	16	230	88	133	15.00	1995.00	8.674	22.67	124.69
11	6	Saturday	16	280	107	159	15.00	2385.00	8.518	22.29	149.06
12	7	Sunday	16	80	28	40	15.00	600.00	7.500	21.43	37.50
13		Grand totals	112	1108	402	624	15.00	9360.00	8.448	23.28	83.57
14		Daily average	16	158.29	57.43	89.14	15.00	1337.14			
15					Days						
16	Productivity Formulas in Dollars:				1	2	3	4	5	6	7
17	Productivity by miles =				G6/C6	G6/C7	G6/C8	G6/C9	G6/C10	G6/C11	G6/C12
18	Productivity by # of deliveries =				G6/D6	G6/D7	G6/D8	G6/D9	G6/D10	G6/D11	G6/D12
19	Productivity by pizzas delivered =				G6/B6	G6/B7	G6/B8	G6/B9	G6/B10	G6/B11	G6/B12
20	Daily average = Totals shown in line 13 divided by number of days: 7										

Scenario # 4: Restaurant Guests To Hotel Guests' Ratio Analysis

Guests' Ratio

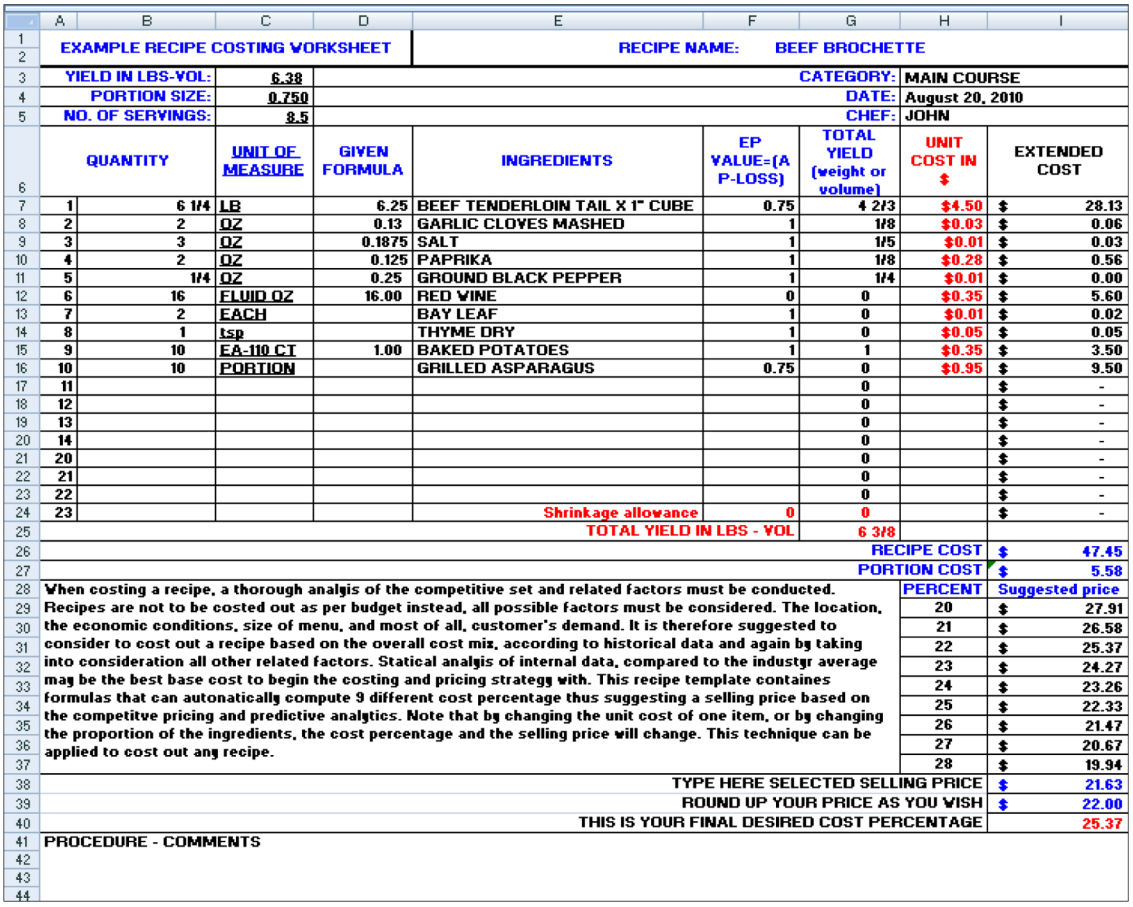
The Director of Food and Beverage of the Belvedere Hotel oversees the entire food and beverage operation, including a 300-seat casual restaurant. The Belvedere is a resort hotel located on an island with little competition. This casual restaurant was designed to accommodate hotel guests during all three meal periods: breakfast, lunch, and dinner. Because there is little competition near the hotel, the Director estimated in his budget that the restaurant guests to hotel guests' ratio should be at least 2.5: 1.00, meaning that hotel guests would consume 2 and a half meals each for 24 hours.

The fiscal year runs from January to December. At the end of January of 2021, the first month of the new fiscal year, the manager realized that the total covers served were 15,329; he had estimated a ratio of 2.5 expecting to serve around 36,680 hotel guests. The negative variance of 21,351 covers poses a severe operational and financial problem to the food and beverage operation.

As soon as the month-end results were available, the Director performs all possible analyses and realizes that the restaurant guests to hotel guests' ratio is 1.04:1.00. What can he do? What corrective action can he take for February and the remainder of the fiscal year 2021? Foodservice managers face such a dilemma always, and the task is not easy. The stakes are high for all stakeholders, and his job

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Figure 6. Sample recipe cost sheet using statically analysis technique



	EXAMPLE RECIPE COSTING WORKSHEET				RECIPE NAME:	BEEF BROCHETTE			
	YIELD IN LBS-VOL:		6.38			CATEGORY:	MAIN COURSE		
	PORTION SIZE:		0.750			DATE:	August 20, 2010		
	NO. OF SERVINGS:		8.5			CHEF:	JOHN		
	QUANTITY		UNIT OF MEASURE	GIVEN FORMULA	INGREDIENTS	EP VALUE=(A P-LOSS)	TOTAL YIELD (weight or volume)	UNIT COST IN $	EXTENDED COST
1	1	6 1/4	LB	6.25	BEEF TENDERLOIN TAIL X 1" CUBE	0.75	4 2/3	$4.50	$ 28.13
2	2	2	OZ	0.13	GARLIC CLOVES MASHED	1	1/8	$0.03	$ 0.06
3	3	3	OZ	0.1875	SALT	1	1/5	$0.01	$ 0.03
4	4	2	OZ	0.125	PAPRIKA	1	1/8	$0.28	$ 0.56
5	5	1/4	OZ	0.25	GROUND BLACK PEPPER	1	1/4	$0.01	$ 0.00
6	6	16	FLUID OZ	16.00	RED WINE	0	0	$0.35	$ 5.60
7	7	2	EACH		BAY LEAF	1	0	$0.01	$ 0.02
8	8	1	tsp		THYME DRY	1	0	$0.05	$ 0.05
9	9	10	EA-110 CT	1.00	BAKED POTATOES	1	1	$0.35	$ 3.50
10	10	10	PORTION		GRILLED ASPARAGUS	0.75	0	$0.95	$ 9.50
11	11						0		$ -
12	12						0		$ -
13	13						0		$ -
14	14						0		$ -
20	20						0		$ -
21	21						0		$ -
22	22						0		$ -
23	23				Shrinkage allowance	0	0		$ -
					TOTAL YIELD IN LBS - VOL		6 3/8		
								RECIPE COST	$ 47.45
								PORTION COST	$ 5.58

When costing a recipe, a thorough analsis of the competitive set and related factors must be conducted. Recipes are not to be costed out as per budget instead, all possible factors must be considered. The location, the economic conditions, size of menu, and most of all, customer's demand. It is therefore suggested to consider to cost out a recipe based on the overall cost mix, according to historical data and again by taking into consideration all other related factors. Statical analsis of internal data, compared to the industgr average may be the best base cost to begin the costing and pricing strategg with. This recipe template containes formulas that can autonatically compute 9 different cost percentage thus suggesting a selling price based on the competitve pricing and predictive analgtics. Note that bg changing the unit cost of one item, or bg changing the proportion of the ingredients, the cost percentage and the selling price will change. This technique can be applied to cost out ang recipe.

PERCENT	Suggested price
20	$ 27.91
21	$ 26.58
22	$ 25.37
23	$ 24.27
24	$ 23.26
25	$ 22.33
26	$ 21.47
27	$ 20.67
28	$ 19.94

TYPE HERE SELECTED SELLING PRICE	$ 21.63
ROUND UP YOUR PRICE AS YOU WISH	$ 22.00
THIS IS YOUR FINAL DESIRED COST PERCENTAGE	25.37

PROCEDURE - COMMENTS

could be in jeopardy. An immediate corrective action must be taken to increase the restaurant covers served. Because the Director is well - skilled in analytics management, he does the following:

1. Defines the problem
2. Designs a questionnaire which he will administer to all future hotel guests after they check-in
3. Collects the data
4. Analyzes the data
5. Synthesizes the data
6. Report the results
7. Use the results for the business decisions he must take

In the real world, managers are compelled to performing statistical analysis regularly and without waiting for month-end results. This scenario highlights the importance of analytics management and offers the foodservice operator a basic tool that can be used to improve the operations' financial performance.

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Figure 7. Sample Restaurant Industry Ratio

	A	B	C	D
1	**SAMPLE RESTAURANT INDUSTRY RATIOS**			
2			**Ratio to Total Sales**	
3			**Full Menu**	**Limited Menu**
4	**Sales:**			
5	Food		75.7%	100.0%
6	Beverage		23.9%	0.0%
7	**Total Sales**		**100.0%**	**100.0%**
8	**Cost of Sales:**			
9	Food		40.2%	36.1%
10	Beverage		29.3%	0.0%
11	**Total Cost of Sales**		**38.2%**	**34.3%**
12	**Gross Profit on Sales**		**61.8%**	**65.6%**
13	Other Income		0.6%	0.2%
14	**Total Income**		**63.9%**	**66.5%**
15	**Controllable Expenses:**			
16	Payroll		28.0%	24.5%
17	Employee Benefits		3.7%	2.9%
18	Direct Operating Expenses		4.2%	5.1%
19	Music and Entertainment		0.2%	0.0%
20	Marketing		1.7%	2.1%
21	Utilities		3.5%	3.1%
22	General & Administrative Expenses		2.6%	2.4%
23	Repairs and Maintenance		1.8%	1.4%
24	**Total Controllable Expenses**		**47.0%**	**46.6%**
25	**Occupancy Costs**			
26	Rent		4.8%	5.4%
27	Property Taxes		1.2%	1.0%
28	Other taxes		0.6%	0.3%
29	Property Insurance		1.4%	1.3%
30	**Total Occupancy Costs**		**7.3%**	**7.8%**
31	**Interest Expenses**		**1.5%**	**2.2%**
32	**Depreciation**		2.3%	3.1%
33	**Restaurant Profit**		**3.7%**	**4.7%**
34	Corporate Overhead		0.0%	0.0%
35	Other Deductions		0.2%	2.5%
36	**Income Before Income Taxes**		**2.8%**	**3.5%**
37	* All ratios are based as a percentage of total sales except food and beverage costs,			
38	which are based on their respective sales.			

Scenario # 5 Menu Engineering Modeling

We will discuss this scenario in more detail than others because; menu engineering is about the "bread and butter" for a foodservice operation.

Menu Engineering Modeling (MEM) is used in the context of the foodservice industry in general and in operations housed in a hotel setting (Evans, 2010). Simply put, "engineering" is about applying technical, scientific, or mathematical knowledge to arrive at the desired outcome. Menu Engineering is using a structured approach to building and monitoring a menu as a whole and the profitability of items sold.

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Figure 8. Restaurant guests to hotel guests' ratio analysis

BELVEDERE HOTEL - RESTAURANT GUESTS TO HOTEL GUESTS RATIO ANALYSIS												
Month of January 2021	Rooms available	Rooms Sold	Hotel occupancy in %	Hotel guests count	Rooms Revenue	Average room rate	RevPar	Restaurant breakfast covers	Restaurant lunch covers	Restaurant dinner covers	Total restaurant covers	Restaurant guests to room guests ratio
1/1	500	200	40.00	300	$29,134	$145.67	$58.27	223	25	76	324	1.08
1/2	500	203	40.60	305	$30,298	$149.25	$60.60	227	34	39	300	0.99
1/3	500	295	59.00	443	$41,914	$142.08	$83.83	346	21	67	434	0.98
1/4	500	266	53.20	399	$38,195	$143.59	$76.39	234	60	78	372	0.93
1/5	500	150	30.00	225	$27,867	$185.78	$55.73	191	34	99	324	1.44
1/6	500	151	30.20	227	$26,872	$177.96	$53.74	167	31	102	300	1.32
1/7	500	190	38.00	285	$35,294	$185.76	$70.59	182	43	128	353	1.24
1/8	500	226	45.20	339	$41,021	$181.51	$82.04	267	36	112	415	1.22
1/9	500	221	44.20	332	$39,088	$176.87	$78.18	112	45	97	254	0.77
1/10	500	225	45.00	338	$39,929	$177.46	$79.86	265	37	112	414	1.23
1/11	500	181	36.20	272	$29,619	$163.64	$59.24	119	31	111	261	0.96
1/12	500	213	42.60	320	$30,593	$143.63	$61.19	243	48	144	435	1.36
1/13	500	309	61.80	464	$56,121	$181.62	$112.24	323	36	191	550	1.19
1/14	500	354	70.80	531	$65,140	$184.01	$130.28	401	45	239	685	1.29
1/15	500	408	81.60	612	$74,758	$183.23	$149.52	389	12	201	602	0.98
1/16	500	409	81.80	614	$73,755	$180.33	$147.51	415	11	113	539	0.88
1/17	500	408	81.60	612	$71,865	$176.14	$143.73	523	34	99	656	1.07
1/18	500	358	71.60	537	$60,581	$169.22	$121.16	399	37	123	559	1.04
1/19	500	439	87.80	659	$67,725	$154.27	$135.45	456	38	49	543	0.82
1/20	500	427	85.40	641	$65,711	$153.89	$131.42	501	34	167	702	1.10
1/21	500	431	86.20	647	$66,775	$154.93	$133.55	479	17	128	624	0.97
1/22	500	439	87.80	659	$68,941	$157.04	$137.88	502	23	196	721	1.09
1/23	500	396	79.20	594	$63,463	$160.26	$126.93	377	69	167	613	1.03
1/24	500	381	76.20	572	$63,276	$166.08	$126.55	348	35	157	540	0.94
1/25	500	242	48.40	363	$38,342	$158.44	$76.68	191	54	136	381	1.05
1/26	500	244	48.80	366	$36,959	$151.47	$73.92	117	45	125	287	0.78
1/27	500	434	86.80	651	$82,000	$188.94	$164.00	409	33	146	588	0.90
1/28	500	435	87.00	653	$83,394	$191.71	$166.79	503	55	194	752	1.15
1/29	500	434	86.80	651	$83,410	$192.19	$166.82	599	46	112	757	1.16
1/30	500	407	81.40	611	$78,278	$192.33	$156.56	396	43	175	614	1.01
1/31	500	305	61.00	458	$59,448	$194.91	$118.90	278	46	106	430	0.94
Totals	**15500**	**9781**	**63.10**	**14672**	**$1,669,764**	**$170.72**	**$107.73**	**10182**	**1158**	**3989**	**15329**	**1.04**

There are two critical measures required for Menu Engineering: The Contribution and Popularity of each Menu Item. However, the example in Table 9 shows that menu engineering modeling can be expanded to include additional analyses that provide additional information. For the latter, necessary data such as total expenses percentage as per budget and information from the strategic plan must be available.

The most important information a menu engineering model delivers is 1. Contribution, the amount of money an operation earns from a Menu Item, and 2. Popularity of demand: the number of a Menu Item sold in each period as compared to other Menu Items. Most of the data can be obtained from the point-of-sale system report, and if the operation uses an integrated system, the data is available to anyone, anywhere from a server.

The ultimate information a manager needs to have is the analysis of data collected he/she will use to estimate future sales or forecast sales and inclusion in the budget and strategic planning.

Menu analysis serves as an additional tool in future menu planning:

1. Promotion of new items
2. Re-position of certain items,
3. Retention of popular items
4. Elimination of specific nonprofit producing items

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Furthermore, a menu analysis can guide the manager in making necessary modifications such as:

1. Presentation improvement, readability, interpretation
2. Re-pricing
3. Re-costing
4. Modify recipes
5. Reposition
6. Menu cycling

Following the interpretation of what sells best and delivers the highest profit, these classifications provide a structured approach to plan, monitor & review menus. In table 9 scenarios, the items with the highest demand are highlighted in yellow. These items are not only popular, but they also deliver high profit. In the example in table 9, the average demand is 2.86 (the average of items 1 through 39). Note that French onion soup, Mulligatawny soup, and Coffee show the highest demand; 8.2, 9.03, and 14.22, respectively. Coincidentally 2 items also show very high profit. Accordingly, we could assume the following interpretation:

Diamond items: Demand > 8.0 (French onion soup and Mulligatawny soup)
Gold items: Demand >4 but < 8 (Shrimp cocktail, Crab cake, Homemade ice cream, and chocolate bread pudding)
Silver: **Demand >2 but < 4** (Seafood sampler, dozen raw clams, Black Forest Cake
Bronze: **Demand < 2** (Filet mignon, Filet mignon, and lobster tail, Sea urchins

Typical questions to ask in analyzing a menu engineering worksheet

1. What is the total contribution of the menu? (Look at the financial reports compared to budget)
2. What item generates the highest profit?
3. What items in terms have the highest sales volume and profit?
4. What items could be offered as a daily special or as weekly special?
5. Could some slow-moving items with high-profit potential be promoted in a cyclical menu?
6. Are there any menu items that could be renamed or recipe enhanced or value-added to it?
7. What specific menu items may be overpriced underpriced?
8. Does the menu offer too many (few) categories?
9. What else does the menu engineering analysis tell us?

The above questions will provide useful answers in menu analysis with the goal to increase sales volume and profit.

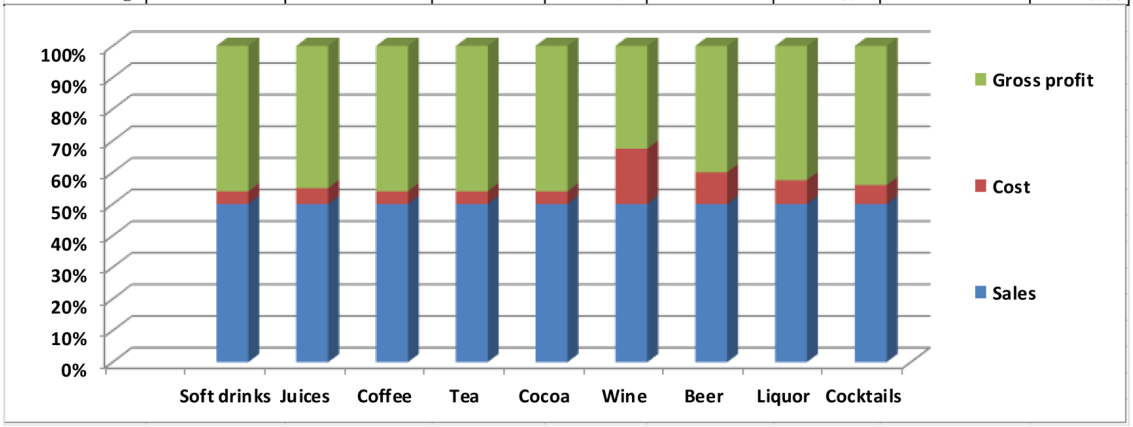
Scenario # 6: Sample Beverage Sales Analysis

Beverage sales bring the highest profit of any other item category in foodservice business, except meeting rooms and equipment rental. Therefore, monitoring beverage revenue and profit with proper inventory control and overall cost control is the most critical task a foodservice manager undertakes daily.

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Figure 9. Menu Engineering Modeling

Sample beverage revenue analyis of a 75 seat restaurant, dinner only, 30 days, 1.30: 1.00 turn over ratio; 97 daily covers								
Category	Average unit selling price	Sales	Unit sold	Demand - Sales %	Cost	Cost %	Gross profit	Gross profit %
Soft drinks	2.00	$ 2,100.00	1050	10.65	$ 168.00	0.08	$ 1,932.00	0.92
Juices	2.50	$ 1,275.00	510	6.46	$ 127.50	0.10	$ 1,147.50	0.90
Coffee	2.50	$ 5,100.00	2040	25.86	$ 408.00	0.08	$ 4,692.00	0.92
Tea	2.50	$ 975.00	390	4.94	$ 78.00	0.08	$ 897.00	0.92
Cocoa	2.50	$ 190.00	76	0.96	$ 15.20	0.08	$ 174.80	0.92
Wine	35.00	$ 945.00	27	4.79	$ 330.75	0.35	$ 614.25	0.65
Beer	4.00	$ 3,160.00	790	16.02	$ 632.00	0.20	$ 2,528.00	0.80
Liquor	4.50	$ 3,037.50	675	15.40	$ 455.63	0.15	$ 2,581.88	0.85
Cocktails	6.00	$ 2,940.00	490	14.91	$ 352.80	0.12	$ 2,587.20	0.88
Totals		$ 19,722.50	6048	100.00	$ 2,567.88		$ 17,154.63	
Average				**11.11**		**0.14**		**0.86**



The sample analysis in Figure 10 shows the sales and profit margin of nine different beverage categories. The sample shows that wine and beer sales combined represent $4,105.00 or 20.8% of the total sales; however, they also have the lowest profit margin, 65% and 80% for wine and beer, respectively. The average profit margin is 76.5%. What can the manager do to increase the profit margin and lower the cost, or both? These strategic decisions cannot be taken tactically and single-handed. It involves many players; the service staff, the sommelier, the bar manager, and ultimately the customer who is willing to pay a different price? The decision to improve the profitability must be strategic and not short-term because increasing the selling price is known to reduce customer spending, meaning less revenue in the long run.

Nevertheless, simple statistical analysis, such as the sample in figure nine, can give the manager the answer as to where the profit level is at any point in time, and strategic decisions to make changes can be much more manageable. More advanced statistical methods to analyze data using sophisticated statistical analysis software such as SPSS and SAS can be conducted. However, it requires knowledge of how to use the software and the interpretative knowledge of quantitative data analyzed to make forecasts and other managerial decisions. In other words, the process can become more complicated than just using an MS Excel spreadsheet.

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Table 1. Basic formulas frequently used in analyzing foodservice operations data

Basic Inventory of factors in foodservice business analysis, related formulas, and meaning		
Factors	**Formula**	**Meaning**
Beverage check average	Total beverage sales: total covers served	Amount each guest spent on beverages
Food check average	Total food sales: total covers served	Amount each guest spent on food
Total Check average	Total sales: total covers served	Amount each guest spent on food and beverage
Gross Margin	Total sales – Cost of Goods Sold	Amount of gross profit before total expenses and taxes
Net Profit	Total sales – total cost and expenses	Amount of money earned after all cost and expenses have been subtracted
Any cost percentage	Cost: sales x 100	It expresses the portion of the dollar spent for the cost of items in percent
Sales variance	Sales this year – sales last year	It tells whether the variance is negative or positive
Sales variance percentage	Sales this year-sales last year/sales last year x 100	It tells whether the variance is negative or positive expressed in percent
Average Food Inventory	(Beginning Food Inventory + Ending Food Inventory)/2	It tells the average inventory carried over a specific period.
Mark – up	Sales – cost	The portion of the money after the cost of goods has been subtracted
Mark – up percentage	(Sales – cost): cost x 100	Used in quick pricing and mar-up analysis

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Chapter 11
Restaurant Development:
Facilities Planning, Design, Equipment Procurement, and Management

ABSTRACT

This chapter discusses the concept of facilities planning, design, equipment procurement, and management within the context of restaurant development. It includes the investigation and planning of the location, equipment, long-term investment in capital expenditure, life span, durability, and business longevity and assets, among many other factors. It provides references and guidelines for opening a foodservice facility, specifically a restaurant, the process of the restaurant opening, from concept to operation and the equipment required, from FFEs (furniture, fixture, and equipment) to utensils and other operating tools necessary to run an entire restaurant operation.

INTRODUCTION TO FACILITIES PLANNING

Many entrepreneurs know they want to open a foodservice operation; however, they often find out they may not get what they wished. If an entrepreneur wants to open a restaurant with a nightclub and outdoor dancing, he/she might soon discover that the business idea is not feasible for one reason or another. There could be several reasons. The area may not be designated for commercial use, the level of decibels released by the music may be too high for the city ordinance, the liquor licensing authority may not issue the liquor license because the population density may not allow for it. This is only one of the many scenarios, and therefore, the entrepreneur may have to settle for something different or look for a different location.

Historically, ideas always start in "thoughts," and one person usually generates each idea before others agree to it. Generally, ideas can be considered inventions, innovations, radical innovation, or repeat what others have done by benchmarking on their product or service offerings. Regarding the latter, copying an idea must always have at least one criterion different from entering the market: e.g., the location. Experts are often amused to see someone opening "another" pizzeria. There is nothing wrong with doing that, provided the feasibility study shows the profit potential.

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However, most entrepreneurs always want to create something new; they wish to solve a problem; they want to change people's lives for the better through better food and beverages, a pleasant atmosphere in the hope of receiving a financial reward in exchange. Often entrepreneurs like to do for others what they want to do for themselves most, just like educators; they teach what they like to learn most. Throughout the chapters, we have discussed how easy it is to open a restaurant business and how easy it is to fail? However, with proper planning, the risk for failure is much lower. This chapter will discuss how facilities are planned, designed, built, and opened for business. The concept of opening a foodservice facility is very broad. Addressing each type of operation's opening, each with its style such as Quick Service, Fast Food, Midscale, Upscale etc. would be a textbook on its own. In this chapter, we will instead concentrate on restaurant entrepreneurship in general, because regardless of if the operation is a concession or a hospital, the "term restaurant is used as a general reference. Therefore, within this context, we will discuss common principles and characteristics shared by every restaurant operation: the kitchen, the dining area, receiving area, storage, equipment, point-of-sale system etc. In chapter 1, we discussed the various types of restaurants from a broad perspective. At times, the terminology can be confusing, therefore, we will attempt to define and to distinguish what industry is, a segment, a sector, the type and style of restaurant, what cuisine, level of service etc. The following is an interpretation to let the future restaurateur understand the terms when it comes to planning.

Table 1. Definition of restaurant terms

Term	Meaning
Hospitality	Is an industry that encompasses many sectors: lodging, tourism…
Restaurant foodservice	A sector of the hospitality industry
Restaurant business	Is a segment of the foodservice industry
Restaurant service type	Type of service offered: QSR, Fast Food, Full Service…
Restaurant concept	BBQ, Burgers, Steak house, Pizzeria, Seafood, Ethnic…
Restaurant theme	Related to: Sport, music, outdoor, heritage…
Restaurant cuisine style	Italian, Nouvelle, Molecular, Futuristic, Nostalgic, Family…
Restaurant menu	A list of dishes offered to patrons; the principal investment and cost determinant of the overall restaurant project
Restaurant category	Budget, Midscale, Upscale, Luxury,
Restaurant ratings	Classification of the level of product quality, service, price, etc.

The Importance of Facility Planning

For an investor, understanding where and how the money will be spent long before any new money will be earned is probably the first and most important thought. Therefore, there is a need for a well-designed feasibility study that will lead to the proper planning, building, opening, and operating a successful facility (Young, 1970; Justis, & Kreigsmann, 1979; Marcis, 2009). We have discussed that a

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critical failure factor in restaurant investment is lack of knowledge about the restaurant business, lack of practical experience, and lack of business shrewdness. If an investor lacks any of these three factors, then the help of an expert consultant must be sought. By having all areas competently investigated, the future operation can become successful. ***For a foodservice manager,*** the experience in facility planning will be a great asset in future career development, especially in company expansion. Typically, in a hotel setting, the hotel food and beverage operation director must have at least one restaurant opening experience to become thoroughly acquainted with new idea development, planning, and opening a new restaurant operation within a hotel complex. Regarding the actual planning, there are significant differences between the planning of a free-standing operation and that of a restaurant within a hotel facility. If the hotel is built new from scratch, the foodservices facilities will be constructed simultaneously with it; thus, the food and beverage service concepts for all outlets, including bars, banquets, etc. are developed simultaneously. A free-standing restaurant instead is built differently in many ways.

The structure must be built with all its supporting elements to supply power, water, heating, and air-conditioning, services such as disposal etc. The concept will be attracting patrons on its own and without the support of the hotel marketing. Seen from a positive point of view, however, it is much easier to accurately analyze the actual cost of building and running a free-standing restaurant because all costs are directly related to its operation. A restaurant operation within a hotel complex, for example, is debited with many undistributed expenses such as accounting and human resources expenses based on the level of activities they perform for the restaurant. These are costs usually referred to as ABC (Activity Based Costing). Nevertheless, both types of operations are challenging endeavors in creating an idea, developing the concept, and opening and running a successful operation. Like any other project, even those that do not require financing are evaluated for feasibility.

Important Trends in Restaurant Design

Today every foodservice operation is designed by emphasizing "sustainability." Within this context, we discuss the notion that foodservice operations are considered some of the worst polluters. However, as the industry adjusts to these trends, different organizations provide a wide range of resources to build and operate an environmentally friendly foodservice operation. Several professional associations have emerged, and with the assistance of the government, many programs have been implemented to promote sustainability. The programs are based on different criteria but not limited to:

- Green building material
- Energy Conservation
- Water Conservation
- Waste Reduction
- Green Cleaning
- Health hazard reduction or elimination
- Education

Various associations and agencies offer certifications and consulting services. They also provide a seal of approvals to be easily identified by the environmentally concerned patron.

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The Full Process of Restaurant Planning and Design

When investigating a restaurant investment opportunity, one needs to refer to the strategic management process. Therefore, performing an internal and external environmental analysis establishes the level of expertise and resources available internally and evaluates the external environment to determine if the entrepreneur or management can pursue the restaurant venture.

It is crucial to make a thorough outline of all the skills, resources, and information needed to complete the task. Many of these resources may be available internally or from personal experience or other individuals involved in the project. However, one must realize that in the real world, no one has all the skills necessary to investigate a restaurant business opportunity thoroughly. Many hospitality companies often use a consulting firm; however, sometimes simply because of time and resource constraints, even though an internal analysis reveals that the firm or individual may have all the resources available. In any case, if a consultant needs to be hired, due diligence is necessary because a lot is at stake in a project, such as the design of a restaurant (Baraban & Durocher, 2001; Birchfield & Sparrowe, 2003). Thus, the consultant must be someone qualified to be able to perform such an essential task.

What are the Qualifications and Services a Consultant can Offer?

A consultant can be an advisor, e unbiased mediator, an analyst, a source of information, a strategist, a tactical planner, an educator, a mentor of applied psychology, a kind diplomat, and the internet link worldwide hospitality network. In general, consultants do charge high fees; however, compared to what they have to offer, it may be worthwhile hiring one. The fees they charge are not based on what they provided the investors/entrepreneur with at that point in time. Instead, they are based on the years of experience they have accumulated to become consultants.

Generally, consultants sell time, expertise, credibility, and the ability to provide the correct information investors do not have. They can advise on various issues, including concept development, interior design, source of finance, and real estate related matters. They can offer verbal advice, written reports, written feasibility studies, and connections with purveyors, wholesalers, and more, depending on the type of service included in the portfolio they offer (Young, 1970; Justis, & Kreigsmann, 1979; Marcis, 2009). The term "Restaurant Development Consultant" is a broad definition that encompasses a wide variety of services in different areas of expertise (Bentley & Whitten, 2007). The main reasons why companies hire consultants are:

1. Because of lack of time or time management, the management time is better spent on their core business.
2. Because the management does not have the expertise of the consultant.

Professional Consultants Specialize in a Wide Range of Disciplines, Including

- Idea Development
- Concept planning
- Market and feasibility studies
- Financial projection
- Site analysis

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- Theme development
- Franchise planning
- Facilities design
- Programming/budgeting
- Prototype development
- Equipment layout
- Equipment specifications
- Construction coordination
- Food delivery systems
- Menu and wine and beverage development
- Menu costing, pricing, and merchandising
- Recipe development and taste-testing
- Tabletop design
- Staff planning, recruiting, and training
- Development of training manuals
- Job descriptions design
- Operation manuals development
- Operation analysis
- Procurement systems
- Materials management including purchasing, receiving, storing, and issuing
- Food production and service
- Point-of-sale system selection
- Management information systems/computer systems
- Market planning
- Public relations
- Advertising
- Promotions

Considering that not every consultant may have the same expertise and years of reputable service, a thorough investigation must be carried out before hiring one. The consultant should be investigated about the experience with similar operations; length of industry experience, realistic approach, creative mind, ability to communicate efficiently and understandably with clients, compatibility with in-house personnel with whom the consultant will work, ability to complete the project within the anticipated time frame, work ethic. A written proposal should be requested before signing any contract. The written proposal should include a statement of work to be done and the methods by which it will be accomplished, project objectives, the scope of service, qualifications and references, project management and staffing, fee schedule, reimbursable expenses, chargeable additions, invoicing standard. Only after a careful revision and comparison of the entire package of at least three proposals will the management decide which consultant to hire.

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The Planning, Design, and Operating of a Restaurant is an Eleven-Step Process

The day a restaurant can open its doors and begins value creation is a dream come true for all stakeholders. From the moment the idea is developed, and the opportunity explored to the day of opening (step 9), it can take up to two years. It can be a long and often painful time with happy moments and a lot of disappointments and frustrations. Many hours and a large amount of money are spent during the planning process; some of which were not anticipated, e.g., by drilling for the foundation, the architects realized that there is asbestos infested material buried beneath the soil, and consequently, the entire plan changes; the asbestos must first be isolated and removed causing delay and additional costs. This example will become critical in the case of a building use conversion if the old structure contains asbestos, which was not disclosed in the initial selling or leasing agreement. This type of incident may even require the hiring of legal counsel. Therefore, when venturing with a new project, all stakeholders need a lot of patience and a contingency plan to cover the unexpected costs and possible delays in the actual opening.

Regardless of what the process is, a critical path of the project must be drafted as the primary reference document that will serve two purposes, as a checklist for work in progress and accomplishments, and as a guide to determine whether at any specific points in time the project can be still carried out, or one must go back to a previous stage.

The Ten-Step Process Excluding Value Creation (#11)

1. Idea development and opportunity
2. Concept creation
3. Feasibility determination
4. Planning
5. Financing
6. Site location
7. Designing and engineering
8. Construction
9. Opening
10. Operating
11. Value creation

1. Idea Development and Opportunity

In this context, we will not discuss the planning of an entire food and beverage operation, including banquet and conference facilities, room service, pool service, or those included in a theme park, a concession, etc. The planning of such facilities follows under the design and development of the entire project. The following sections present an outline of "a single restaurant" design principally, from concept to operation, although frequent references are made to related operations throughout the chapter.

Coming up with a good idea is very easy, but implementing it is quite hard. Using an opportunity assessment plan, an idea can be identified. This is not the business plan; it is just one method to evaluate the opportunity. This opportunity plan includes a few elements such as the restaurant's vision, the assessment of the opportunity, its specifications of all requirements, and the resources needed. Thus, an idea

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for a restaurant is not the same as creating a product that can solve people's problems; it is a different approach. For a new restaurant or multiple dining facilities in a large hotel-resort complex, each one must be designed to be in harmony with the entire facility complex's theme. In the case of a chain/franchise restaurant, each facility will, in large part, resemble the other with the exception that each new one will have improvements made on what has been learned from the experience in building the previous one.

However, the outside décor, the curb appeal, the shape, and most other components will always remain the same. In the case of a free-standing restaurant, more than often, entrepreneurs who are inclined to build a restaurant can trace the inception of an idea back many years-to a need we saw or a "burst" of future perception. In this case, is does not matter how long the concept has sprouted in the entrepreneur's fertile minds, nothing is done about it until an opportunity that will follow through presents itself. The opportunity for that idea to follow through to finally open a restaurant may take the form of lifelong savings or the sudden luck of finding a wealthy food lover who is interested in investing in it as well. It may be the availability of available property or an association with others who are able to pursue it. Or an idea may be so overwhelmingly exciting to all who hear it, that they determine to try to consummate it. At that point of opportunity, the reality of the concept must be determined. Often, this means to start the process formally with some form of Market Survey to determine if the idea being proposed can be converted into a real opportunity. Sometimes, entrepreneurs need only to respond to their own initiative sense to proceed.

2. Concept Creation

Now the concept must be defined as precisely as possible and presented clearly in writing. Generally, this process involves the consideration of several variables that will determine the outcome of the project. A concept is gathering ideas that build the foundation for the type of restaurant an investor wants to own and operate, or a franchisor wants to franchise, or hotel management wants to add to complement other hotel operations. The basic concept should include a description such as:

1. The restaurant size (100 seats at 18 square feet per seat, or 200 seats at 12 square feet per seat, outdoor dining, bar...)
2. The type of cuisine (Indian, American...)
3. The menu (Limited, full service; 3 categories, 5 categories ...)
4. The décor (Contemporary, nostalgic, new age...)
5. The atmosphere (Bright, dim, warm, exciting, romantic, formal ...)
6. The theme (full color, mahogany interior, the music of the 60's ...)
7. Service style (QSR, silver service, table service, self-service buffet ...
8. Price structure (low price – high volume; high price low volume)
9. Operating hours (three-meal period a day 24/7, lunch and dinner five days a week ...)
10. Entertainment (piano, piano bar, dine and dance on Saturday ...)

While creating a concept, one begins to discuss the positive and negative factors that may significantly impact the overall concept. Some factors could be simply ignored as having little effect or be irrelevant; others may significantly impact initial cost, long-term cost, and the viability of the concept. Regardless of how great an idea may be, municipal authorities and other government agencies will always scrutinize it. Non-regulatory issues may include the supply logistics of raw material, imports if any, and the

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perishability of certain products. Other factors include those that no one can change, at least not in the immediate future.

These predetermined factors will allow the original idea to either preserve itself or be successfully realized; otherwise, it must be modified. This will depend on specific factors such as the general atmosphere, site limitations such as a prevailing view, traffic accessibilities, code or trend restrictions, or neighborhood type. Since these types of factors cannot be changed, they need to be carefully enumerated for the idea to follow through.

Predetermined Design Factors

The design process includes:

1. Interior
2. Exterior
3. Floor plans
4. Menu and menu cover
5. Beverage list and covers
6. Logo
7. Web Site
8. Uniform

Before proceeding with the full process, some important cost determinants such as fix cost, variable cost, one-time cost, reoccurring cost, perpetual cost etc., must be discussed. The following factors are an example that will determine the cost of critical items all stakeholders must consider. These are since once specific items have been put in place, they cannot be reversed. The sample below is a short synopsis of some rules-of-thumb, which vary according to the project type, size, and location.

1. The size of the menu (number of items) will determine the cost of:
    a. Storage capacity
    b. The size of preparation, cooking, and holding facilities
    c. The size of the inventory
    d. Other issues depending on the type of project
2. The size of the wine and beverage list will determine the cost of:
    a. Wine cellar
    b. Wine décor and display in the dining area
    c. Storage facilities
    d. Size of inventory
    e. Size of bar display cabinets, storage, workspace
    f. Size of refrigeration equipment
    g. Size of temperature-controlled space
3. The type of cuisine will determine the cost of:
    a. The type of equipment needed
    b. The experience of the staff with such a cuisine
    c. The type of décor

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   d. Other issues depending on the type of project
4. The size and layout of the dining facility will determine the cost of:
   a. The number of service staff
   b. The number of kitchen staff
   c. The number of supporting staff such as administrative staff
   d. The cost of energy
   e. The cost of maintenance
   f. Other types of cost depending on the type of project
5. The size of the land and building will determine the cost of:
   a. Property tax
   b. Energy
   c. Parking lot size and maintenance
   d. Landscaping
   e. Other types of cost depending on the type of project

Based on the above, the decision process continues with the following considerations:

The Restaurant Typology

Coffee Shop; Fast Food; Haute Cuisine; with or without Cocktail Lounge, etc.

Menu Classification

An itemized menu with specific dishes is not required at this stage; however, the number of menu categories from a general classification such as ethnic orientation, limited choice vs. full choice, etc., plus some indication of anticipated price ranges, is required.

Type of Service

Use of carts and a full French Service will require a different plan than one which encourages self-service, such as buffets or salad bars

Anticipated Seating Capacity

Some parameters of the eventual size should be known at this stage, for example, number of seats, approximate square footage, and, most importantly, any budgetary limits

Target Market

The restaurant designer must know who is intended to be attracted to this restaurant by age, gender, income level, geographic proximity, job-type, eating habits, cultural habits, etc. In any scenario, whether a free-standing restaurant or within a hotel complex, the location of the restaurant is very important. Although a hotel restaurant is known for not being attractive to non-hotel residents, every effort should be made to create a restaurant concept that can caterer to outside patrons. The location can determine if

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a restaurant will be successful and whether a certain meal period could be more successful than others. E.g., a restaurant near a business office complex could generate more lunch and happy hour business than dinner, while a restaurant near a residential area could generate more breakfast business. Whichever the market, the designer needs all information available to be able to draft sketches or what the décor should look like, and from there try to develop a proposal for discussion as to how to position the entire concept including menus, operating hours, meal periods etc.

3. Feasibility Determination

No task is ever straightforward. The task of developing a restaurant idea and turn it into a successful operation involves the study of endless variables and numerous considerations to determine if a given idea is feasible and if the operation will be viable. Once an idea has been developed a study is conducted to determine if the idea "**feasible**?"

The meaning of Feasibility and Factors Involved in Feasibility Studies

"**Feasibility**" is defined as *the evaluation of a proposal designed to determine the difficulty in carrying out a designated task*." Generally, feasibility studies are conducted before the development of a concept, project planning, and project implementation. Meaning that a feasibility study is an evaluation or analysis of the potential impact, either successfully or unsuccessfully of a proposed project (Young, 1970; Justis, & Kreigsmann, 1979; Marcis, 2009).

Feasibility in Restaurant Planning

There are two main types of feasibility studies in restaurant planning, sometimes confusing to those unfamiliar with the process.

1. **The Architect's feasibility**

This is the architect's study to determine possible construction sites such as soil conditions, wind factors, etc.

2. **The Market feasibility**

This is the market feasibility study that determines the financial viability of a concept based on the market to which it will cater to. The market feasibility establishes whether the concept is financially viable. In recent times feasibility studies involve considering many factors that play an important role in identifying potential problems that can or cannot be circumvented.

The Consumer Factors

1. The potential customer
2. The demographics
3. Life cycle

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4. Age make-up
5. Generation type
6. Level of education
7. Occupation
8. Consumer psychographics
9. Consumer behavior
10. Total residential population
11. Number of households
12. Average households' size
13. Average annual income per person and per household
14. Major employers in the area
15. Transient population
16. Total population by gender
17. Size of specific target groups; by ethnicity, by profession, by recreation ...

3. The Industry Trends

Studying industry trends is critical in conducting a market feasibility analysis (Young, 1970; Justis, & Kreigsmann, 1979; Marcis, 2009). It will help determine the opportunities and threats in the industry that may affect the project's future profitability. Studies on consumer eating and drinking patterns can be obtained from various sources. Thus, changing trends can be identified before they become apparent in the local market where the project is planned.

Industry Trends Data is Available from Various Sources Such as

1. National, State, and local Restaurant Association
2. Foodservice and manufacturing associations
3. Culinary associations
4. Academic libraries at colleges and universities with hospitality programs
5. Industry trade publication
6. Internet resources

Trends That Most Significant to the Feasibility Analyses are

1. Growth and pace of the industry
2. Market demand
3. Menu preferences
4. Change in eating habits.
5. Restaurant critical success and failure factors

4. Technology Feasibility

Technological feasibility is carried out to determine whether the company has the capability and the resources to handle the project and operate it successfully.

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5. Economic Feasibility

Economic analysis is commonly known as cost/benefit analysis; it is the procedure that determines the benefits and savings that are expected from using one asset or FFE over another by comparing them with actual costs. If benefits outweigh costs, then the decision is made to purchase specific equipment or design and implement an economically better system. In planning, one must always compare the cost versus benefits before deciding. E.g., a ***Cost-Based Study*** identifies cost and benefit factors that may influence the development costs or the operating costs. *For example,* ***a time-Based Study*** is a study that analyzes the time required to achieve a return on investment.

6. Sales Feasibility

Estimate the sales potential is a component that attempts to predict the future financial performance of the restaurant based on the following factors:

1. The number of covers and turnover
2. The average check per cover served

A key indicator of future sales performance is historical sales performance of similar existing operations. Prospective operators must look for comparable restaurants for data on their past performance. This information is readily available today from hospitality consulting firms that work data tracking and analysis. While there are no formulas for calculating future sales potential, research about historical data will help create more informed and accurate estimates.

To estimate the potential covers served, the prospective operator needs to analyze the historical results of the immediate competitive set or the direct competitors. Also, performing a SWOT analysis and review the projected restaurant's relative strengths and weaknesses to determine the competitive position in the market area.

7. Legal Feasibility

Determines whether the proposed concept creates conflicts with legal requirements, e.g., noise ordinance, traffic overload, etc.…

8. Operational Feasibility

It measures of how well a proposed concept can function based on the opportunities and constraints identified in the study?

9. Schedule feasibility

Is the analysis That identifies if a project may fail if it takes too long to be completed? That is why many businesses agree on a penalty clause in the construction contract if a project is not completed on time. If a restaurant is scheduled to open on a date and the project is not ready, it may miss the opportunity for a great start and may not recover the losses.

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10. Resource Feasibility

This involves the analysis of the resources that are available to conduct the business. For example, if the restaurant is built in a rural area with little traffic, purveyors may deliver only once a week, which may conflict with the proposed concept. Another example would be the availability of potable water. Many restaurants in rural areas must buy bottled water because a well to draw potable water may not be feasible.

4. Planning Stages

Following the feasibility determination, the opportunity is analyzed, the objectives are set, and different options are explored to decide which best scenarios can achieve the objectives.

1. **The pre-planning stage** considers the following:

    a. Analyzing the opportunities
    b. Defining the objectives
    c. Exploring the best options
    d. Selecting the best option
    e. Drafting a detailed plan
    f. Evaluating the plan
        i. **The first stage** of planning involves ideas on what the final construction may look like and where it is going to be located. Researching what and whom will be involved is an essential factor before hiring an architect, an interior designer, and a general contractor.
        ii. **The final planning** takes place when all information has been gathered, evaluated, and put into a final plan: the idea, the concept, and the results of the feasibility. The next step is to determine the design and necessary contracts. At this stage, many events take place whose results will affect the opening schedule of the restaurant. The architect and interior designer develop the interior design, facilities floor plans, elevations, and preliminary kitchen and bar equipment. Modern designs are done with advanced computer software package CAD (computer-aided design), which can provide detailed and accurate designs put into scale for building and budgeting. Designs are also done in 3D format, showing detailed graphics of the facilities with a 360^0 rotation. Interior design with décor is completed simultaneously together with the logo, menu covers, staff uniforms and layout. All other designs such as a possible exhibition kitchen, electrical works including sounds, phone-POS-internet, and security systems, are finalized during this stage. Cost estimate for large kitchen equipment such as walk-in fridges and freezers, ranges, ovens, dishwashing machines, and other FFEs (Furniture, Fixture, Equipment) are worked out and added to the cost of the facilities. The next step is to develop a realistic budget and to determine if the project can be financed.

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5. Financing

Having obtained all necessary information and having received the assurance that the concept is economically feasible and aided with the designer's input on costs and sources of costs, the process of obtaining financing can be started.

The first step is to create a legal company unless the investors already have a parent company, and the new restaurant operation will be DBA (Doing Business As), a different entity owned by the parent company. If a legal form of entity does not exist, a company must be created. Soon after, a bank account should be opened, and the most important step is to deposit some funds in the account. Having some funds in the account shows good faith when trying to obtain financing. In case a large amount of cash is not available, the entity seeking financing must explain other sources of collateral such as private home, personal assets, retirement investments, stocks, or the principal investor leading the project may be one of the managers or executive chef who will be part of the core competence of the business. In this case, the entity seeking financing would invest its time and talent, and others would invest money. However, before any more capital is spent on down payments, licenses, architect's and interior designer's fees, etc., the future operator should collect cash money for deposit in the bank. As discussed throughout the text, banks do not finance restaurant ventures because they consider restaurants to be among the highest-risk categories of investments in new venture creation, and, as such, restaurant ventures are challenging to finance conventionally. Therefore, when financing is secured through private investors, it must be done so that hard cash is deposited in the bank and not invested with verbal promise or that a check will follow in the mail. According to experts, too many restaurateurs have authorized expensive services from consultants and architects based on one of those promises only to find out that there did not follow through, and consequently, they found themselves undercapitalized and unable to continue with the project.

6. Site Location

Location is a critical consideration because it affects the ability to attract customers. The site must be visible, accessible, convenient, and attractive to the target market. The site evaluation will depend on the type of restaurant being planned and on the type of customers being targeted as potential patrons. Finding the right location is so essential because it can affect the core of the concept. It is essential that the location and concept complement each other and that no major deviation from the final planning needs to make. Any such alteration of the plan means changes in the cost estimate. Therefore, if changes must be made because of the site, a site must be chosen based on market factors and high sales and profit potential, not because of the low price. Different types of restaurants will have different location requirements; however, certain elements should be analyzed regardless of the type of restaurant being planned. The location can be either the land on which the restaurant will be built on from scratch or in an existing building, which would be considered a conversion. If it is the land, one must investigate whether it is commercially zoned. Sometimes municipalities allow building commercial buildings in non-commercial zoning referred to as "legal non-conforming"; however, when additional businesses open nearby, the code may be changed to fully commercial zoning. These changes, however, could mean tax increases that the restaurant may not have budgeted for. Therefore, a thorough investigation of the city master plan must be conducted if such a situation could arise. While investigating the city master plan, one should also investigate the city's planned traffic flow changes and traffic regulations, e. g: the street where the facilities will be built is scheduled to become a pedestrian zone only; thus, the restaurant may

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lose potential parking spaces. Another possibility may be that the entire street may be closed, allowing deliveries only between 8:00 AM and 10:00 AM. These are factual events experienced in the hospitality industry, not only in the U.S. but also across the world. Regarding conversion, one must be cautious about converting existing buildings because of profound implications such as asbestos removal, old pipes, and new municipal regulations regarding building codes, which can add a high cost to the current estimate. These costs need to be investigated and possibly avoided, especially if a conversion is a leasehold and not a real property purchase with 100 percent ownership.

The site investigation also includes the consideration of numerous other variables:

1. Residential and commercial profile
    a. Adjacent land uses
    b. Proposed developments
    c. Safety
    d. Special appeal of location
    e. Map of area (identify sources of demand, competition...)
2. Proximity to Customers and Competition
    a. Major demand generators (retail, offices, lodging, hospitals ...)
    b. Number of potential customers by segment within one to three-mile radius, etc.
    c. List of direct competitors
3. Traffic Volume
    a. Street and road patterns
    b. Speed limit and traffic signs/lights
    c. Highway/Street traffic counts
    d. Pedestrian traffic counts
    e. Peak and off-peak traffic periods
4. Accessibility
    a. Proximity to major streets and highways
    b. Ease of entrance and exit
    c. Parking (for guests, staff, and deliveries)
    d. Pedestrian accessibility
    e. (ADA) Americans with Disabilities Act compliance
5. Visibility
    a. Visibility from road
    b. Effectiveness of sign
    c. “Curb appeal” of building
    d. Landscaping
    e. Exterior lighting
6. Other Issues
    a. Zoning
    b. Environmental Issues
    c. Easements and restrictions
    d. Growth Patterns of Surrounding Areas
    e. Future developments by the City planning department that will affect project

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7. Designing and Engineering

Once the financing is secured and the ideal site has been found and committed, the rest of the process is reasonably straight-forward. The designer, who was involved throughout the process, is now prepared to put together all the ideas that can be turned into a real project. The ability to plan the restaurant is in direct proportion to the effectiveness of communication between all stakeholders. If the designer understands the objectives and intentions thoroughly and has had the opportunity to question and suggest modifications throughout, his/her artistic talents can become a direct extension from the first idea that came to mind to the actual blueprints. What is an actual "designer"? One of the best interpretation available is: *"A designer is the amalgamation of talents that form a design-team, made up of an architect, responsible for the building form itself, an assortment of engineers, who design the plumbing, electrical, and the mechanical systems, and a food service designer, who specializes in the unique flows and requirements of restaurants, and particularly in their kitchens."* The designer team can provide all necessary services because of easy access to the resources needed to provide such services, which include:

- Site analysis, selection strategy, and development
- Existing facilities surveys
- Pre-design- final renderings and animations, and models
- General design, interior design, lighting design
- Code and local ordinance review
- Building/planning department analysis, application and expediting
- Community board analysis, applications and expediting
- Landmark analysis, application and expediting
- Zoning and code analysis, application and expediting
- Analysis of specific areas such as ADA, signage, and community attitude
- Architectural services
- Construction management, on-site management of specialty items and FFEs
- Proposal and contract review
- Selection of contractors and subcontractors
- Graphic design and direction
- Project scheduling
- Project budgeting
- Space schematics and layouts
- Coordination and review of all specialty consultants
- Procurement of all construction documents
- Bidding and negotiation
- Design of all FFEs, including lighting, furniture, carpeting, fabrics, etc...
- Obtaining quotes for a total cost estimate
- Preparing purchase orders
- Graphic design and direction
- Logo design
- Environmental graphics
- Signage
- Menus, stationery, etc.

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- printing and fabrication administration
- Selection of furniture, light fixtures, textile and surfaces, and decorative accessories
- Selection of dining accessories such as flatware, glassware, etc...
- Product design and development
- Development and styling of uniforms
- Preparation of marketing materials

Once the planning is finalized, the stakeholders must first analyze the essential part of the project. Restaurant designers recommend that future restaurant operators should rely on the so-called "Rule of Thumb" to project what the entire objective will harvest (step 11 of the process). This "Rule of Thumb" is based on generally accepted requirements for a 12% Return On Investment against average restaurant profits of 6%. That is: for a 6% of Projected Sales to equal 12% of the investment, sales must be twice that investment. If the evaluation of the project sounds viable and all stakeholders agree to carry on with the project, the designer then will proceed with the realization of the design.

The physical planning begins with the determination of space allocation and flow diagrams and schematic plans that resolve the **four basic flow systems** in any commercial foodservice operation.

1. The **Flow of Product**, from the point of delivery to storage, preparation, and service.
2. The **Flow of Employees**, from dressing rooms to workstations, and through their various required duties while performing their functions.
3. The **Flow of Ware**, such as dishes, glasses, and silverware, which follows a much different path than the product served on it.
4. The **Flow of Guests**, from parking and entrance to using the restrooms and paying the check.

The goal is to resolve all **four flow patterns** so that they can maintain their integrities, intermingle without conflict, and meet the criteria' requirements.

Unfortunately, there are no perfect plans and perfect space allocation, and no architect or designer will ever promise a flawless plan. All plans represent a series of compromises, e.g., giving up the most desired relationship to achieve a more important one. Generally, labor efficiency and the need for less workforce input take the highest priority of flow because they affect the restaurant's profitability more than the others.

From schematic flow diagrams, the designer moves into scaled floor plans, which will represent the basis for construction. At this stage, the true conception of the design is achieved. At this point, all details of potential problems are discussed and resolved: e.g., kitchens must be ergonomically and efficiently engineered to facilitate cleaning and maintenance. Ventilation systems are designed to provide a climate and working environment which enhances productivity. Equipment is selected based on the planned menu, type of cuisine, etc... (See Predetermined Design Factors in Item 2 "Concept Creation"). The outcome of these efforts is a set of **Construction Documents**, in which blueprint drawings and specifications show even the most delicate details, so refined that they may be used for competitive bids to select a contractor. If the Construction Documents do not provide the most delicate details, the resulting bids are meaningless because they do not represent the same result. Instead of receiving the lowest price to build the desired facility, all one receives is the lowest price to build a similar facility. Once the best bid has been selected, the deigning team and the restaurant's future operators can proceed with the

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actual construction (ASH 1981; ACGIH, 1986; ASHRAE, 1989; ASH, 1989; VDI; 1999; Carlson & Petersen, 1999; NAFEM, 2020)..

8. Construction

According to restaurant consultants Economy Restaurant Equipment Supplies,

http://www.economyrestaurantequip.com/services/ the finalized functional floor plan for a food service establishment considers all the changes to the preliminary drawing, the input from all parties involved, and local health and building codes' requirements. The final design drawings will include detailed equipment floor plans, electrical and plumbing requirements for all foodservice equipment and appliances, and a detailed equipment schedule. Also included in the finalized drawings are any required elevation drawings, engineered hood system drawings, and detailed walk-in cooler and walk-in freezer drawings. Specification sheets on each piece of equipment are cataloged with the design set to ensure all available information is presented to the parties involved. Finally, that original idea that was turned into a concept begins to take shape. The construction begins, and a building starts to grow out of the ground.

The future operator inspects the sites frequently and envisions the day when the restaurant is operating, serving guests, and making a profit, but the road seems to go nowhere. The designer's job is not completed as the construction requires constant supervision to ensure that the building is built exactly as it was designed. Sadly, things are never followed exactly according to the plans, and the frustrations between the future operator, the construction company, the architect, and the designer can reach high picks at times.

Construction can be the most frustrating of stages because of the way most buildings take shape. The early phases of building happen very quickly. Framing and roofing and foundations all take shape in several weeks, and we begin to feel that the restaurant will be ready to open soon. Most of the construction time is spent completing the interior and the functional areas of the restaurant.

9. Acceptance and Opening

As the time for opening approaches, there will be many concerns: hiring managers and staff, training, ordering, and printing menus, etc. However, most professional designers will be invaluable; the building is almost completed and up to the day of opening. Before acceptance and actual opening, the designer will perform a "**punch list**" of all items that will require correction by the contractors. The designer will also provide actual training about the use and maintenance of various kitchen equipment pieces, in organizing warranty records, and in trouble-shooting various facility-related problems. The training is followed by handing over the operation manuals, testing equipment, marking them with inventory record tags and numbers to make sure what was signed in the original contract has been purchased and installed. The full process of design, then, includes the total planning sequence from idea to opening. For effective service and for a great beginning, the designer must be involved throughout the entire process.

10. Operating

In this section, we discuss mainly the strategic approach of how a restaurant can operate successfully. After the restaurant has been opened, guests patronize the restaurant, loyalty builds – up, repeat customers begin to appreciate the place, the menu, atmosphere, the staff, management etc., and everything appears

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to be prosperous and successful? One can remember when the idea was just a thought, and now it is real, it is a dream come true. Everything is on track to achieving the objectives, the strategy has worked well, and the future looks great. However, the preceding is not guaranteed by any means, and a successful operation, as described above, is unique and rare. The fact is that no matter how well a new venture has been planned and its strategy executed, the restaurant operation will, without doubt, encounter problems. Sometimes problems occur naturally, such as a heavy rainstorm flooding the parking lot, causing the soil to erode and, as a result, fewer guests patronized the restaurant.

The reality is that humans create most problems. In the restaurant business, one usually refers to as the "Management's fault." Experience shows that the management may become overconfident about positive results in many instances and may decide to begin cutting corners to make an even higher profit. E.g., Management refuses to replace broken china and glassware; thus, the operation suffers because the inventory is not enough to keep the same standard. Owner-operators of independent restaurants continue to make the mistake of harvesting too fast by attempting to overestimate the value created and prosperity. They eagerly attempt to expand their portfolio without the proper structure and financial back-up. Although some may have been extremely fortunate, the majority fails. Instead, a chain restaurant that has been structured to open the first property as a pilot project with the focus on expanding regionally and nationally may indeed become successful. A successful operation should be observed for at least three fiscal year cycles and become a true learning organization. The outcome will be much more positive if the owner intends to expand its operation. With regards to the actual operation, the restaurant will experience cyclical events. Some staff members may resign immediately; a few may become loyal employees with great longevity potential. Some guests may not like the concept and may spread negative experiences within their professional, friends, and family circles. Some may never come back; some may give the restaurant another chance. Eventually, if the management can learn from the mistakes made and capitalize on the guests' negative feedback, it can succeed.

For example, the executive chef should be concerned only about the plate presentation and eye appeal when the dishes come out of the kitchen and are served to patrons; however, he/she should be more concerned about the way plates look like when they return to the kitchen. E.g., a plate was cleared from a guest table, having half a steak not eaten. The chef should investigate why? Was it too tough? Was it too big? Was it not prepared correctly? Was the temperature not right? What else could have been the problem? It is essential to mention the above in this section because if the management and ownership realize how much work has been put into the entire project, from the initial idea to the actual opening, only to potentially fail because the food is not prepared and served as planned, it would be detrimental to all stakeholders. That is why consistency in everything is key a successfully prosper in operation.

11. Value Creation

Once the restaurant has been built and is operating, it must create value for the investors, whether it is an individual investor or a group of investors. In the case of a restaurant within a larger operation, the return on investment must be as projected; otherwise, the business has failed. Studies show that the five drivers of value creation in a restaurant venture are **optimum seat turnover, revenue, costs, assets, and risk.**

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1. Optimum Seat Turnover

One must strive to utilize the facility at its full capacity but to exceed that to increase the return on assets. Increasing the return on assets ratio also reduces fixed costs such as property tax, rent, insurance, etc. per guest served. Since restaurant seats are considered somewhat perishable inventory like hotel guests' rooms and airplane seats, maximum occupancy through seat turnover is vital. Critical factors in maximizing revenue considering perishable inventory in restaurant operation are "time and production capacity"; one can only serve a specific number of people within a period and within the production department's capacity constraints.

2. Revenue as a Factor of "Customer Value Creation"

After a month-long wait to open a restaurant, the operator expects many patrons through the door, full occupancy with possible turnover. Thus, sales are generated by customers. To keep sales high, the operator must strive for the highest customer satisfaction, sell excellent products, give efficient and friendly service, create customer loyalty through branding, be attractive to employees and suppliers and keep other related factors such as ethics in harmony. Only when the entire ensemble works in synergy, the highest customer satisfaction can be achieved.

3. Costs

Profit can only be generated by keeping costs in line with budgets. Profit can also be increased by reducing cost, or by increasing sales, or by doing both. Thus "cost" is a key element of the successful financial performance of the restaurant.

4. Assets

Assets must be fully utilized to provide an ideal Return On Assets. Many restaurants have invested heavily in concepts that required a certain type of equipment, e.g., a "Rotisserie" for an open - kitchen "steak house restaurant" only to find out after three months in operation that "Chicken Dishes" in general had become too commercialized and customers were not interested in the product. The considerable investment in the rotisserie assets did not return any dollar in value. Whether it was a failure in market research or the operator's persistence to pursue such a project, it is not relevant after the failure was determined.

5. Risk

Understanding and managing risk provides greater certainty for investors, employees, customers, and suppliers, including the communities in which we operate. By managing risk, the operator can be better informed, more decisive, and can achieve sustainability and growth opportunities with increased confidence. The objective of managing risk incorporates risk management in all critical activities of the restaurant operation so that risks can be identified and managed in a consistent and holistic manner.

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12. Due Diligence in Planning, Designing, and Operating a Restaurant

Although a consultant can provide all necessary services, the investor will have to endorse everything provided and paid for. This means that the person, investor, existing company who will own and operate the new restaurant will have to sign all purchase orders, approve all payments, ensure that what has been ordered has been received, and most of all are in total control of the budget and the agreement to be certain that the total cost does not exceed the total estimate. Even though there has never been construction that was either inline or below budget, one must strive to stay within the agreement. Suppose the person, investor, existing company is familiar with the restaurant business. In that case, it will be a great advantage; if not, there may be a need to hire an experienced operator as an additional consultant to verify that what is being purchased and planned for the actual operation is needed and necessary to be fully operational. E.g., the designer and architects may suggest buying a combo baking over with electric and gas power. However, if the menu items do not require such a piece of equipment to be prepared, the investment would not be required. Experts understand that if one of the stakeholders may be the future restaurant chef, he/she may wish to have every possible FFE and utensil.

Nevertheless, there needs to be a discussion, whether what is asked is indeed necessary. Yet again, it is emphasized that nothing should be ordered without discussing whether money can be saved by not purchasing "wish items." The wish list may also include non-equipment items such as the first advertising campaign, branding of the product etc. Once money has been paid, it cannot be recuperated; it must be earned again. If the facilities are opened within a hotel complex, a possible renovation, updates, partial remodeling can occur within the first year of operation. This is because such an operation is complementary to other hotel operations, and anything that changes in the room's division, for example, may force the food and beverage department to follow suit. In the case of a chain restaurant changes, do not occur for a long time.

Moreover, in the case of a privately owned and operated restaurant, substantial changes may never happen, or minor remodeling may happen once or twice during the present operator's lifecycle. As indicated at the beginning of this chapter, there will be numerous resources available on CD, including several checklists, such as concept ideation to preopening and start-up checklist. In the following section, we will discuss the most critical aspects of the elements that need to be considered for purchase, organization, contract, licenses etc... and that makes economic sense. Considering that before any restaurant operator can deposit a net profit into the savings account, it must pay all short-term liabilities and notes payable, meaning that it is very hard to make a profit.

Food and Beverage Operation Planning in a Hotel Setting and for a Free-Standing Operation

Before concentrating on restaurant opening only, we need to consider that a food and beverage operation in a hotel setting may consist not only of a restaurant but of several food and beverage outlets including, one or more restaurant types (fine dining, coffee shop, pizzeria etc.); room service, pool and SPA service, golf course service, banquet and conference facilities, bar, night club, etc. Each service outlet may need its kitchen or at least a satellite kitchen (a kitchen without real preparation equipment used for holding and reheating only) and, of course, storage for everything. Thus, the planning and building of an entire food and beverage operation are very complex. We need to ask: Why does a hotel need such a complex food and beverage operation? The answer is simple, to complement all hotel services and to be:

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- An additional revenue producer
- A marketing tool to sell rooms, banquets, and conference packages
- An additional guest amenity
- A public amenity

The food and beverage revenue will be driven by the market and internally, for the most part, by the room's division. Food and beverage will respond to the hotel guests' needs and satisfy the outside market. Depending on the level of service and the category, a large hotel with full food and beverage facilities typically needs:

- A breakfast restaurant
- A buffet operation
- A three-meal facility such as a coffee shop
- A specialty restaurant
- A lobby bar
- A lounge with or without a bar
- A room service 24/7
- In-room mini-bar
- A banquet and conference facility
- An outdoor or indoor sport-recreation facility requiring food and beverage service

Each of these outlets is planned and designed according to the market with its own and unique characteristics. The most critical issue in planning a large food and beverage operation is programmatic: *a step-by-step, programmatic approach to the problem following an overall plan or schedule.* How much food and beverage facility and service are required for a full-service large hotel operation? This decision will depend on an additional "rule of thumb" of the experts or often referred to as "modifiers":

- Location of the hotel facility (including country and climatic conditions)
- Hotel type
- Hotel's category
- Hotel's market
- Hotel's management and ownership philosophy

Generally, the food and beverage *seating capacity* requirement will be (approximate guidelines):

- .6 to .75 seats per hotel guestroom or key for dining
- .3 to .5 seats per hotel guestroom or key for bar/lounge
- 1.0 to 1.8 seats per hotel guestroom or key total food and beverage (without banquet)
- 1.5 to 2.5 seats per hotel guestroom or key for total banquet seats

Foodservice *dining area sizing factors* (*square footage required per guest* ** ++):

- Cafeteria-style: 15 to 18 square feet per guest seat
- Coffee shop and fast food: 13 to 15 square feet per guest seat

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- Regular restaurant (Mid-scale): 15 to 18 square feet per guest seat
- Upscale restaurant: 20 to 25 square feet per guest seat
- Cocktail lounge/bar: 20 to 22 square feet per guest seat
- Banquet service: 12 to 15 square feet per guest seat

Dining *space planning ratios*:

- Front of the house including public restrooms, lobby, office etc... 50% to 60%
- Back of the house including kitchen, storage, staff rooms, etc... 50% to 60%

The ratios above are the dining area ratio to the preparation area ratio; the actual ratios will depend on the rule of thumb or modifiers, like those mentioned above:

- Location of the restaurant (including country and climatic conditions)
- Restaurant type
- Restaurant category
- Target market
- Restaurant's management and ownership philosophy

** *These estimates can change according to the City Codes such as the Fire Department Code*
++ *These estimates also apply to free-standing restaurant operation.*

Meeting Rooms Sizing Factors (Square Footage Required Per Guest According to Set-Up Style)

Table 2. Meeting rooms sizing factors (approximate guidelines)

Meeting rooms set-up styles and square footage requirement per guest – (booths)						
Theater	Schoolroom	Conference	U-Shape	Reception	Banquet	Exhibition (booths)
9-10 Sf	18-20 Sf	22-45 Sf	50-75 Sf	8-9 Sf	12-15	160 - 200

All food and beverage facilities are built based on specific criteria, even if within a hotel complex. They need to have visibility to hotel guests and the public; they need to be readily accessible by guests, the public, and the service staff; they must be functional; they must project a sense of place, relaxation, and entertainment. The seating arrangement needs to be as comfortable as possible regardless of size, standard, price, menu etc. Table inventory should consist of different sizes and shapes, like booths, tables, and banquets. The floors, walls, and ceilings should be of different levels and structures. The entire design should project an impressive and dramatic statement.

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13. Legal Documentation Requirements to Operate a Restaurant

The following is an abbreviated version of a checklist of requirements to operate a restaurant in the U.S. Note that legal requirements are different in every State and Country. Most municipality administrations have information readily available to obtain the required permits (ASCAP, 2021).

- Select a business structure and register a company if not existent
- Apply for Federal Employer Identification Number (EIN)
- Obtain a permit to serve food from State Health Services
- Obtain permits from all other agencies: fire department, EPA,
- Obtain a license to serve liquor (portable bars also need to be licensed)
- Obtain insurance (building, general liability, liquor liability and bond, workman's comp, group medical)
- Obtain sign permit from local municipality and permission from the landowner
- Obtain a music license from ASCAP, or BMI, NMPA, HFA
- Schedule fire inspection appointment
- Inspection of HVAC system
- Inspection of roof, exterior, termite or pest damage
- Obtain tax permits (seller's tax permit, franchise tax, etc.)
- Obtain signs permit
- Order banners/signs for opening and hiring purposes
- Verify water service, permits, plans, inspection, hard water, etc.
- Check local smoking regulations
- File I-9 Form
- File W-4 Form
- Obtain all business permits
- Obtain information about sales tax collection and remittance policies
- Choose a foodservice provider
- Chose beverage distributors
- Register restaurant name with the Secretary of State Office
- Examine information on starting a business and write a business plan
- Contact the Department of Labor and obtain legally required posters for employees
- Contact the Department of Health and obtain legally required health safety posters for employees
- Set-up a business checking account

14. EQUIPMENT REQUIREMENTS TO FULLY FURNISH AND OPERATE A RESTAURANT

The Basic Concept of Buying and Installing Equipment

Some of the most critical factors in selecting and installing equipment are the quality of material, durability, reliability, maintenance, warranty. For all equipment that needs to be operated by electricity or gas power or by an open fire, the management must decide which is the best fit for the operation. We

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should reiterate once again that the menu will drive the cost of equipment, e.g., if the restaurant plans to have an original style pizza on the menu, then the management must decide whether to install a wood-burning oven, a gas or electric-powered oven, or a combination of gas and electric.

Restaurant supplies companies can be beneficial in estimating the power requirement, cost, efficiency. Most importantly, the quality of food processed with such equipment. However, the best support can be found from utility suppliers in all States. Whichever the case, the kitchen equipment represents the most considerable portion of all equipment. Therefore, one must use due diligence and think long-term because such equipment cannot be easily replaced from a cost point of view and because of the equipment's physical location, especially if it has been built-in as a part of the leasehold improvement. Any changes would be too costly. It is not surprising that hotel food and beverage facilities and equipment do not receive frequent makeovers as hotel guest rooms do.

Understanding the use of Energy and Waste Reduction

Before investing in equipment, the foodservice operator and all stakeholders must understand the cost of energy use of any kind and the benefits of waste reduction and energy savings (KCM, 2021). The "green" building initiative compels foodservice operations to reduce waste and to use less energy. Foodservice operations are considered some of the worst polluters. Therefore, we borrow an idea from the manufacturing industry called "Lean Production"; a concept whereby all people in the production area must work together to eliminate waste and reduce energy. Waste is defined as "***any expense that does not help to produce value***."

In the foodservice business, we need to concentrate on doing work that requires the least energy with minimum waste that will add value. Several factors cause waste: wrong use of equipment, overproduction, time factor, production and service flow, and processing, inventory levels, motion, rework, and poor people utilization. All equipment plays an essential role in the effort of reducing waste and saving energy. For example, for a high inventory level, a foodservice operation would require extensive storage facilities with large refrigeration and freezing equipment, which would require high energy consumption, thus causing waste. Foodservice operations in general and specifically restaurant operations rank among the most energy-intensive commercial spaces in any country. Because of the comfort we give to patrons, the way we care for staff at the workplace, and environmental issues, the cost is driven by all types of equipment and the cooking equipment and heating, cooling, lighting, and sanitation—each account for significant portions of electricity and natural gas, and water consumption.

Overall high costs are caused by wrong menu planning. Considering today's economic constraints and increasingly competitive resources acquisition, the cost of raw material is high; thus, a trade-off between the chef's wish to have a specific piece of equipment and the benefit of cost saving must be considered. The kitchen of the future should operate the same as a manufacturing facility. The following scenario highlights some strategies that can lead to cost savings in energy consumption and labor cost.

Scenario

A foodservice facility is catering to an event that includes a Prime Rib dinner to a party of 500 guests on a Saturday night in the main banquet hall. Concurrently, the main dining room is operating à la carte as usual. While all equipment is being used for the large banquet party, the chef might need to plan for other preparations and services too:

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1. Offer the same dinner as a special in the main dining room
2. Prepare mise-en-place for the next day banquet
3. Roast bones for use in stocks and sauce preparation
4. Roast peanut mix for the bar
5. Bake smoked bacon for Caesar salad
6. Make croutons for various dishes.

Although the example may be arguable by some, experience has proven that a little extra effort can mean big savings and higher profits. Considering that just like air conditioning units, starting an oven to the right temperature requires more energy than an oven that is already hot and is kept at a constant temperature until it needs to be shut down.

Understanding Electric Power and Other Sources of Energy

Energy is a constant cost factor whose percentage varies according to its use or abuse. Any energy provider has never reduced the price of energy; therefore, the ever-increasing energy cost needs to be understood, operationally controlled, and restaurant operators must continually strive to reduce it. In case of revenue shortfalls, the management is always eager to start saving by reducing the cost of energy just the same as it strives to reduce the cost of labor because it is much easier than cutting the cost of goods to keep the standard of product quality at the same.

The Criticality of Understanding Power and Usage

Investors involved in new restaurant ventures who are not familiar with the industry often ask whether gas is better than electricity or vice versa to operate kitchen equipment. The fact is that there is no simple answer. As explained earlier, it all depends on the menu planning, cooking styles, capacity planning, demand, and future expansion planning. Therefore, being educated about energy, in general, will allow for educated management decision in long – term planning.

The Electrical Power Explained

There are two types of Electricity, Static Electricity and Current Electricity. Static Electricity is made by rubbing together two or more objects and making friction, while Current electricity is the flow of electric charge across an electrical field. Current electricity is subdivided into two main kinds of electricity: Direct Current (DC) and Alternating Current (AC). These two acronyms are well known to almost anyone. *Direct Current* is the energy released from a battery. *Alternating Current* is the energy we receive from a utility supplying company directly into our homes or businesses. The main difference between the two is that DC is a flow of energy, while AC can be turned off. Electric generators produce electrical energy by converting mechanical energy into electrical energy (Bellis, 2020).

Electrical energy is used in the form of power. The process of converting mechanical energy into electrical energy is based on the relationship between magnetism and power. When a wire or any other electrically conductive material, usually copper, moves across a magnetic field, an electric current occurs in the wire. Thus, power is a form of energy. It is the flow of electrons. All matter is made up of atoms, and an atom has a center called a nucleus. The nucleus contains positively charged particles called

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protons and uncharged particles called neutrons. The nucleus of an atom is surrounded by negatively charged particles called electrons. The negative charge of an electron is equal to the positive charge of a proton, and the number of electrons in an atom is usually equal to the number of protons. When the balancing force between protons and electrons is upset by an outside force, an atom may gain or lose an electron. When electrons are "lost" from an atom, these electrons' free movement constitutes an electric current (Mary, 2020).

However, the power used in everyday life is part of nature, and it is one of our most widely used forms of energy. The power we use to charge all types of equipment is a secondary energy source. For example, induction cooking in commercial kitchens is possible by using power generated by protons, electrons, and neutrons. Electric generators are powered mainly by coal, natural gas, petroleum, nuclear power, hydropower.

New scientific discovery has led to additional sources of power to generate electric current. These sources are aimed at producing "*Green energy*," which is catching the attention of every country in the world today. *Geothermal power* comes from heat energy buried beneath the surface of the earth. *Solar power* is derived from the energy of the sun.

However, the sun's energy is not available full-time, and it is widely scattered due to the natural climatic conditions. Photovoltaic conversion generates electric power directly from the sun's light in a photovoltaic (solar) cell. *Wind power* is derived from the conversion of the energy contained in the wind into power. Wind power, like the sun, is a rapidly growing source of power. *Biomass* includes wood, municipal solid waste (garbage), and agricultural waste, such as corn cobs and wheat straw. These are some other energy sources for producing power. These sources replace fossil fuels in the boiler.

The combustion of wood and waste creates steam that is typically used in conventional steam-electric plants. *Wave Electricity* Specially designed devices have been trying and capture some of the vast energy resources generating Green electricity on the isle of Islay, off the West Coast of Scotland. In this machine, waves hitting the shore are channeled into a large tube to power a specially designed turbine.

Tidal Electricity power has been used in Britain for over a thousand years. Unlike other Green electricity renewable energy sources, which depend on the weather, tidal power is as predictable as the tides themselves. One way to capture tidal energy is to build a barrage across an estuary, storing water behind it as the tide rises and then releasing the stored water through turbines at low tide (Bellis, 2020).

Figures 1, 2, and 3 depict the energy demand and consumption in commercial buildings and restaurants in the U.S. A crucial factor to consider in foodservice business planning.

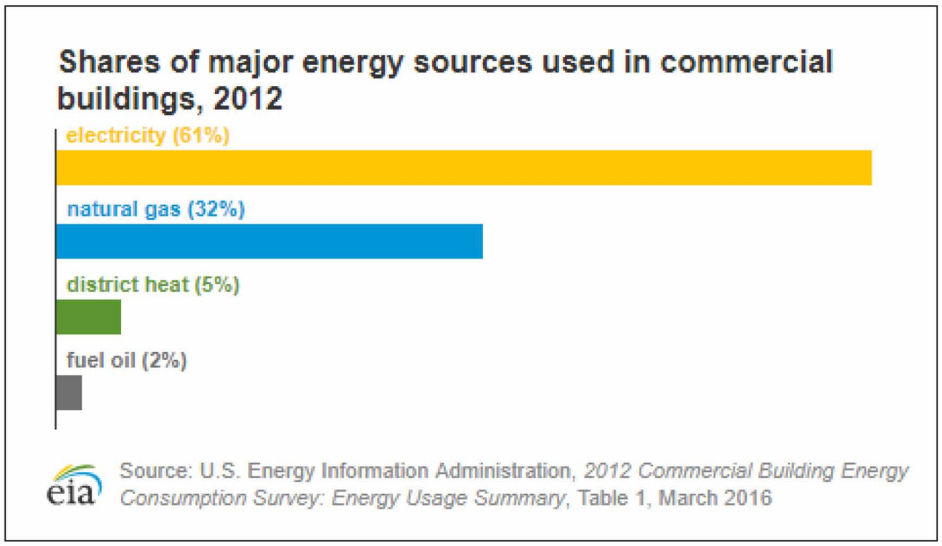
Energy Use by Type of Building

The types of buildings in the commercial sector are used for a mix of many different activities and uses. Retail, and service buildings use most of all the commercial building types of total energy. This is not surprising when we consider all entrepreneurial activities currently happing in the U.S. Other commercial users of energy include offices, schools, health care, lodging facilities, food establishments, etc. In the U.S., the top five energy-consuming building categories use about two-thirds of the energy consumed by commercial buildings and include the following types of buildings:

- **Retail and Service** (20% of total energy consumed by commercial buildings)
    - Malls and stores
    - Car dealerships

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Figure 1. Shares of Fuels Used by Commercial Buildings (2012), 2016 report
Source link: https://www.eia.gov/kids/using-and-saving-energy/commercial-buildings.php
Main link: http://www.eia.doe.gov/emeu/consumption/index.html



  - Dry cleaners
  - Gas stations
- **Office** (17% of consumption)
  - Professional and government offices
  - Banks
- **Education** (13% of consumption)
  - Elementary, middle, and high school
  - Colleges
- **Health Care** (9% of consumption)
  - Hospitals
  - Medical offices
- **Lodging** (8% of consumption)
  - Hotels
  - Dormitories
  - Nursing homes

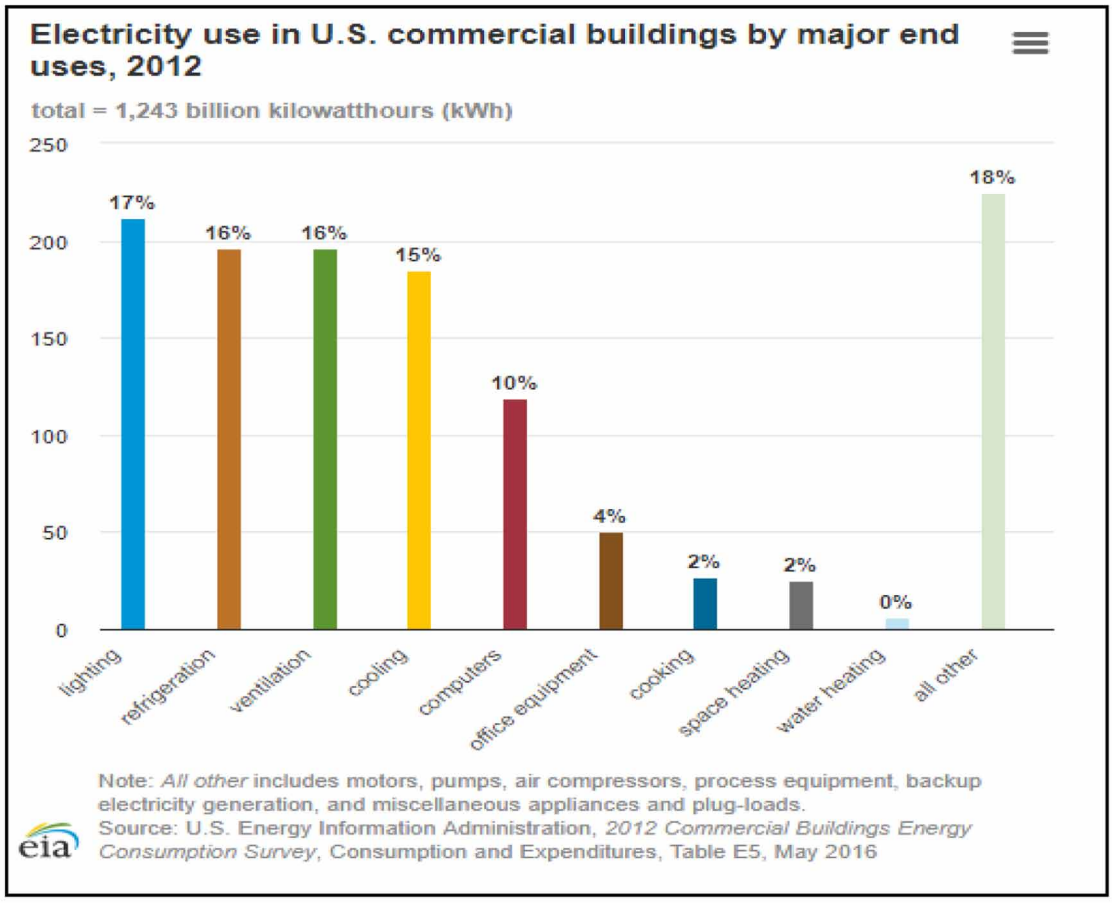
Understanding how Power Consumption is Measured According to the Equipment Used

Electricity is Measured in Kilowatts

To understand electricity measurement, one must first consider the three most basic units of measurement in electricity, which are *voltage* (**V**), *current* (**I**), and *resistance* (**r**). Voltage is measured in *volts*;

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Figure 2. energy usages in commercial buildings, 2016 report
Source link: https://www.eia.gov/kids/using-and-saving-energy/commercial-buildings.php
Main link: http://www.eia.doe.gov/emeu/consumption/index.html



current is measured in *amps,* and resistance is measured in *ohms*. Electrical power is measured in *watts*. In an electrical system, power (**P**) is equal to the voltage multiplied by the current.

Watts *(an example is microwave usage in commercial kitchens, the higher the Watts, the more powerful and faster of the microwave)*

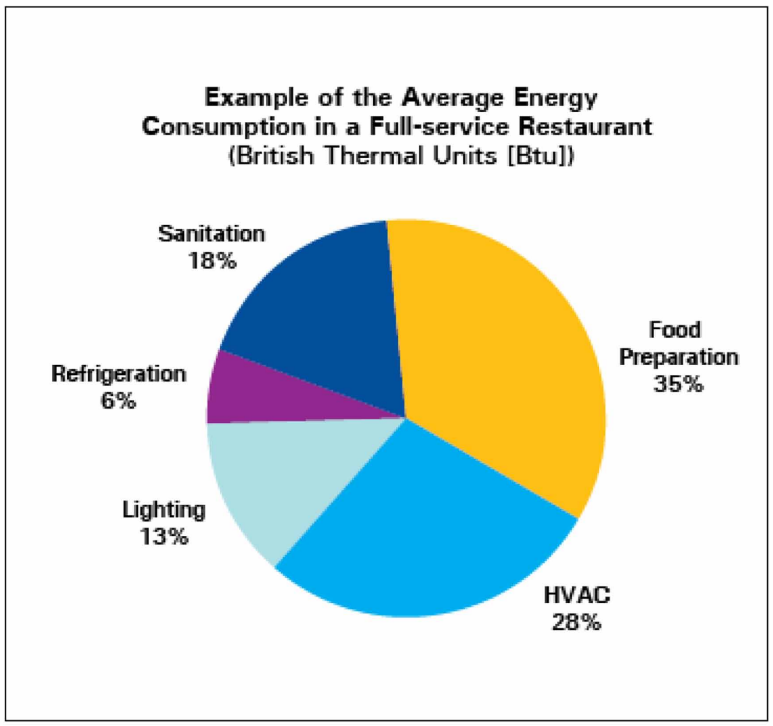
Watts are the name of an electrical flow... the quantity of electrical energy flowing per second. Any sort of energy is measured in terms of Joules. A joule of electrical energy can move from place to place along the wires. One joule of energy flowing through a channel every second is the equivalent of one watt.

Volts

Volts are major components of static electricity; therefore, whenever we deal with voltage, we are dealing with static electricity. If a few electrons a separated from an electrical conductor, that conductor will

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Figure 3. Example average energy consumption of a typical full-service restaurant operation, 2016 report
Source: ENERGY STAR® Guide for Restaurants: https://conserve.restaurant.org/Downloads/PDFs/Guide-for-Cafes-Restaurants-and-Institutional-Kitc.aspx Main page source: https://www.energystar.gov/



have excess protons left behind. If we transfer those separated electrons into a different conductor, then the two conductors have an oppositely imbalanced charge. They also have a voltage, and a static-electric field extends across space between them. This Field is the voltage. Electrostatic fields are measured in terms of volts per distance; an electric field always has a voltage.

Ohms

Ohms means electrical resistance caused when friction slows down the flow of energy. The longer the delivery mechanism, the higher the friction or the resistance; thus, the flow of electricity is also slower. In other words, the friction is the "ohms," it is the electrical resistance.

Amperes

The difference between amperes and watts is that amperes are slow and circular, while watts are fast and one-way. Amperes are a flow of copper charges, while watts are a nearly instant flow of electrical energy created by a battery or generator. Amperes flow slowly in a circle while watts flow rapidly from an "energy source" to a receptor of energy consumption like a light bulb.

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UNDERSTANDING NATURAL GAS, ITS APPLICATION, AND CONSUMPTION IN COMMERCIAL KITCHENS

Natural Gas

The main ingredient in natural gas is methane, a gas (or compound) composed of one carbon atom and four hydrogen atoms. Millions of years ago, the remains of plants and animals or diatoms decayed and built up in thick layers. This decayed matter from plants and animals is called organic material it was once alive. Over time, the sand and silt changed to rock, covered the organic material, and trapped it beneath the rock. Pressure and heat changed some of this organic material into coal, some into oil or petroleum, and some into natural gas tiny bubbles of odorless gas. Some of the gases produced along with methane are called ***butane*** *and* ***propane***; they are by-products of methane and are separated and cleaned at a gas processing plant. Propane gas is widely used for cooking on gas grills. Natural gas withdrawn from a well may contain liquid hydrocarbons and non-hydrocarbon gases. This is called "wet" natural gas.

The natural gas is separated from these components near the well or at a natural gas processing plant. The gas is then considered "dry" and is sent through pipelines to a local distribution company and, ultimately, to the consumer. Dry natural gas is also known as consumer-grade natural gas.

Because natural gas is colorless, odorless, and tasteless, mercaptan (a chemical that smells like sulfur) is added before distribution to give it a distinct unpleasant odor (it smells like rotten eggs). This added smell serves as a safety device by allowing it to be detected in the atmosphere in cases where leaks occur.

Gas is measured in cubic feet; however, it is often confused with BTU's term with any measurement. ***BTU stands for "British thermal unit"***; it is the unit of measure of the heat content of fuels. It is the quantity of heat required to raise the temperature of 1 pound of liquid water by 1°F at the temperature that water has its greatest density (approximately 39°F). In the metric system, we use the BTU equivalent expressed in "Kilogram Calorie". A Kilogram Calorie is the amount of energy required to raise the temperature of one kilogram of water by one degree Celsius at the temperature that water has its greatest density (approximately 3.9°C). These are the basics of measurement at sea level. The measurements must be calibrated according to the altitude. For example, cooking at high altitude is challenging, and restaurant operators need to be familiar with cooking temperature adjustments and energy requirements. For example, a 500-foot increase in altitude, the boiling point of water, using constant energy sources, drops by 0.9 degrees Fahrenheit. The boiling point of water is achieved at 212 F (100 Celsius) at sea level; however, water boils closer to 206 F (96.7 C) at 3,000 feet above sea level. This means that boiling water at 3,000 feet altitude it will take longer; however, the water will boil at a lower temperature that at sea level. Detailed information about High Altitude Cooking and Food Safety can be accessed at the USDA website at https://www.fsis.usda.gov/shared/PDF/High_Altitude_Cooking_and_Food_Safety.pdf or use internet key words search: "***USDA High Altitude Cooking and Food Safety***."

Biomass Used as a Source of Energy

Most kitchens use biomass in the form of wood, e.g., pizza baking or charcoal for grilling. Although this source of energy was the only energy used for cooking and heating for centuries, today it used for cooking exotically and not as a true source of energy. Different wood gives the finished dish a taste or fragrance, which appeals to discriminating patrons. Wood is also used for smoking processes in food preservation, and it is used for roasting specialty items on it, such as salmon. The most common woods

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used in commercial kitchens today are applewood, almond and walnut, hickory, mesquite, and maple. Many chefs also use straw such as fennel straw to finish some grilled dishes mainly fish.

Other Kinds of Energy Used in Commercial Kitchens

Freon is a gas commonly known as CFC. It is used in most commercial refrigeration units in commercial kitchens. Unless this gas leaks because of accidents or acts of sabotage, it never needs to be replaced. Leaks can occur when a free-standing fridge is moved or when someone accidentally breaks the pipe. In any event, only a technician can replace the Freon. This gas is not cheap. Since the U.S. hardly produces Freon, it must be imported from Mexico, India, or China. The management is at the mercy of these technicians, especially when they are called on an emergency basis. Servicing a Freon unit requires a licensed technician to comply with section 608 of the Clean Air Act of 1990. R-12 cannot be vented into the atmosphere. It must be recovered and recycled. Freon is the registered trademark name for a group of chlorofluorocarbons used primarily as a refrigerant agent and propellant in spray cans. The name Freon belongs to E.I. du Pont and Company. Freon is commonly known as R-12, but it is also called CFC-12 and Dichlorodifluoromethane. Freon was invented as an alternative to more harmful refrigerant agents, such as ammonia, methyl chloride, and sulfur dioxide, which are toxic refrigerant agents.

Factors to Consider for Saving Energy and Improving Profits

Planning restaurant facilities having as much daylight as possible, especially in the preparation area, will not only save money, but it may also have a positive-psychological effect on employees' performance. Planning a menu that requires the least energy consumption is the first step to saving thousands of dollars in energy in the future. For example, Chinese hot food preparation requires the least energy. Although the gas-powered burner requires many BTUs (British Thermal Units) to cook with the wok, the burner is turned on only when required. Using a convection oven that needs to stay on all day because some dishes on the menu require the preparation using such an oven would require a lot more energy; however, most of it would be wasted.

Buying Energy-Efficient Appliances

Inefficient appliances will drive up the cost of energy. In addition to having higher operating costs, inefficient kitchen appliances tend to emit more heat than the efficient appliances resulting in a hotter kitchen, causing to invest additional money into more efficient kitchen air extraction and cooling systems.

Buying the Right Equipment According to Capacity

Establish food production needs and buy appliances that match the operation's needs based on optimal output per-hour/meal period basis. Oversized appliances can have a negative financial impact on both capital costs and operating costs. Overcapacity means to heat-up or cool down extra space of the production capacity that it is never used.

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Cutting Idle Time

Chefs are always particularly known to having all burners and all ovens on during the production process. Most likely, not all equipment is always needed. Leaving equipment on standby causes unnecessary costs. Therefore, when planning the menu, the recipe specification should include a process that explains energy requirement; therefore, implementing a startup/shutdown plan to ensure that only the needed equipment stays idle. For example, many hotel restaurants must have one outlet open to allow guests to check-in late to order a hot meal or just a meal. To save energy and other operations costs, these restaurants will close most of the restaurant sections at a specific time and leave only a few tables to operate for the remainder of the shift. The menu is also reduced, allowing most kitchen equipment to be turned off. For example, if the chef were to keep a steak prepared on the broiler for the late-night reduced menu, the broiler's entire energy cost would be allocated to the steaks being processed. However, if the statistics show that only a few steaks are sold during the late-night operation, the chef should replace it with a different dish such as a Wiener Schnitzel, pan-fried saves energy. A study conducted in 2010 by the Efficiency Partnership, an initiative of four energy supply companies in California, reported that shutting down a broiler for one hour a day would result in $450.00 savings a year. This represents only one piece of equipment. Imagine if the same cost-saving strategy is applied across all kitchen equipment; how much the operation could save annually?

Repair and Maintenance

Everyday wear and tear can increase the cost of energy. While a leaky gasket, clogged burner, or loose oven-door hinge may not waste much energy, a combination of the three may increase the cost of energy very significantly.

Recalibrating and Replacing Necessary Parts to Allow Appliances to Stay Efficient

Most likely, the performance of all kitchen appliances will degrade over time. Heating elements in steam baths, thermostats, and control systems can fail or fall out of calibration. The maintenance department should perform regular thermostat check and recalibrate, especially ovens, as necessary to ensure that food is being processed at the right temperature. The maintenance department should also conduct regular repairs and replace broken control panels on ovens, steamers, and other appliances that feature control systems. Although some chefs do not find it essential to replace missing knobs on manually controlled appliances like ranges, griddles, and broilers, it is extremely important for the equipment's proper functioning. One negligence can indeed lead to another, and when enough has been cumulated, the equipment can suffer total failure (Bentley & Whitten, 2007).

Checking Pilot Lights Regularly

New equipment has electrodes installed, which eliminate the use of pilot lights. However, older gas-burning appliances typically feature pilot lights, which require a constant stream of gas to stay lit. A way to determine if the pilot lights are working properly is to check if flames are tall and yellow. This is an indication that flames need to be adjusted to look like bullet-shaped and mostly clear blue.

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Various strategies for energy cost savings

Additional cost savings strategies are discussed in the refrigerators, freezers, ice machines, and heating and air conditioning sections for both inside and outside the operating facilities.

15. CONCEPT-BASED COOKING V/S EGO-CREATIVE COOKING

Ovens tend to be more efficient than rotisseries; griddles tend to be more efficient than broilers. Planning a menu whose dishes require the most energy-efficient cooking methods and installing energy-efficient appliances can lead to waste reduction and higher profits. When planning the menu, the cooking methods and the restaurant's capacity will determine the type of equipment and quantity needed to be purchased and installed. A standard error in restaurant planning is that both consultants and operators plan for everything as standard equipment according to rules of thumb. However, hardly anyone can remember when it was the last time a chef used a salamander for processing food, other than keeping plates and half-cooked dishes hot. The following describes the most common cooking methods and types of foods that can be processed with each method.

Cooking Methods

Cooking methods are divided into three categories: dry-heat, moist-heat, and combination-heat. Dry-heat methods cook the foods with hot air or fat (sautéing, pan-frying, deep-frying, grilling, broiling, roasting, baking); moist-heat cooking methods cook the food with a liquid, usually water, stock, or steam (poaching, simmering, boiling, steaming). A combination cooking method uses, as the name suggests, a combination of dry heat and moist heat methods (braising, stewing). Understanding the cooking methods enables one to choose the correct method for specific foods; the various cooking methods have a direct impact on the outcome of the finished dish. Choosing the correct method affects not only the flavor of foods but also texture and appearance. Most dry-heat cooking methods are relatively quick processes—they add crispness and flavor to food but do not tenderize. Thus, it is imperative to choose the appropriate product to be cooked in this manner (tender, thin, or small). Moist-heat and combination-heat methods, particularly braising and stewing, could break down naturally tough cuts of meat because of the long, slow cooking period. So, in the case of these methods, it would be more appropriate to choose less expensive cuts of meat, poultry, or seafood. According to the above statements, appropriate equipment must be installed if the menu calls for each cooking method.

Dry-Heat Cooking Methods

- Sautéing
- Pan-frying
- Deep-frying
- Grilling
- Broiling
- Roasting
- Baking

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Moist-Heat Cooking Methods

- Poaching
- Simmering
- Boiling
- Steaming
- Braising
- Stewing

Types of Food Suited for Dry-Heat Cooking Methods

- Thin, tender cuts of meat such as chops, steaks, or cutlets.
- Ground meats
- Most seafood
- Most vegetables

Types of Food Suited For Moist-Heat Cooking Methods

- Most seafood
- Most vegetables
- Tender cuts of poultry, such as chicken breasts
- Some fruits
- Starches and pasta

Types of Food Suited for Combination-Heat Cooking Methods

- Tough, less expensive cuts of meat, such as beef round or pork shoulder
- Certain firm-fleshed seafood, such as swordfish, tuna or monkfish
- Some vegetables

Food Preservation

Depending on the operation's standards and core competencies, many chefs prefer to process up to 90% of the menu items in the house. Accordingly, raw foods must be processed and preserved until they are ready to be served to customers. Food preservation processes also require additional equipment. Food preservation has been used by human for thousands of years to survive during the off-production seasons. However, many chefs today have created a competitive advantage by promoting foods they often grow in their own yard or foods they buy exclusively from trusted suppliers in terms of being organic, fresh, zero carbon footprint etc.

The most common food preservation methods that also require additional equipment are:

- Refrigeration and freezing
- Canning
- Dehydration

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- Freeze drying
- Salting
- Pickling
- Pasteurizing
- Fermentation
- Carbonation
- Cheese-making
- Chemical preservation
- Sugar preservation
- Vacuum
- Alcohol
- Smoking* (a method that follows the process of salting or marinating)

16. RESTAURANT EQUIPMENT IS COMMONLY USED IN COMMERCIAL FOODSERVICE OPERATIONS.

For a list of modern equipment requirements, search the internet using these keywords: "restaurant equipment; contemporary restaurant equipment; future of cooking; new cooking technologies; artificial intelligence in modern kitchen operations; apps used in kitchen operations."

The following is a partial list of the essential equipment that requires power to be operated. This section highlights the most critical factors in choosing the right equipment. In the context of this chapter, we will not discuss furniture, decoration, and other types of investments because the list, as such, will depend on many factors, including original design, the theme, the type of menu etc.

Steamers

Because steamers have good heat transfer, they rank among the more energy-efficient and fast processing kitchen appliances. However, if not operated correctly, they can still use and waste a lot of energy. Most steamers used to have boiler-based water hogs, consuming about forty gallons of water per hour. Thus, bringing this large amount of water to a boil requires much energy. The new generation of steamers is "connectionless" and operates as a closed system without a boiler and a drain; therefore, they consume much less water and, ultimately, less energy. When cooking with steamers, one must pay attention that:

- Doors stay always closed to avoid evaporation,
- Only as many compartments as necessary are used,
- Standby time is cut down,
- Timer is always used
- It is Kept clean all the time
- Possible steam leaks are fixed
- Connectionless technology is considered

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Broilers

In most kitchens, broilers are essential pieces of equipment. They must be dependable and optimally usable and must have longevity. However, they probably use more energy than any other kitchen appliance, and they tend to rank among the least efficient. This equipment is used for many meat dishes and remains one of the most popular and most needed. Therefore, it must be used with care and diligence to save energy. One of the most critical factors for saving energy with boilers is that if installed, the menu should have several meat or fish dishes that require its use for preparation. Some cost-reducing factors are:

- Cutting preheating time

Broilers usually take less than 30 minutes preheating. Keeping them on for a long time increases the temperature in the kitchen, forcing air extractors or air conditioners to work overload to bring the temperature down.

- **Reduce the cooking area**

Because broilers use energy excessively, turning off a section can save cost

- **Eliminating standby time**

Broilers should not be left at full heat during non-pick hours; they should be turned down or completely off whenever possible.

- **Using griddles as an alternative to broilers**

For some dishes, preparation griddles may be alternative equipment to use instead of broilers. Griddles are available flat or grooved to mark steaks and are thermostatically controlled; thus, they can use less energy once the ideal temperature is reached.

- **Positioning broilers in the right place**

Most appliances must be placed exactly in the right space and position under the exhaust hood. Failure to do so may cause additional heat to be released in the kitchen and smoke. Often this can impact the negative airflow, and fumes can get released into the restaurant service areas.

Pasta Boilers and Steam Kettles

Pasta boilers are versatile and time-saving pieces of commercial kitchen equipment. They can boil all types of pasta, dumplings, vegetables, shellfish, and boiled side dishes. One can also use them for reconstituting foods and reheating frozen items too. They are therefore multifunctional and can be used for three processes: pasta boiler, steamer or Bain Marie or (water bath). However, they use energy, as well. If water is boiled to the maximum temperature, the pasta boilers will use excessive energy and waste unnecessary money. The temperature should be set at a minimum setting required to maintain a

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constant boiling temperature hot enough to boil pasta and other food items. ***Steam kettles*** are available in sizes depending on if the model is stationary or a tilt type. They may be a table or floor-mounted on legs, a pedestal, or the wall. They may be available open, or fitted with a hinged cover, and a mixing whisk or agitator. Steam kettles serve multiple purposes; they can be used to cook large batches of food such as pasta and make soups, bream soups, or other boiling applications. They tend to use more energy because they do not usually have a lid. Tilting kettles can be dangerous if not installed properly with a drain in front; the boiling liquid could easily spill and cause injuries. They are used mainly in large kitchen operations. Cost reducing factors are:

- **Cutting the idle time**

Shutting down appliances during slow hours will save on energy. If it cannot be shut down, one should consider at least turning it down because water can be brought back a short period of time.

- **Using pasta boilers at hundred percent capacity**

Because pasta boilers can perform multiple functions, the menu should be planned around the equipment so that it will be utilized at full capacity.

Ovens

In terms of energy efficiency, ovens use a substantial amount of energy, however much led than broilers. They are less efficient than steamers and pressure cookers. New technology has allowed building ovens that are multifunctional, totally computerized, and can perform multiple functions at the same time, e.g., backing and roasting and resting. Several energy-efficient convection and combination-style models are now available on the market (PG&E, 1998; SDGE, 2020; SCE, 2020). Some costs saving factors are:

- **Using combination ovens sparingly**

Combination ovens are attractive because of their versatility as a cooking platform and their space-saving ability to mix ovens and steamers' duties. Unfortunately, this double duty can raise the energy cost substantially. A combination mode can use double the energy use of convection mode. Also, when they are operated in combination mode can use an excessive amount of water per hour.

- **Cutting idle time**

The bigger the oven, the more energy it may be wasted. Like other equipment such as the pasta boilers, they must be used at a hundred percent capacity to be energy efficient. They should be turned down or off during slow periods.

- **Keeping it full**

It is more efficient to cook in a fully loaded oven than a partially loaded one. If the workload permits it, large batch cooking should be considered, and it should be turned off in between loads.

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- **Replacing seals and tighten hinges**

Seals and gasket tears must be replaced as soon as needed. When oven door hinges loosen, they must be tightened, and doors realigned.

- **Ranges**

Rangers are like broilers; they are manually controlled and can use energy excessively if not operated effectively.

- **Maintaining and adjusting burners**

Weak, wavy, uneven, or totally yellow flames are indications that the burners are not clean.

The air shutters need constant adjustment. A bullet-shaped flame and mostly blue is an indication that the burners are working correctly. This will also improve the cooking efficiency.

- **Putting lids on large pots when processing stocks or simmering foods**

Using lids on stockpots to hold in the heat will boost efficiency and shorten the cooking time.

- **Considering induction technology for simmering**

Induction cooking has been proven to be a potential alternative to traditional range tops when cooking for long hours. They are more expensive than traditional gas or electric ranges; however, they are highly efficient. The heat-up is extremely fast; they can hold the temperature constant like no other equipment, have precise controls, and are easy to clean and maintain overall. Induction hobs can be purchased as single units or grouped. They are available as a tabletop or built-in as modular components of kitchen ranges. Induction cooktops do require magnetic cookware to work correctly. They cannot be used with copper cookware. Induction cooking has been named the cooking equipment of the future; they are flameless as such; the fire department considers them less dangerous than gas or electric equipment.

- **Griddles**

Griddles are one of the few kitchen cooking equipment that are available with manual or automatic - thermostatic controls. In terms of energy, consumption statistics show that thermostatically controlled griddles are less expensive to operate. Some costs saving factors are in operating griddles are.

Like other equipment, griddles need pre-heating; however, the cost of energy can be reduced by cutting down the operating time, especially when the griddle is not in demand. Usually, it does not require a long time to reach the right temperature.

Ideal purchasing a griddle that features both grooved and flat cooking surfaces—mainly if the menu features items that require a broiler, can save a substantial amount of money. As discussed earlier, griddles tend to be more cost-efficient than broilers. The grooved feature can achieve broiler-like char marks on meat or fish dishes the same as the broiler does. Thus, switching higher costs for a lower cost by operat-

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ing a dual-purpose griddle can be more cost-effective in the initial investment, during the operation, and in terms of maintenance-related cost.

Fryers

Over the last decades' fryers having become perhaps one of the most used cooking equipment in American cooking standards, especially in fast food operations. Fryers are available with gas and electric capability; however, their energy consumption is too high because in most operations, the fryer is the first piece of equipment to be turned on and the last one to be turned off. In midscale to upscale restaurant fryers are used less than fast food operations; however, the cost of energy can be reduced by making modifications to the standard menu by using recipes that require a mix of cooking methods to use all equipment at its full capacity. Frying times and temperatures vary according to the food processed and manufacturer's specifications. Instant heat recovery fryers may allow foods to be cooked at lower temperatures, usually about 25 degrees lower, with a range between 325- and 350-degrees Fahrenheit. Foods commonly prepared in deep fat fryers are mostly those with high starch content, such as potatoes, breaded onion rings, breaded cauliflower, okra, & zucchini, and non-starchy foods such as shrimp, fish, chicken & cheese. A fryer is one of the most dangerous pieces of equipment that can cause a fire if not operated properly, especially a gas-operated fryer. Energy-saving factors include:

- **Cutting idle time**

Statistics show that fryers remain idle up 75 percent of the day idling. Cutting down their operating hours could save a substantial amount of energy and money. The savings are higher in electric fryers than gas-operated fryers.

- **Monitoring and recalibrating thermostats**

Because of their excessive idle time, the thermostat must be continuously checked for accuracy. An easy way to find out is by observing if some kinds of starchy food like French fries do not fry crispy but tend to be soggy. However, the end results depend not only on the thermostat but also on other factors as well, such as the life cycle of the oil. Nevertheless, thermostats for any equipment generally tend to lose accuracy over time; therefore, the temperature must be continuously monitored, and the thermostat must be recalibrated as needed.

- **Braising Pans**

  [REMOVED HYPERLINK FIELD]Braising pans are also used as frying pans or skillets and are available in tabletop or floor models. A tabletop braising pan can reduce top-of-stove cooking because it can function as a griddle, kettle, steamer, oven, and food-warmer, as well as a frying pan. Energy-saving factors include:

- **Keeping lid closed during the cooking process**

If the cooking method such as braising allows keeping the lid closed during the cooking process, statistics show that braising pans can use up to 50 percent less energy, especially during the long cooking process.

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- **Buying an insulated braising pan instead of non-insulated ones**

Braising pans come in different sizes and shapes and with different features. One should invest in a braising pan that has insulated walls. Even if the initial investment is slightly higher, it will save energy and cost in the long run.

Cook Chill Systems

This technology has provided kitchen operations with operational advantage and cost reduction processes in both labor and utilities. Cook-Chill Systems are used by different types of foodservice operations, including fine dining restaurants, fast food restaurants, independently owned and franchised restaurants, hospital, and school foodservice, institutional food service, and catering operations. With the cook-chill system, these operations can produce large quantities of foods while achieving optimum consistency, preserving freshness with an extended shelf life. For example, managing a large resort operation with multiple foodservice outlets sets the standard for demi-glace. This sauce will taste the same and will have the same consistency for each outlet. The process will eliminate the individual preparation in each kitchen, thus reducing overall cost. This strategy contributes to cost reduction in raw material, labor costs, and energy and promotes safe food handling compliance with the HACCP (Hazard Analysis Critical Control Point) process. This system is a significant advance in food processing technology (EDF, 2020).

The Cook-Chill process is a multistep one and includes:

1. **Food preparation**
2. Food is prepared on-site or at a central location under strict quality and quantity control
3. **Filling the bags**
4. According to recipe specification, food is kept above pasteurization temperature upon reaching the exact degree of doneness. The partially or cooked foods are filled into unique food bags according to size as needed by each outlet.
5. **Sealing the bags**
6. The bags are then securely closed with a heat seal system or clip closure, depending on the manufacturer, and then labeled appropriately with content specification and processing and expiry dates.
7. **Placing the bags in an ice bath**
8. The sealed bag is immediately placed in iced water to stop the cooking process while bringing the internal temperature at the center of the bag down to about 40 degrees Fahrenheit or less as required by law. These bags can then be stored refrigerated or frozen, depending on the cook-chill process equipment's demand and production capacity.
9. Cooling the bags using the Blast-Chill process

This is the process of immediately chilling the bagged foods to be kept at a cold temperature of about 40 degrees Fahrenheit or less

10. Freezing the bags using the Blast – Freeze process

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This is the process of immediately freezing the bagged food to a freezing temperature to be stored frozen. This process prevents the crystallization of water particles as they would otherwise occur during the normal freezing process.

11. **Rethermalization of the food in the bags**
12. When each outlet at the serving location requisitions the food, it can be reheated in various ways according to health department regulation and according to the recipe. The bag can be placed in a steamer or immersed in hot water. An additional option is to open the bag and pour the contents into a kettle or serving pan to reheat the product immediately. Rethermalization must be done strictly following the HACCP process.
13. **Finished Product**
14. When the food is thermalized, it will have a full aroma, original taste, and texture almost the same as when the food was prepared to order.

The cost-saving factors of the cooking – chill process already mentioned above can lead to higher profit and longer shelf life of individual equipment otherwise used for the same process. The machines' operation is rather simple and does not require extensive training; cooks only need to follow recipe instructions and operations instructions of the equipment. Statistics show that the use of this equipment can reduce overall costs between 20 and 50 percent.

Sous - Vide Cooking Using the Cook-Chill Method System

Sous Vide, also known as low-temperature cooking, or cooking in the bag, was developed by two French chefs George Pralus and Bruno Goussault in 1974 to reduce the shrinkage factor when preparing foie gras. Sous Vide cooking has been proven to produce consistently high-quality results while retaining the highest nutritional value of the foods being processed, such as vitamins, micronutrients, and mineral salts. Accordingly, the fat compositions are not altered - resulting in a noticeably better taste and texture, and that is why it is an ideal process for preparing foie gras. Because the required temperature can be held constant, chefs are able to prepare fish, meat, or vegetables exactly as per recipe specification. The Cook & Chill method dramatically increases product shelf life. Pre-cooked and chilled meals are immediately available at a consistently high-quality level. Meals can be prepared ahead of time when the kitchen is not operating at full capacity. The difference between cook-chilling large batches and sous-vide is in the process: with the sous-vide system, food can be portioned according to serving specifications and cooked in the bag; while the cook-chill method can process many foods and then put in the bag of any size according to the outlet specification. However, the sous-vide process is a delicate one, and if food high in protein, such as fish, which is pure protein and not muscle protein like meat, can easily overcook and become pureed like. This is one of the reasons why this process has not been as successful as the cook-chill method itself.

Holding Cabinets

This type of equipment is widely used in most kitchens; however, much more in large operations. Their purpose is to hold food hot until it is served; however, chefs have become very creative with their use, and one must question whether this practice is cost-effective in the long run. Holding cabinets are also

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used for proofing leveled bread or pastries, for holding china and other service equipment hot, and some chefs even used them for smoking. However, in terms of energy consumption or savings, it depends on the type of insulation they have. Statistically, well-insulated holding cabinets can operate up to 65 percent more efficiently than non-insulated models. However, the efficiency depends on other factors such as how often the doors are being opened as well. Energy-saving factors include shutting the cabinets off when not in use.

A common practice for chefs is to leave holding cabinets continuously day and night. This is the case where empty space is using unnecessary energy, driving the cost of utilities high. A well-run kitchen should have a closing duty schedule, which includes shutting off all equipment that is not required for use overnight. Non-insulated models use the most energy.

Mixers

There are many types [REMOVED HYPERLINK FIELD]of mixers; however, the most common type used in foodservice operations is the vertical mixer. They are available in many sizes and models as an either tabletop or set on the floor. When operated, they use a substantial amount of electric power; however, since they must be turned on and off frequently, the energy requirement is limited to their operating time. They have different speeds, and like fryers, they are among the most dangerous equipment types in the kitchen. They are extremely powerful in being able to mix large amounts of dough. They must be slowed or stopped when changing speeds and completely stopped when scraping down sides of the bowl, lowering the bowl, or removing the beater. Do not talk or get distracted when operating this machine. Most importantly, it should be disconnected all the time except during the operating time.

Vegetable Chopper Also Called Cutter or Buffalo Chopper

Although mixers have accessories for chopping, slicing, and shredding, many operations use specialized pieces of equipment for different processes. Professional chefs use this chopper to process foods that are needed in the finest grade, such as farces, paté bases, and various types of stuffing. This type of equipment is usually available as tabletop models or may be mounted on portable stands. They have excellent safety features such as blades' protectors. Just like the mixers, their energy requirement is limited to the operating time when used.

Combination Mixers and Choppers

These are small types of equipment whose brand names have been coined as a type of equipment. They can mix, chop, shred, puré, and perform many kinds of functions, which can be very useful for a professional and creative chef. One of the most popular is the commercial Robot – Coupe. They are available in all sizes and speed, and their models vary in terms of being built totally in steel or plastic. Just like the mixers, their energy requirement is limited to the operating time when used.

Slicing Machines

There may be hardly any kitchen that does not have a slicing machine. This is a piece of equipment that is always needed, especially in operations that require the preparation of meats for sandwiches. Chefs

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also use slicers for the exact portioning of large meat roasts, such as prime ribs. Their energy requirement is limited to the operating time when used.

Toasters

Older commercial toasters require a lot of energy. Many operators attempted to avoid the initial investment cost by purchasing small non-commercial toasters only to find out from the fire department that they were illegal. The small noncommercial toaster can cause fire and do not necessarily save money in the long run. Toasters are available in many sizes and models, and they do use a substantial amount of energy if not operated properly. Once again, we refer to menu planning, during which one must decide how often a toaster will be used if the initial investment is worth it and what the cost of energy requirement may be in the long run.

Plate Warmers

Plate warmers are available freestanding or as cabinet. This type of equipment requires a lot of energy, and it is usually held on during meal periods. However, as for all energy powered equipment, plate warmers are part of the inventory that the closing chef does not usually turn off at night. Therefore, unnecessary space and utensils are kept hot at night for no reason. Cutting down on idled time can save a substantial amount of energy.

Dishwashers

From an initial investment point of view, a dishwashing machine is one of the most expensive equipment of the total kitchen equipment investment. Each component and each step in the process can be a cost factor. The main cost factors are water, electricity, chemicals, labor, and maintenance. The purchase of such equipment must be made wisely and in consultation with experts, including the sanitation team (dishwashers) that operate such machines; they are the most knowledgeable about the user-friendly operation, ideal location, flow of soiled dishes etc.

Depending on the foodservice operation's size, a dishwashing machine must be purchased according to the official productivity statistics. However, as a rule of thumb, a machine should be purchased by considering the following factors:

1. The machine should be mobile; this allows for easy cleaning and maintenance.
2. It should be with double rack capability; a wash cycle will wash a few dishes the same as a double number of dishes if it had a double rack feature, which means that it will use the same amount of water and chemical.
3. Chemical supplying companies recommend using a low-temperature machine to save energy; however, statistics show no cost-benefit; instead, there is an increase in chemical consumption. A chemical often referred to as a rinse-dry chemical, will allow the dishes to dry immediately after the washing cycle is completed contributing to energy savings. However, the cost of the rinse dry chemical is usually higher. Besides, when the machine is not working correctly, too much chemical may be left on the dish's surface affecting the quality of food, and of course, it contributes to the higher cost of chemicals since it is not appropriately dispersed. An alternative to buying a low-

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temperature machine would be that of adding a booster heater to it. This additional feature will increase the rinse cycle's water temperature and dry the dishes immediately, thus eliminating the cost of buying the rinse dry chemical. Nevertheless, a cost analysis benefit should be performed to exactly analyze the entire cost of investment, running the machine, and cost of energy to determine which alternative is the best for the operation in the long run.

4. In large operations, especially hotel operations, one should consider buying a separate dishwasher for glassware only. This dishwasher is usually used by all bars and housekeeping for washing glassware destined for guests' rooms.
5. The best way to buy a dishwashing machine is to visit operations with similar products in place of visit products trade shows to compare prices and features of various machines made by different manufacturers.

Some cost-reducing factors in operating dishwashers include:

- **Turning it off**

High-temp dishwashers typically feature internal tank heaters. If it is not turned off at night a lot of energy may be wasted by heating water that is not needed. The same holds true for booster heaters and dishwasher exhaust hoods, and they should be all turned off.

- **Checking rinse pressure and temperature**

If the dishwasher's pressure gauge is not showing the right pressure, usually above 25 psi (pounds per square inch), the machine could be using excessive water. Most dishwashers require around 20 psi to operate efficiently.

- **Checking the water temperature constantly**

The staff should always follow the manufacturer's specifications for tank temperature and rinse temperature and keeps a logbook. Variances must be reported immediately to avoid excessive energy and chemical consumption

- **Operating conveyors in auto mode**

If the dishwasher is equipped with a conveyor-style feature, it should always be operated in auto mode. The process saves electricity by running the conveyor motor only when needed.

- **Adding or maintaining wash curtains**

Wash curtains are plastic strips that hang on both sides of conveyor dishwashers to improve washing efficiency by containing the heat generated by the machine. Curtain elements should never be missing and should be replaced as soon as they deteriorate.

- **Designing a new dishwashing system with utilities' efficiency in mind**

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As mentioned earlier, it will be beneficial in the long run to buy a booster heater; however, energy-efficient gas booster heaters are more efficient than standard electric booster heaters. New machines are now built to use less water; logically, less water means less heating costs by using less electricity.

- **Considering the installation of a heat recovery system**

New technology allows the heat produced as a by-product by other equipment to be recovered and used to operate other equipment. For example, refrigerant heat-recovery systems use waste heat from the walk-in refrigerators and freezers to preheat water used in the kitchen. These systems are relatively simple to install and have reasonable payback periods when installed in kitchens with moderate to high hot-water needs. They have a higher benefit factor in large commercial kitchen operations.

Refrigerators and Freezers

Fridges and freezers are probably the most abused and the most neglected equipment besides ranges and stovetops. One thinks that all kinds of fridges last an eternity without care and maintenance. As with any other mechanical equipment, refrigerator performance can deteriorate over time. Constant monitoring is necessary to keep them running efficiently to save on maintenance costs and energy. Fridges mainly run more efficiently when they a full or at least partially full. They require more energy to chill space. Key factors to be considered in the initial investment of any type of fridges or freezers. The most important is the consideration of where to install the compressors.

It is not uncommon, especially in the U.S., to install all fridge compressors inside the facilities, particularly those of free-standing fridges. This is a practice that causes compressors to deteriorate and run at reduced capacity, thus using excessive energy while cooling less. Operators have used several remedies to improve their performance to reduce costs and increase their life span. E.g., by putting a layer of cheesecloth in front of the condenser, it will prevent evaporated dust-collecting fat and other vapors from sticking on the condenser's surface, causing them to run a lower efficiency. In other words, the compressor will suffocate. Instead, if they are installed outside, this and other factors may not affect their performance. In terms of fridges, a foodservice operation requires several in different sizes.

Depending on the size of the operation, it requires at least one walk-in and a reach-in unit. Large operations may require several walk-ins, standing, and reach-in fridges, depending on how many sections the kitchen has. E.g., it may require a fridge for protein foods such as meats and seafood, one for produce, one for dairy, one for pastry, and one for the gard manger section. If the operation includes large banquet facilities and outside catering, additional fridges may be required, including a refrigerated truck for delivery. The same consideration applies to the installation of freezers. Fridges and freezers require a special gas to reach an ideal cooling or freezing temperature, as explained earlier.

Freestanding fridges and freezers are the most vulnerable to cooling gas leakage if they are moved or tilted because the copper coils are easily damaged. One mistake most staff makes is keeping all fridges and freezer doors open for a long time, especially when deliveries are put away or when cleaning takes place. Modern refrigeration and freezing units are self-defrosting and therefore do not need to be defrosted as they used to be decades ago. However, we must reiterate that even the most efficient and powerful fridge cannot recover fast enough if doors are kept open for an extended period. Even if they are equipped with curtains, air circulates, causing stress to the compressor, and consequently, its life span is reduced. There are many energy cost-saving factors to consider when operating a fridge or

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freezer. The most important one is always proper training and constant reminders, both verbal and use of posters, to keep fridge doors shut.

- **Keeping condenser and evaporator coils clean all the time**

The refrigerator's condenser cumulates dust and grime, especially during the cooking process, when most vapors are released, particularly those that are not captured through the hood's extractor. This builds up of greasy dust blocks airflow across the coils and reduces the refrigeration efficiency. Dirty coils can also cause a total equipment failure.

- **Keeping the lid of the food wells closed when not in use**

This is another factor that can lead to high energy consumption. It happens more frequently in cold sections where salads and sandwiches are prepared. Leaving the lid open on the preparation table can increase electricity consumption.

- **Monitoring the defrost cycles**

Defrosting is a process that requires intensive use of energy. This varies according to the unit's size and to the volume of business of the operation, whether the restaurant is running at full capacity or not. Therefore, it is important to establish the ideal defrost settings. The defrosting process usually lasts about 15-20 minutes, and it is not required more than four to five times daily. The correct setting of the defrost time clock is key to saving energy.

- **Performing preventive maintenance regularly**

Preventive maintenance, such as replacing old gaskets on refrigerator doors that have been torn or loose, can save a severe amount of energy. The same applies to curtains and automatic door closers. Strip curtains and automatic door closers are inexpensive and easy-to-install.

- **Using efficient lighting**

Replace walk-ins' incandescent lights with low-temperature light bulbs. Incandescent lighting releases more heat than low-temperature bulbs forcing the refrigerator to work overload.

- **Turning off reach-in door heaters**

By turning off the door heater of a reach-in fridge or freezer can save a considerable amount of energy. The switch can be turns on-and-off as needed if there is significant frost around the door or water dripping on the floor from the refrigerator's front. This, of course, would constitute a safety hazard as well

- **Allowing enough air circulation to be freestanding and reach-in fridges**

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Refrigerators remove heat from inside the box and reject that heat out through the coils on the unit's top or bottom. Therefore, the units should not be placed in tight spaces where the released heat will build up, causing the unit to work overload using excessive energy

- **Installing shade panels over remote condensers**

Remote condensers for large walk-in fridges are usually installed on rooftops. In such a case, they must be shaded because the condenser can be affected by the heat produce by exposure to sunlight, especially during the hot part of the day. Condensers need constant airflow to work efficiently.

- **Insulating the condensers suction lines**

Refrigeration systems with remote condensers have suction lines that transport the refrigerant from the evaporator to the compressor. Adding extra insulation to these lines prevents the absorption of extra heat during the transfer process, allowing the refrigeration unit to be cooled more efficiently.

Ice Machines

Just like the fridges, ice machines too are often abused and operated with neglect. The most common problem most operators do not recognize is that despite the advance in new technologies, most ice machines release the ice in one specific point of the bin, which means that the machine does never produce ice at full capacity because when the ice cubes pile-up in the ice bin it touches the full capacity sensor causing the machine to stop ice production. This not only causes the machine to run at 50% capacity, but it does not produce enough ice for the operation. Managers should continuously monitor this process and distribute the ice in the bin evenly so that the ice machine can produce ice at full capacity, especially during the night hours when the facilities are not operating. Another common error that is made in the initial investment in buying a machine that produces one size and one shape of ice cubes. This may force the operators to buy additional machines for bar operations because certain ice cube shapes cannot be used to prepare specific drinks in blenders. Blender blades do not crush round-shaped ice cubes. For that purpose, the ice cubes should not be round shaped instead should be square or rectangular, also referred to as cubelets. When ice machines have produced a full bin of ice, they work the same as a freezer keeping the ice at freezing temperature.

However, an additional common error made by all staff using the ice machine is to leave the lid open. This not only causes the ice to melt, but it also caused the machine to use an excessive amount of energy, thus producing very little ice. There is also the issue of safety since ice is ready to be consumed, and if it is exposed to the free environment, it can become contaminated. An additional safety factor is that the plastic or steel ice scoop often disappears, and staff becomes creative by using glass or china containers to scoop out the ice. Often these utensils break, causing the ice to be contaminated with broken pieces of glass or china, and consequently, the entire ice production must be discarded to prevent serious accidents or injuries to patrons. As a result, the machine must then be refilled with a newly produced full bin of ice, thus wasting unnecessary energy. There are additional energy cost-saving factors that can help the operational efficiency of the machine as well.

- **Proper scheduling of ice production**

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By operating ice machines correctly, one could reduce the energy consumption during the daytime by installing a timer and by scheduling ice production from daytime to nighttime. Not only in the U.S. but also in many other countries, the cost of electricity during nighttime can be lower, depending on the demand and the type of plan negotiated with the utility supplying company.

- **One should invest wisely in ice machines**

The life span of ice machines is not the same as that of a freezer. Ice machine manufacturers can be beneficial in the planning process if the operator uses ice machines according to the operating manual. Also, one must determine the approximate capacity required. Ice machines produce ice, and ice is measured by weight. Large capacity ice machines are more efficient than smaller ones, especially those installed under the counter in a bar. The larger the capacity, the easier it is to shift the ice production to nighttime hours to save energy.

- **Install multiple – but different size machines**

It is recommended that one install at least two machines of different capacities in operations with at least two outlets, e.g., a restaurant and a busy bar. In case one breaks down, the other can be useful in making ice for both outlets.

- **Establish an ice production contingency plan**

An additional saving strategy is to have a contingency plan in place. When the ice machine has produced ice at full capacity, the manager should fill-up bags or ice containers and hold enough ice frozen in the freezer if one of the machines breaks down. One should remember that calling a service company during evening hours, on the weekend, or during holidays, it can be very costly. The ice back-up strategy can help reduce those costs.

Investing in Efficient Heating and Cooling System

Heating, ventilating, and cooling of foodservice facilities represent a large portion of energy expenses for all operations. Statistics show that heating, ventilating, and cooling is the second largest annual energy expense after food preparation. Modern kitchen operations install energy-efficient heat extractors and, in some cases, even air conditioning units. Although air conditioning is not recommended in commercial kitchens, it can improve kitchen employees' health and performance. This, however, is hard to determine even by the most sophisticated cost-benefit analysis computation. Air conditioners and central cooling systems require a high amount of energy. Therefore, many kitchens install mostly fans and high-efficiency heat extractors; they are less expensive to run and maintain. However, central heating and air conditioning systems must be installed in dining and bar areas to provide comfort for dining patrons.

Any equipment in constant use must be inspected regularly, and preventive maintenance must be performed to avoid costly repairs if they break down. Therefore, all equipment should be regularly inspected, cleaned, and maintained. Dirty heat-transfer coils and torn or misaligned ducts; can reduce the climate control equipment's efficiency, causing excessive energy use. Dirty air filters should be replaced

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immediately because they can cause the heating and cooling motors to work overload, risking breaking down. Installing programmable thermostats can help saving energy, especially during non-operating hours.

Performing a regular air balancing can prevent a potential break down caused by lack of preventive maintenance, broken belts, out of balance kitchen exhaust systems that move too much, or too little air can cause the electricity cost to increase. Air balancing should be performed in all areas, including the dining facilities. To improve airflow and heat extraction efficiency, one must consider grouping all heavy-duty equipment together when the kitchen layout design is proposed the first time (Baraban & Durocher, 2001; Birchfield & Sparrowe, 2003). For example, broilers, ranges, salamanders, and the griddle can be installed close to each other in the center of all the cooking line equipment. It is also a good strategy to install high heat-producing equipment such as a broiler somewhere independently under a separate dedicated exhaust hood with a higher exhaust rate, while the light-duty equipment can be installed under the wide hood with a lower extraction rate.

17. Other Requirements Buying Guide

When buying operating equipment, tools and utensils used by guests such as cutlery, china, glass, crystal or specialty tools such as lobster tongues and forks, escargot cutlery, sauce or ice cream spoons etc. the operator must take into consideration the level of service and the number of pieces of utensils needed to serve a full meal. In technical terms, it is referred to as a "Place setting." In fine dining, where affluent guests are served in ways to let them feel less separated from their traditional eating habits at home, the management attempts to offer all types of utensils available on the market. An example is the "finger bowl" served to guests any time he/she touches foods with bare hands, or a silver champagne swirl used by guests who prefer drinking champagne with less bubbles. Whichever the case, the number of utensils required for a luxury place setting may consist of between 45 and 60 pieces per guest for a 3-5 course meal. Therefore, it is necessary to refer to the menu planning and reflect that the menu will drive the restaurant's operation cost. The place setting for a coffee shop or similar operation may consist of many fewer pieces, usually between 10 and a maximum of 20. Thus, the type of menu and type of service must be discussed in the initial planning stage and long–term strategic planning.

Understanding About Cutlery or Flatware

Most cutlery used in foodservice is made from stainless steel. In fine dining, however, cutlery is also used in silver, and, in luxury hotels, in gold as well. Real silver is Sterling silver, which is rated as 92.5% pure silver or simply as "925" silver, which is as high as it can be without the metal becoming too soft for commercial use.

The regular silver cutlery, however, is mostly plated with Electro-Plated Nickel Silver (EPNS). The galvanization process plates the steel base with a thickness expressed in microns (its symbol is "μm" which is equivalent to one-millionth of a meter or 1/1,000,000 or in scientific notation expressed as 1×10^{-6} m. Good silver-plated cutlery usually has about 35 microns of silver-plated to it. However, the finest cutlery is made from almost pure silver, defined as 850 or 925 parts / 1000. The cost of buying silver or golden cutlery can be very high.

Using the EPNS galvanization technology, the thickness of the plating determines both the durability and the price. Inexpensive EPNS, meaning less than 30 microns plating, may look the same when purchased but may need galvanization again, depending on the usage. Silver and golden cutlery are

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not only expensive to buy, but they also require careful maintenance and loss prevention. Silver can be cleaned with an electric burnishing machine using liquid or solid polish to retain the silver shine. Gold plated cutlery can be found from different suppliers with micron thicknesses from 2 to 30 "μm" in 14, 18, 22, and 23.99 karats.

According to UK based KCM Catering Equipment catalog, stainless steel, which is the cutlery 99.9% of restaurants use, is a mixture of steel, nickel, and chromium, and the nickel and chromium content describes it in that order by the description of two numbers separated by a forward slash. The most popular restaurant-grade of stainless steel is labeled 18/10, which means 100% of the final product, 18% is nickel, 10% is chromium, and the remaining 72 parts are steel, which itself is an alloy of iron and carbon.

The higher the nickel and chromium content, the hard is the cutlery. The advantage of 18/10 cutlery is that it is a hard material resistant to scratching and very dishwasher safe. If tarnishing appears on 18/10 cutlery, the two likely reasons are low quality or incorrect use of detergents in the dishwasher. There is a lower grade of stainless-steel cutlery on the market, which has less of the expensive metals nickel and chromium labeled 18/8 or 18/6. This is less expensive and ideal where tableware costs must be kept low, and possible losses may be concerns such as in institutional foodservice or cafeteria-style operations. It is much less expensive and shiny; however, it is a thinner material than 18/10 cutlery, and it will tarnish very fast with dishwasher detergents over a short period. Eventually, its appearance may look dull like lead.

There are many different cutlery patterns, from knives with solid handles to wooden handles, and there are also many contemporary designs that suit whichever theme a restaurant may have. Also, steak knives used in informal dining have a serrated blade and a handle of either riveted plastic or riveted wood. The coarse serration is to cut and tear through steak and other grilled meats, which may be slightly tough. The problem with wooden-handled steak knives is that regular cleaning through a commercial dishwasher will cause bleaching of the handles through the action of the detergent and hot rinsing process, making the handles look as they were dried-out. Plastic handles instead are bleach resistant.

However, steak knives used in formal dining are made of solid steel or a combination of silver handle and serrated steel blade. Hollow handle or solid is just a preference but no advantage to the restaurant or the guests using it. Hollow handles have a lighter, chunky feel in hand, solid handles a firmer, smaller feel. There is no difference in durability and seldom any difference in cost. Cutlery inventory, together with glass and crystal ware, is probably the part of the overall food and beverage operational inventory subject to heavy losses and costly replacement. This can be through wear and tear, theft by customers or staff, but most commonly through plate-scrapping in the dishwashing area when cutlery is inadvertently swept into garbage bins along with plate waste. Whatever the reasons, the management must make sure that the losses are minimized, and that the operation does not suffer as a result. One way of minimizing losses is using magnetic garbage bin lids that catch any metal before it can follow through the bin.

Golden cutlery is usually washed manually, and inventory is taken after every meal period to ensure that any missing piece can be traced. In case of heavy losses of silver cutlery, using a sorting table for waste or a metal detector may help capture the pieces that accidentally may have fell into the bins. However, one common mistake should be avoided: cutlery is not replaced with a cheaper pattern or with less microns of silver or a lower percentage of Nickel-Chromium in the stainless-steel pattern. It is also essential to buy from the original cutlery supplier as in the global production of cutlery today; one factory's interpretation of a standard pattern may be different from another. Thus, selecting the right supplier can ensure the replacement of the same pattern and material is extremely important. Furthermore, the concept of outsourcing may have made the market very vulnerable and tempting in the pursuit of saving money.

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Understanding About Chinaware

The basic *chinaware* is *porcelain*; it is vitrified pottery with a white, fine-grained consistency that is usually translucent, and it is not porous, opaque, and coarse as regular *earthenware*. The distinction between *porcelain* and regular *stoneware*, another classification vitrified pottery material, is that stoneware is much less clear. According to Potteries.com, porcelaneous ware was first made in China, hence its common name, *china.* Chinese porcelain is less vitrified (and therefore softer) than its modern European counterpart, which was developed in Germany in early 1800 (The Potteries, 2021).

The term "porcelain" derives from the Italian term "*porcellana*", as coined by Marco Polo to describe the pottery he saw in China. In China, porcelain is defined as pottery that is resonant when struck or when it breaks; in the West, it is considered a translucent material when held to the light. However, experts disagree in principle that neither definition may be correct; some heavily potted porcelain ware is opaque, while some thinly potted stoneware is slightly translucent. All ceramics are made from a mixture of *china clay* called "*kaolin*" and china stone called "*petuntse*." To manufacture the finest chinaware, an extremely pure *kaolin* is required. Impure or less costly *kaolin* is used in the manufacturing of standard pottery, stoneware, bricks, as filler for pigments, and paper manufacture. Kaolin is the clay mineral kaolinite; it is a hydrous aluminum silicate derived from the decomposition of aluminum silicates, predominantly feldspar. It was first used in England in the 1700 century, and today the main suppliers are England and Malaysia. The name *Kaolin* originated from the hill in Jiangxi Province, south-eastern China, from which the clay was first mined.

The techniques for using kaolin in the porcelain making process originated in China around 800 AD. Europeans began importing porcelain from China after Marco Polo's travels in the 14th century. They did start manufacturing what is known today as "*porcelain*" until the 18th century. During this time, porcelain became fashionable among royalties and other noble families long before it was used in the hospitality industry.

China clay or *Kaolin* is pure, soft, and white clay of low plasticity that retains its white color when fired at extremely high temperatures. To achieve its total whiteness, china is fired at about 2400º Fahrenheit or about 1300º Centigrade. China clay is generally poor in plasticity, and therefore it requires crucial additives such as *ball clay* and/ or *bentonite* to become harder. The different varieties of china clays are highly valued for their whiteness, and that is why they are used in the manufacturing of the most preferred china today, the "*bone china*."

What to Know Before Buying Chinaware?

Potteries.com explains that there are three types of porcelain: "***hard-paste***," "***soft-paste***," and "***bone china***." All three types of porcelain are treated with a final "***glaze***" before they can be completed and ready for use.

Hard-paste porcelain can have a grey appearance and is extremely hard; it is fired at a much higher temperature than soft-paste porcelain, up-to 2500ºFarheneit, or about 1400ºCentigrade.

Soft-paste porcelain is soft, and the body is granular since the ingredients do not melt together. It fired between 2200 to 2500ºFarheneit or between 1200 to 1300ºCentigrade. Its "***glaze***" can be clear and thick and sometimes gathers into pools; also, the enamel colors may sink into the glaze.

Bone China is hybrid hard-paste porcelain containing bone ash; it was developed in England around the 18th century. This invention used a basic formula consisting of bone ash, china stone "*petuntse*,"

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and china clay "*kaolin*." Today's formula consists of 50% calcined bone ash, 25% china clay, 25% china stone. A key ingredient that made this type of china extremely hard is the "***Calcined bone ash,***" which is produced from animals' bones. To be used, the animals' bones are first processed to remove any meat and natural glue attached to it. They are then heated to about 1800º Fahrenheit or 1000º Centigrade to remove any residual organic matter, changing the bones' structure, which is then ground with water before inclusion in the mixed compound.

Bone china, often called "Crystallized or Metalized China," is easier to manufacture, it is strong, does not chip easily, and has an ivory-white appearance. The contrast of the food color with that of the china's ivory-white color allows for an impressive plate presentation in any dining setting.

This china is less likely to be damaged during the firing process than soft-paste porcelain, which contains glass. The fusion of the main ingredients fired at high temperature, as described earlier, makes this type of china extremely hard; thus, if it breaks, it fragments into thousands of tiny pieces. Its color is intensely translucent, allowing the light to pass through it. Also, the brilliance of enamel colors and gold is far greater than the hard and soft paste porcelains.

The Glaze is used on porcelain to give it a waterproof finish. The glaze may be transparent, opaque, or colored. It is a form of glass, consisting of glass-forming minerals such as silica or boron combined with hardening matters like clay and fluxes and melting agents such as sand fused with sulfide or lead oxide, or soda.

Painted decoration on porcelain, such as a company logo or other decorative paints, is usually applied over the fired glaze. This is because painting under the glaze fired at the same high temperature as the body may cause many colors to burn off; therefore, painting on porcelain before glazing is possible if using the common cobalt blue found on Chinese blue-and-white chinaware. Most porcelain colors applied to porcelain over the fired glaze are then fired at a much lower temperature than the actual porcelain body.

Buying the right chinaware means making an important financial decision. Unlike glassware, it is much more difficult and costly to replace an entire china inventory with a different type of porcelain than a glassware inventory. Based on the service offered in the foodservice operation and considering the quality of china described above, the management must decide the best investment in the long run. The following are some basic but critical factors to consider when buying china:

1. The initial cost of the china
2. The necessary inventory also called par stock
3. The replacement cost in the future based on the price inflation
4. The guarantee that the china will be produced in the future, thus ensuring the exacting pattern replacement.
5. The weight of each china piece about how many pieces the service staff can carry by hands or on trays
6. The shape and the matching principle with the look and the size of cutlery
7. The edge as a determinant for portion size and eye appeal: rolled, scalloped, narrow, wide, or embossed rim.
8. The color of the china to complement the food colors
9. The various sizes of the dishes needed, such as dinner plates, desserts, plates, etc.
10. The breadth of the product line, from matching demi-tasse to salt and pepper shakers
11. The packaging specifications: Case times six dozen…
12. The warranty that the product is dishwasher safe and oven temperature resistant

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13. The firing process as a determinant for durability: single, double, triple firing; the more times it is fired, the more durable the chinaware.

Fine dining operations usually prefer custom designed chinaware, preferably with their company logo, matching colors, and unique utensils such as especially handmade porcelain baskets to serve chocolate truffles in it, or special caviar service set, or uniquely designed flower vases. However, custom-designed chinaware can be costly, especially if the china company must assure its replacement due to loss or breakage in the future. China is, after all, a significant portion of the overall equipment expenditure. To minimize the losses, the management must take regular monthly inventory and identify where and when the losses happen to reduce or eliminate them. Experience teaches that this can be achieved more successfully by giving incentives to the staff than in reprimanding them.

The author has spent valuable time in Stock – on – Trent in the UK to learn about china. The Wedgewood company manufactures fine chinaware used in some of the most luxurious places in the world. Detailed information can be accessed at their website of by searching for keywords "Wedgewood" https://www.wedgwood.com/en-us.

Understanding About Glass/Crystal Ware

This is one of the most expensive inventory items for a food service facility, especially in fine dining operations that use crystal ware exclusively; it has the highest propensity to breakage. The high cost is not determined by the initial investment alone, instead of the replacement due to breakage. First, we must distinguish between glassware and crystal ware. The initial investment for crystal and the replacement cost is much higher than the cost of regular glassware.

The science of glassmaking is very advanced today, and experts on both sides, the manufacturing, and the operating side, argue that besides the components/elements in the material, the different shapes and different thicknesses of material do indeed influence the taste of the beverage served in it, especially wine. There are many factors to consider when investing in glass or crystal ware. One must find the balance between the owner-operators wish list and the matching beauty that complements the overall decor and the durability, functionality, and cost.

Beauty Complementary to the Decor

Matching glassware with the overall decor is an integral and complementary part of restaurant design. However, the wish to have a specific glassware design, possibly with a logo, a specific quality, or a specific brand, will depend on the overall budget and the strategic operating plan regarding the ever-reoccurring cost of replacement breakage.

Durability

The thicker the glass, the less likely it is to break. Standard beverage glasses such as highball glasses should be thick because they may be used several times during the operation, especially in a busy bar operation. Experience teaches that glasses with a beaded or rolled rim are less likely to crack or break than those without them. Straight edge glasses are more durable than flared or curvy glasses.

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Treated glass is also more durable. Most commercial glassware today is made stronger through heat treatment to achieve extra durability. While heat treating makes glasses more resistant to thermal and mechanical shock, they still have the potential to break. When treated glasses do break, they tend to shatter.

Functionality

Thinner rims have better functionality, especially for wine glasses. Although a thick wine glass may not break as easily, the thick rim does affect the taste of the wine. The thinner the glass, the less interference there is between wine and mouth/lips. Stemless wine glasses are ideal for serving wine in it; however, they are not impressive to the wine expert. Stemmed glasses are very functional; however, they are not durable, and they are very breakable. The stems break very easily, especially those of expensive glasses made of fine crystal.

Lead Crystal

Although heavy lead crystal ware is not really used in commercial dining except for custom made designs, it is worth discussing it to learn about the art of crystal making and the various options available on the market today. Most crystal ware today is exceptionally thin and, therefore, fragile. It is available in different shapes and sizes for each drink type, and it is extremely hard and, therefore, highly breakable. The inclusion of at least 24 percent lead oxide in the raw material composition is required for a crystal to be called a full lead crystal. The lead gives brilliance and weight to the product. Crystal without lead is still classified as crystal; however, it is more commonly perceived as "glass."

The lead also makes the crystal softer and more conducive to cutting. Therefore, the lead crystal is cut, and for the most part, the unleaded crystal is not cut. Most fine crystal today contains lead oxide. About 24 percent is the optimum percentage for color, weight, and hardness while still ensuring clarity, sparkle, and brilliance. The 24 percent lead crystal, with its exceptionally high perceived value, has been sought after and treasured for generations and remains a status symbol even today. Because there is an endless choice of glass types, shapes, thicknesses, and certainly prices, one must carefully investigate which lead glassware to buy.

Handmade or Mouth-Blown Glassware

Handmade glasses production is characterized by a mix of various materials that create impressive artistic effects. For the glass artist, it takes great skill and precision to create handmade glassware that must look all the same; although it is made individually, it must have the same size and the same capacity in volume. Glassware is made of several ingredients, which are mostly minerals:

- Sand (silica), the intense heat changes sand into a fragile form of glass
- Soda ash (sodium carbonate) is a powdery white material that is added to the mixture to lower the melting temperature of the sand
- Limestone (calcium carbonate) is added to make the glass stronger

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The raw materials are melted together in a furnace at a temperature of 1600°C or 2912°F before they can be manipulated into the right shape and size. A complete list of glassware types, size, and shapes is available in Chapter 6, in the *Bar Glassware and Purpose* section.

Understanding About Table Linen

Whether to buy cotton, silk, velvet, or polyester for table linen, it is a decision that involves an initial investment and reoccurring replacement and maintenance costs such as washing, dry cleaning, ironing, and folding. Many restaurant operations opt to rent instead of buying linen. The answer can be found in each cost-benefit analysis because each operation is different. There are benefits in using both buying and washing yourself or using a rental company.

Regardless of choice, what kind of material to use depends on the standard of service and the seat turnover ratio, meaning how many times each table needs to be covered with a fresh tablecloth and fresh napkins. It is a fact that polyester table linens have a better return on investment over cotton and other expensive material; polyester has better longevity, wrinkle resistance, and stain resistance.

However, some customers overall still prefer the rich, elegant, natural look and feel of pure cotton, especially when using cotton napkins to wipe their mouths. Also, restaurant operators prefer pure cotton because they can attract patrons who appreciate it and therefore charge a higher price based on how much the more expensive table linen contributes to the higher standard of service. Other operators prefer cotton because they have used it for years and do not wish to disappoint existing patrons by switching to polyester. Other reasons for using cotton may be the product mix, such as catering to regular – returning patrons and expensive private parties such as weddings and other types of memorable ceremonies. The most common and well-appreciated material is a hundred percent Egyptian cotton, especially for napkins.

Selecting appropriate linen for tablecloths and napkins for any foodservice operation, especially for upscale restaurants and catering, is essential for improving the furniture's overall appearance and, thereby, the dining room's attractiveness.

Linen, after all, is an integral part of the overall restaurant design concept and décor. Tablecloths have very specific functions. The primary use is to enhance the table's appearance, especially when catering to special occasion parties as previously mentioned and other parties such as business conventions, achievement awards' parties, and birthday celebrations.

Having tables nicely decorated with clean and wrinkle-free tablecloths can impart a modest look to any dining room from a business perspective. Therefore, foodservice operators should invest wisely when selecting the type of tablecloth for the decoration, whether owned or rented. There are a wide variety of tablecloths and napkins available in the market. Most of them serve certain specific functions.

Even though tablecloths' primary function is to provide an attractive look, they should also be able to protect the table from any scratches and marks and reduce the noises caused by servers when putting down plates on the table. Also, tablecloths should be capable of absorbing spills that can harm the look of the table. In case of accidents that previously occurred to a table, the tablecloth can cover stains as well. The most important function of the line quality, color, fabric pattern etc. is to give the first impression to a new patron or a repeat impression to a repeat one.

Nevertheless, when investing in linen, the critical key to purchasing the right material is quality. In consideration of the color, choosing a classic color that matches the restaurant's overall décor is the best choice.

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Although the following section should be rather discussed in Chapter 6 only, it is appropriate to reiterate its importance in the context of proper care of table linen in general. When using expensive table linen, the management must train the service staff to use it properly. Tablecloths should be folded correctly in two folds, and the seams always on the inside so that when the service staff lays it on the table, it is easy to follow the same pattern. Tablecloths should be displayed so that the central crease is displayed directly toward a central point of the dining room, usually the entrance.

Imagine entering a well-decorated dining room and noticing that on the right- and left-hand side of the table's central display, all tablecloths' creases point toward the entrance in a fishbone pattern? That provokes a positive eye appeal and gives an impression of professionalism and care with detailed accuracy. Nothing should be placed across the central crease, such as salt and pepper, flower vase, and candle stand. For napkins, regardless of the standard of service, they should be folded using the most straightforward fold possible not to become cross-contaminated by the staff handling them. From the time the napkin is washed until the guest uses it, napkins should be handled no more than three times; by the person who lays them together after they come out of the press, the person who picks them up from the laundry room and places them in the dining room storage, and the person who lays them in front of the guest. From the highest hygiene point of view, one should avoid roll-ups, especially in fine dining. Furthermore, napkins should never be manipulated and displayed in a way that interferes with the purpose of other equipment displayed on the table. For example, it is not proper to stuff expensive crystal ware with expensive cotton napkins. Also, napkins should not be used as menu jackets, especially if the menus stuffed in the napkins are the standard menu covers touched by every guest and every staff member. One should not forget that like cutlery, napkins too, are the most delicate utensils guests use and touch their mouth with. Finally, to strive for the highest degree of hygiene, each dining table should be set-up to match the table reservations configuration, e.g., a reservation for three guests should have a table ready set-up with three covers. Also, when removing a cover because a table is set-up differently than the dining party requires, the entire cover or covers should be removed and stored away with the utmost care so that it does not become contaminated.

Tablecloths are available in many sizes according to the country's measurement system, whether it is metric or imperial (British system). Therefore, it becomes extremely important that when investing in restaurant furniture, one buys everything according to the universal measurement standard used in the country; in this way, one avoids costly customization. In the case of table linen, we have standard sizes worldwide, and linen should be purchased with that principle in mind. For example, in China, restaurant tables, but especially the chairs, are much lower height than in the U.S.; therefore, the length of the tablecloths must be matched with the conventional standard in place.

Table 3 shows a simplified version of linen size commonly used in foodservice operations in the U.S. and in Commonwealth countries that use the British measurement system such as Australia, New Zealand, not excluding England, Scotland, and Ireland.

CHECKLISTS

Furniture Requirement

Furniture is part of the overall décor, and, therefore, its design, use, purpose etc., are decided when the idea is generated, and the overall design has been agreed upon. Selecting the right furniture includes

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Table 3. Table linen chart

Conventional Table Linen Chart						
Shape	**Sizes in inches** *(or in feet when so noted)*					
Tablecloth Round (diameter)	70	78	90	108	120	132
Tablecloth Square	54	70	85			
Tablecloth Rectangular	60x102	60x126	70x120	90x132	90x156	
Tablecloth Fitted	4 **ft**	6 **ft**	8 **ft**			
Napkins Square	17x17	20x20	22x22			
Overlay Square	60	70	85			
Table Runners Rectangular	17x72	17x90	14x108			
Table Skirts	14 **ft**	17 **ft**	21 **ft**			

the matching of color and material with that of fixed equipment referred to as “Fixture Equipment” or in case of “existing restaurant operations” leased out to an operator it is referred to as “Fixture and Leasehold Improvement” in case the new operator wishes to change the equipment, its layout etc. This can consist of a bar counter, open kitchen counter, wine display cabinets, and reception area furniture such as hostess/reservation desk etc. Wine cellars built within the restaurant as a showpiece is also part of the fixture equipment and leasehold improvement.

IT-Equipment and POS System

Because electronic equipment changes very frequently, making most equipment obsolete, the author decided not to include any content that deals with the IT-Point of the sales system, computer networks, servers etc.

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Chapter 12
Marketing

ABSTRACT

This chapter discusses several topics within the marketing discipline, from preparation and execution of a marketing plan and media plan to sales strategies for food and beverage products, services, and events. It offers the reader a broad understanding of sales and marketing in general, explains restaurant marketing's definition of the four Ps of marketing, eight Ps of restaurant marketing, emphasizes marketing strategic activities, and explains the concept of restaurant revenue management. It discusses a pricing strategy within the scope of a marketing plan development.

INTRODUCTION TO SALES AND MARKETING

This textbook has been using the titles of Foodservice Manager and Food and Beverage Manager, and Food and Beverage Director, interchangeably and within the context being discussed. The terms Sales and Marketing have been confusing in understanding what exactly this department does and what exactly a Director/Manager of Sales and Marketing is responsible for? Regardless of its interpretation, we always refer to the department overseeing selling.

The Director of Sales and Marketing emphasizes his/her efforts in marketing activities, designing new strategies and tactics, leading and directing, and working closely with all department the sales office sales for. The sales managers/executives are responsible for the actual sales of the product and services. The success of this team is measured by the end-results of how much has been sold.

To achieve its objective, the Sales and Marketing team must market all products and services most effectively. Using the Apple selling strategies as an example, their products are sold months in advance before they are even released from the production line. Many newly built resort hotels are sold months in advance, just with the architect's renderings. Hence, successful sales of a product are based on the effective effort of a well-designed marketing strategy executed by an efficient marketing team. Hospitality and business and management schools have recognized the need for well-prepared managers to include Strategic Marketing courses in their curriculum (Abbey, 2003; Shoemaker, S., Shaw, M. 2008; Reid & Bojanic, 2010).

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Throughout the chapter, the Sales and Marketing Department, or Marketing Department, and Sale and Marketing are used interchangeably. There is also an emphasis on "Restaurant Marketing" except when discussed within the scope of a food and beverage operation within a large operation such as a resort hotel.

This chapter introduces "Restaurant Marketing" as it is observed from different angles. For example, a free-standing, independently owned restaurant may be different from the marketing strategy of a complex food and beverage operation within a hotel setting. Also, a franchise operation's marketing effort may be different from that of a multi-unit concession operation in a national park. Therefore, marketing is not universal such as "one size fits all"; or "follow this strategy, and it will work." More than often, marketing is personalized, individualized, and localized. For example, the customer demographic of McDonald's operations in Germany and in the UK are different from those in the U.S.; they serve alcoholic beverages such as beer, while in the U.S., they only serve non-alcoholic beverages. Of course, the culture, history, and overall approach to food in Europe is different, and that is precisely why marketing strategies must be tailored to the customer according to previously basic principles of personalization, individualizing, and localization (Abratt & Sacks,1988; Kurtz, 2010).

As the foodservice industry continues to evolve, reinvent itself, and innovate, its marketing efforts. One could have never imagined that with the invention of the internet and the PC, foodservice operations have reduced their printing cost to almost zero. Menus and promotional brochures can be printed in-house on-demand, using high-quality color printing. Guests can now make their restaurant reservations online, see the menus and beverage lists online, watch a real-time virtual tour of the restaurant, and more. Marketing efforts have been changed to follow these trends and to adapt to market conditions and many other factors such as the ever-changing consumer behavior. Overall, one can say that marketing is an essential requirement for any foodservice operation. It must be an integral part of the business plan, and it needs to be budgeted for because, without marketing, the restaurant business could not survive. Even the non-detectable marketing efforts of highly reputable companies that produce unique products, and do not have the need to invest heavily in marketing have some form of marketing in place.

Depending on the product, its creator, the business entity, or whatever attracts people to a highly reputable restaurant, its branding strategy will receive free publicity either by the media or by word-of-mouth from satisfied guests. In other words, the restaurant sells itself in one form of marketing or another. Using an example from a different industry as an analogy, one can assert that there has never be a commercial that promotes a Ferrari car in recent memories. Nor is there a commercial promoting the French Laundry Restaurant in the Napa Valley. Both the Ferrari and the French Laundry market themselves for "free" based on their core competencies that are difficult to imitate or duplicate that cannot be reproduced by anyone with unique features and unique and exclusive products, and more.

However, not all foodservice businesses are comparable to the Ferrari and the French Laundry Restaurant's reputation. Less than ten years AG (After Google), the World Wide Web has somehow influenced many investors, either motivated or distressed, that the "solution" can be found online. While this statement may be partially true, it also offers meaningless resources and questionable advice, which may have never been tested, which may be useless, and some are even sold fraudulently.

To keep in line with trends and within the contest of this chapter's scope, the author attempted to confirm what and how much material is available on the WWW for motivated or distressed restaurateurs in need of effective marketing.

A global search in Google for the keyword "Restaurant Marketing," sometimes in May of 2020, delivered about 22,500,000 results in less than 0.30 seconds. According to the traumatizing results, one

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could presuppose that restaurant marketing has already been invented, created, and successfully tested. Armed with these resources, a restaurateur should be perfectly capable of creating a formula for success.

The fact is that a substantial percentage of restaurants continue to fail, especially during the first year of inception. How could this happen if an establishment has done everything right? Even with a business plan in place, a well-organized management team, an excellent menu, a great location, superior competitive advantage, and significant financial leverage, restaurants continue to fail. The answer is simple: marketing cannot be effective and bring in guests into the door if any of the primary and derivative assets and core competencies is deficient. For example, a restaurant owner who insists on promoting his image associated with the restaurant and does not promote the concept may fail because the personal image may be unrelated to the concept.

We experience this, especially with celebrities. The fact that an actor, a singer, a football coach, is the restaurant owner does not warrant the quality of the product they are promoting. A humble but successful restaurateur once said: *"If you want to be successful, you must sell a concept, not your ego."* In many instances, marketing efforts fail because the good name is being branded before the product. This, of course, cannot be generalized because there are exceptions of many successful restaurants run by known and unknown (silent partners) celebrities.

Regardless of what is happening in the real world, the internet is replete with resources that can be misleading and that restaurateurs should distance themselves from.

A reputable marketing agency's service should always be sought first before considering hiring a consultant who probably was a full-time manager who just lost his/her job. This is not to discredit many well-qualified consultants with decades of experience, which gave up their full-time profession to become entrepreneurs. The moral of the story is that restaurateurs must be cautious when investing in restaurants and not rely on what solution the WWW has to offer. No consultant can guarantee that a bank will give a loan for a restaurant investment. However, a professional consultant will advise the client about the positives and negatives of getting into a restaurant business. In terms of large foodservice operations, such as franchises, catering companies, hotels, and resorts etc., the marketing efforts are better coordinated with positive results. This topic will be covered further later in the chapter.

Defining Marketing

Among many appropriate definitions of "Marketing" in general, is the definition of The American Marketing Association: *"Marketing is the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives."*

What is Then an Appropriate Definition of Restaurant Marketing?

For a restaurant patron to appreciate a food or beverage product, he/she needs to consider many factors usually not considered in the purchase of other consumer products and services. The products, especially food products, are subject to several processes that can make the delivery to the patron extremely vulnerable. These products also carry a value-added component that makes the experience even more enjoyable.

As mentioned earlier, marketing strategies can be "personalized, individualized, and localized, among other strategies." For example, a steak-house restaurant can promote an ***individually*** cut-to-order filet mignon from ***locally*** produced Angus Beef, perfectly grilled to the patron's ***personal preference.*** These

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strategies represent a set of activities that create and market an appropriately priced and profitable product, presented to the patron that is willing to buy it, through the appropriate *process***, with the efficient promotion, at the right price in the right place, at the right time (Abbey, 2003; Shoemaker, S., Shaw, M. 2008; Reid & Bojanic, 2010).

*** (Process is a set of activities based on the consistency in doing things right and deliver what was promised and how it was promised. Every step in the process is significant; from a simple commitment over the phone to the actual delivery during the encounter, the process must always be consistent. We all know that consistency is a major contributor to service failure.)*

Accordingly, Restaurant Marketing can be characterized as:

The art and science to effectively market and sell **P***rofitable food and beverage* **P***roducts and related services that satisfy the needs and wants of consumers through the appropriate* **P***rocess, with efficient* **P***romotions, at the right* **P***rice, in the right* **P***lace, at the right* **P***eriod of Time, to the right* **P***atrons.*

As noticed, the marketing mix that used be represented by the ***Four Ps on Marketing***, being ***P****rice*, ***P****lace*, ***P****eople*, and ***P****romotion*, is constantly modified and has expanded beyond the traditional model to be adapted to modern marketing strategies. In the context of **Restaurant Marketing,** the marketing mix is represented with eight **Ps:**

- **P**rofit
- **P**roduct
- **P**rocess
- **P**romotion
- **P**rice
- **P**lace
- **P**eriod of Time
- **P**atrons

The focus of effective marketing through the marketing mix is on what the patron needs and wants, which is essential to a restaurant's success. However, this patron-orientation strategy must be aligned with the company's objectives to achieve long and short-term target goals (Zinkhan & Pereira, 1994; Pitt & Morris, 1995).

Marketing, in general, if further defined as:

a coordinate set of strategic activities and continuous effort based on creativity, human imagination, adaptation to the ever-changing environment, and adaptation to the changing consumer behavior, which itself is influenced by the same marketing activities it responds to.

Naturally, there are different approaches to different situations, in different settings, and for different demographics. Marketing strategies to promote food and beverage facilities in a hotel setting are different from the marketing strategies to promote an independently owned and operated restaurant and a chain/franchised restaurant. For a hotel restaurant, the marketing department may internally promote the restaurant because hotel guests are already on property. What is needed is a message that can attract them to use the restaurant within the facilities. In a way, a large portion of the marketing effort has

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already been made; it is, in a sense, more of a "*guests' retention strategy"* than a marketing strategy to bring guests into the property.

Nevertheless, and despite the many differences the concept of marketing presents, it does have some basic components. They constitute the foundation of a complex undertaking in organizing all business activities to promote products and services, create new markets, develop a new customer base, and contribute to the establishment's overall profitability and success. These components will be discussed throughout the chapter.

The very first tool needed to organize a marketing department effectively is a *Marketing Plan*. This plan is not to be confused with the *Business Plan* because the *Marketing Plan* itself is a significant and integral component of the *Business Plan*.

AN INSIGHT INTO THE WORLD OF MARKETING

The Marketing Mission

Marketing's mission is satisfying customer needs and wants, and this function takes place in a social context. In developed societies, marketing is needed to satisfy the needs and wants of society's members. Marketing originated out of a need to take better into consideration the demand factors in production planning. The "mission" and "function" of marketing are to channel information of consumer needs and wants to satisfy consumers' production and satisfaction. The essential power of marketing is the aspiration to produce and sell only that kind of product and service which consumers demand. Marketing integrates the whole company to supply according to this demand. Marketing aims at effective production systems, where information is transmitted effectively between production and consumption.

The Scope of Marketing

The marketing scope is supported by the efforts to gain and keep customers continuously buying and/or using products or services or solving problems by satisfying their needs and wants. The marketing efforts create and maintain relationships in line with the customers' financial, social, and organizational status (Kotler & Armstrong, 1987; Kotler & Armstrong, 2006).

The marketing department works closely with the RD department to formulate a way to create products and services that can be marketed to customers to solve their problems. For example, a value-added food allows the customer to buy a food product that tastes good, does not need to be fully cooked, and can be ready to eat in minutes, E.g., during Thanksgiving restaurant guests can order a fully cooked turkey with all ingredients that can be served within half an hour. A promotion such as this can solve a customer problem, save time and money, and spend more time with the family instead of cooking in the kitchen. Thus, a customer believes that roasting the turkey can be solved by buying it professionally prepared by a reputable chef. Marketing can do just that. This is a typical example of creating customer value.

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The Marketing Concept

The marketing concept is based on the premise that firms should determine customer wants and needs and then design products and services that meet those wants and needs. Hospitality and travel services must take a customer focus like any other services to be competitive in today's market.

The Industry

The industry is the tool of society to produce products and services for the satisfaction of needs. There are many definitions of marketing both, broad and narrow, and often defined according to the industry it is applied. Different types of approaches to marketing are continuously theorized, researched, and explored to improve marketing. That is why marketing strategies should "always" include plans A, B, and C.

The Marketing Process

It is a set of activities to select target markets, develop a marketing mix for each target market, conduct marketing research, and scan the environment for opportunities and threats, compared to the strengths and weaknesses of the company.

Evaluation, Analysis, and Measure of Key Marketing Variables

This is an important function to determine the effect of such variables that the company is influenced by but has no control over. It is performed by conducting a **PEST** analysis of the Political, Economic, Social, and Technological environment. In today's terms, the analysis can be expanded to include the analysis of the **L**egal, **E**nvironmental, **D**emographic, and **G**lobal variables that condition the marketing environment. A vital variable that needs to be closely analyzed is the **competitive environment**.

The Marketing Mix

The traditional components of the Marketing Mix have been presented by the four Ps" **P**rice, **P**roduct, **P**lace, and **P**romotion. This mix, however, cannot be generalized across industries. Hospitality does not sell machines or consumer goods to be sued at home. Especially the restaurant industry has marketing mixes that are based on products and services. Within this context, a model has four additional components: **P**rofit, **P**atrons, **P**eriod of Time, and **P**rocess.

The marketing mix is used to develop strategic programs that will attract specific target markets and differentiate the restaurant from competitors (El-Ansary, 1974). The key factor in implementing the marketing mix is the PEST analysis, including the analysis of the legal, demographic, and global environment.

The Marketing Connective Functions in Society

Marketing, in general, connects supply and demand or production and consumption. At the micro-level, marketing builds and maintains the relationship between producer and consumer. At the business unit level, marketing can have **an integrative function**. It integrates all the functions and parts of a company to serve the markets and the end consumer.

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The Societal Function of Marketing

In modern society, production and consumption are apart from each other; marketing does connect them. From the societal perspective, marketing is a philosophy that shows how to create effective production systems that will effectively deliver products and services to the consumer and consequently produce a return on investment.

The role of marketing in society also means responsibilities. In addition to economic and social responsibility, ecological responsibility is currently emphasized. There is an increasing number of restaurants going green and support activities related to sustainability. According to some definitions, "environmental responsibility" falls within the framework of social responsibility. Marketing Improvement relates to the changing emphases of economic, social, and environmental responsibility (Foreman & Woodruffe, 1993).

The Traditional and Integrating Functions of Marketing

Traditionally, marketing has been a link between production and customer. However, "selling" enhances the importance of the function of marketing.

Hypothesized Features of Future Markets

Customer needs within the foodservice environment will be more diverse and versatile as consumers become increasingly educated. Companies will grow bigger and more international through the spread of globalization, ethnic food and beverage products will no longer be exotic, instead will be integrated into the local offerings. The information environment will be transparent, global, fast, and wide-reaching. There will be more stakeholders in the competitive landscape, especially the green-oriented operations. Social and environmental problems seem to stay or even increase over time. There will be an increasing demand for companies to act socially and environmentally responsibly marketing efforts need to address these possible future market features (Foreman & Woodruffe, 1993). "While organizations in the future may need to develop long-term strategies, which build beyond good service and quality products, businesses may need to enter into partnerships with consumers and other stakeholder groups by supporting socially relevant issues. This trend is called "*philanthropic economics."*

The achievement of social responsibility is not only the marketer's duty, but also the consumer's obligation. If behavior of these customers is necessary for achieving social responsibility in marketing, it is essential to influence this behavior. This is done through the design and implementation of a socially responsible marketing mix. We can argue that marketing efforts need to integrate consumer education with the aim to become more socially responsible overall. Foodservice operations must not only market their green philosophy but must also perform socially responsible through the so-called "green marketing," (El-Ansary, 1974).

The Philosophy of Marketing

Marketing mediates between the company, customers, and the environment. Marketing analyzes the needs of markets and customers and transforms them into business opportunities. According to the broad view, marketing integrates all the company's activities to serve the customer in a way that benefits both

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the customer and the company. Therefore, marketing is responsible for being an expert on the customer and in informing the rest of the organization about customers and markets.

THE VARIOUS TYPES OF MARKETING

Knowledge-Based Marketing

Marketing is based on technology to better understand the customer, the competition, the markets, the stakeholders, and better deliver product and service to the end consumer.

Experience-Based Marketing

Like the concept of "Customer Experience Management," it attempts to spend time with customers to received feed-back through surveys, observation, motion study etc. for improved product/service strategies.

Relationship Marketing

Relationship marketing focuses on developing extensive relationships with existing customers to build loyalty and obtain repeat business. Foodservice operators rely heavily on repeat business from both individuals and groups. Relationship marketing is based on the premise that it is less expensive to keep current customers than to gain new customers. Relationship marketing is not tactically based. It is long-term.

Niche Marketing

Marketing focused on relatively small sections of the market with distinct characteristics. It is marketing at the micro-level within a relatively small market potential. These areas may not have been well served in the past and represent an opportunity to increase sales.

Neighborhood Marketing

Neighborhood marketing is essentially local within a relatively small radius. It is a marketing philosophy that encourages the restaurateur to direct the marketing efforts within the internal environment, the immediate surroundings, and within a few minutes' drive from and to the restaurant. Unfortunately, many operations in tourist destinations exercise this approach during low tourist season and then abandon it during the high season. As a result, many locals have noticed this type of marketing and have stopped patronage during the low tourist season.

Internal Marketing

It is the application of marketing strategies within the organization. It is applied in large hospitality operations such as in resorts, hotel-casinos, sports hotels, and recreational hotels. These operations are usually an "all-inclusive" operation, and through internal marketing, they try to capture all residents into their outlets. The capture rate is measure through the technique of restaurant to in-house guests' ratios.

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Internet Marketing

It is the marketing of products and services using the Internet as its intermediary. It is a relatively low investment and carrying costs of dissemination of information with the advantage of reaching a global audience simultaneously. Internet marketing also comprises digital customer data management and electronic customer relationship management (ECRM), widely used in businesses today.

IM connects the Internet's creative and technical aspects, including design, development, advertising, and sales. IM is also referred to as i-marketing, web-marketing, online-marketing, Search Engine Marketing (SEM), or e-Marketing.

Internet marketing is associated with eCommerce (electronic commerce) and mCommerce (mobile commerce). The hospitality industry and especially restaurants are heavily invested in these trendy and evolutionary business technologies.

e-Commerce

Consists of the buying and selling of products or services over electronic systems such as the Internet and other computer networks. Modern electronic commerce typically uses the World Wide Web and a wide range of technologies such as e-mail as well. Electronic commerce conducted between businesses is referred to as eCommerce - business-to-business or eCB2B. Electronic commerce conducted between businesses and consumers is referred to as eCommerce business-to-consumer or eCB2C—more about this in chapter 11b at the end.

m-Commerce

m-Commerce (mobile commerce) is the buying and selling of goods and services through wireless handheld devices such as cellular telephone and personal digital assistants (PDAs). Known as next-generation eCommerce, m-commerce enables users to access the Internet without needing to find a place to plugin. The emerging technology behind m-commerce, based on the Wireless Application Protocol (WAP), has made far more significant strides in Europe, where mobile devices equipped with Web-ready microbrowsers are much more common than in the United States.

Restaurant Email Marketing

Email marketing is a process of soliciting business prospects via email. It is essentially the same as direct mail, except that instead of sending mail through the postal service, messages are sent electronically via email. Over the last decade, "Restaurant Email Marketing" has gained an increasingly high interest by both restaurant operators and guests. The benefits are huge and too many to measure. It encompasses immediate dissemination of information, cost-saving, immediate response by customers, data tracking, and so much more than restaurateurs often do not know what to do with all the data. It is an easy and affordable way for restaurants to promote food and beverages and the restaurant itself. Restaurants can use email marketing to send out the latest restaurant reviews, coupons, new menu item announcements, seasonal promotions, special events, promotions, pictures etc.

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Consumer or Customer-Oriented Marketing

Marketing oriented operations view and analyze the marketing activities from the consumer's point of view. Even if experts argue that the old say "Restaurant business is consumer-driven" no longer applies, many restaurateurs believe it does. They have seen the benefits. Foodservice operations must continue to be customer-oriented and market-driven in every aspect of their marketing efforts.

Innovative Marketing

Like everything else, marketing too must innovate and reinvent itself. A foodservice company should continuously investigate innovative ideas, products, and services. We can benchmark the microbrews, home-grown vegetables, flavored bottled waters, energy drinks, etc. These are innovative ideas that attract the customer into the facilities.

Strategic Marketing

At the corporate levels, marketing links with strategic planning and development, with shared responsibility for information management, environmental scanning, and coordination of the planning activities. Marketing evolves from a specialized function with short-term decisions to taking a leading role in long-term strategy making, which focuses on evolving customer needs. A strategic planning process becomes a responsibility of marketing-oriented management. Marketing strategies usually take the lead in business planning because, after all, it is all about people and all about selling to people; that is the scope of any strategic planning.

A BASIC OVERVIEW OF MARKETING MANAGEMENT PLANNING

Marketing Management Cycle

Using the analogy of a product lifecycle, marketing is, to a certain extent, directly related to it. Following the development of an idea, a product, or a service, the marketing department is involved in an active **cyclical process** that revolves around the planning, formulation, and execution, and evaluation of the marketing plan related to an idea, a product, or a service.

The evaluation process is followed by the control, whose results will help improve the marketing plan strategies and if necessary, make changes to the product or service being promoted.

Marketing Planning

The planning follows a thorough situation analysis, a strategy formulation, setting of objectives. A strategy implementation then follows planning in line with the company's mission to accomplish the goals and objectives. Strategic business and marketing planning constantly require information from both the macro and microenvironment. It is the task of marketing to produce such information. Basic decisions of marketing planning include the following considerations:

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1. Marketing strategies

a. What kind of products and service to offer
b. To whom to sell products and services
c. What are the geographical constraints of the customer base
d. How to bring the restaurant guests into the door to buy products and services

2. Marketing structures; the departmental marketing organization

a. What kind of marketing organization to use
b. What kind of planning and information systems to use
c. What kind of marketing channels to use

3. Marketing functions, How to carry out:

a. Selling
b. Marketing communication
c. Collection of marketing information
d. Product planning
e. Marketing pricing strategy
f. Improvement of current marketing practices

What are the Strategic Marketing Activities of the Sales and Marketing Department and its Team?

Marketing activities are numerous and wide-ranging because they essentially include everything needed to develop an idea, a product, or a service, from a "brainstorming session" to the drawing board to their positioning in the customer's mind. Marketing includes sales activities and additional other functions, such as ***advertising, promotion, guest relations, customer relations management, customer experience management,*** and more. Hence marketing and sales could be described as not having the same functions.

Over the last decades, the hospitality industry benchmarked on the airline industry and began implementing sales strategies that included "Yield Management." This concept that was based on "Charging the right price, at the time, to the passenger" has generated higher sales and higher profit and has now reached the point of no return. The basic concept was because when only a few seats were left empty on an airplane, airlines would lower the price further to fill up the aircraft. With Yield Management, the concept is reversed, the less the number of seats available, the higher the ticket price. Consequently, airlines have reduced the number of flights, and each aircraft is now flying full. Airlines had long investigated solving this problem because the aircraft seats are considered ***"perishable inventory."*** This means that if a seat is not occupied today, it cannot be sold twice tomorrow. In other terms, an airplane in the air cannot have occupancy or seat turn over like a restaurant.

Hotels have capitalized on the concept and have implemented the concept of ***"Revenue Management,"*** which is now applied by hotel companies worldwide. While this marketing approach has been successfully applied in the hospitality industry's lodging segment, it has not found a way to be applied to the foodservice segment of the hospitality industry with the same success. Because most restaurants

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do not enjoy 100% occupancy every day, the ***concept of pricing*** based on ***demand and supply*** has not worked. Also, luxury and expensive restaurants more than often do not have seat turn over; they just have one seating because their pricing structure, together with a high level of service efficiency and high quality of food and beverage products, cannot afford to jeopardize their good reputation by promoting seat turnover.

Nevertheless, revenue management in a hotel setting is applied in the food and beverage department when catering to functions such as meetings and conventions that require hotel rooms and meeting and dining space. In this context, revenue can be maximized with the concept of yield management/revenue management. Since the concept of ***Revenue Management (RM)*** was first introduced to the hospitality industry in the early 1990s, there has not been a real standardization of the revenue management concept, much less has there been qualified staff to work with RM. As of the editing of this textbook, the concept of RM has not totally matured yet. Consequently, the Sales and Marketing department became home to Revenue Management.

Hospitality schools now strive to standardize the concept of working together with the industry because, as mentioned earlier, even if not standardized, the concept has now reached the point of no return. Nevertheless, the concept of Revenue Management nowadays continues to occupy hospitality leaders and to attract scholars. Although it is believed that it may not be successfully applied to the foodservice industry, we must pay close attention to its development and development of new marketing strategies by competitors.

Foodservice operations in a hotel complex have already been working with RM; however, only in relationship with the rooms division's activities. One cannot increase the menu prices simply because there is a waiting line outside the door. In the following section, the concept of revenue management is introduced to allow the future foodservice manager to be ready and work with it, should the need arise. It also explains how the marketing department interprets it and applies it to both the lodging and foodservice divisions.

The Concept of Revenue Management Within the Context of Food and Beverage Sales and Marketing

Revenue Management (RM) is a process that is commonly practiced in lodging operations than in food and beverage service operations. Simply put, RM is a technique that applies economic principles to system variables to maximize revenue and profits. As perceived by most hospitality practitioners and researchers, in a hotel setting, its primary focus is room revenue maximization. In lodging, foodservice operations are considered complementary to the rooms department and therefore are dependent on the revenue manager's decision whether to accept a potential booking for the food and beverage department or not. This is not the case for independent foodservice operations.

In conclusion, RM can be described as an integrated set of business processes that bring together people and technology with the goal of understanding the market, anticipating consumer behavior and responding quickly to exploit opportunities that present themselves. The technique integrates sophisticated information technology, effective application of statistics, probability, organizational theory, and business experience.

New models of RM systems continue to be developed and improved, providing effective means to achieve an optimal revenue level. Revenue management relies on historical revenue information generated by advanced computer programs that integrate yield management tools useful to determine demand

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estimation, track total revenue, guests served and check average, and provide other analytical information necessary to maximize revenue and profits. Yield management programs contain historical information organized by day of service (DOS) and compare the current year's covers with the historical average. The historical average determines appropriate selling strategies that a restaurant can put in place to utilize its full seating capacity, increase seat turnover, and maximize revenues for a specific period (Payne, 2009).

Hence, the directors of sales and foodservice managers need to understand how restaurant revenues are generated. It will help them understand how effective their business model works and how it can distinguish from the completion. Experts argue that Restaurant Revenue Management (RRM) is often made to appear more complex than it really is (Payne, 2009). Moreover, although it is common knowledge that foodservice managers think of the restaurant trade as more of a practical trade and less to do with numbers, RRM is something that all foodservice operators need to be concerned with whether they are large or small, chain or independent, free-standing, or in a hotel setting.

Nevertheless, small operations may face RRM applicability constraints because they lack the necessary resources, tools, and personnel responsible for the RRM activities. It is predicted that many owners who cannot afford to hire a Revenue Manager need to get educated in RRM and to train existing managers to deal with this additional but necessary task. RRM will become an integral part of their management operation for many independent operators whether they are willing or not, just like the introduction of a point-of-sale system decades ago.

Other Activities of the Sales and Marketing Departments

Once again, emphasizing that a small foodservice operation may not afford the luxury to have a full-time director of sales and marketing on staff, larger organizations like those that caterers to meetings, conventions, expositions, weddings etc. will certainly have a complete and well-organized sales and marketing department. How a small operation can generate sales without a marketing department will be discussed later in the chapter. While some jobs in large organizations are created to care for the business's maintenance, others are created to generate sales and profit.

The main responsibility within the job functions of the Director of Sales and Marketing is to generate sales and profits. Looking at the job description, it becomes clear that this job is challenging and is based a hundred percent on the bottom-line performance and based on maintaining accounts active, meaning low attrition rate, and leading, directing, and training the sales marketing staff to perform profitably. Detailed activities of the Director of sales and marketing that represent the activities of the department are described as follows:

The Director of Sales and Marketing is responsible for all sales efforts that support revenue management activities. This position coordinates the revenue through the formulation, execution, and control of the strategic planning process, leadership, and developing and strengthening alliances and relationships within the marketplace. The essential duties and responsibilities include functioning primarily as the strategic business leader of the sales and marketing department and being proactive with targeted segmentation, local and social catering sales, and positioning and promotional planning and activities. The position also shares responsibility for achieving revenue goals, guest and associate satisfaction, and the department's financial performance and the establishment. The Director of sales develops and implements the sales and marketing business plan and annual budget. Analyzes the competition, market trends, and customer needs and comments and compares forecast to actual. Directs the sales operation's team to meet/exceed revenue goals while ensuring a positive guest experience. Develops and continually

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enhances relationships with key business accounts, community organizations, and professional associations to maintain visibility and market share. Depending on the establishments' organization chart, the Director of Sales is either responsible for or works with the Revenue Management team. The sales and marketing department usually consists of several sales managers, sales coordinators, sales and catering assistants, and sales office administrative support staff.

Marketing Strategies

Marketing strategies are base on the concept of Basic Marketing. The concept states: *"Having what people want and being able to sell what you have."* Marketing strategies are integrated into the marketing plan, which is part of the business plan. The Business Plan specifies the company's objectives, and the marketing plan highlights how those objectives may be achieved. They answer respectively to the question "What" and How?" The components of the marketing plan include two main activities: Pre-planning and Post-planning (Cohen, 2005). Pre-planning deals with researching the potential market for the product or service. Pre-planning obtains important information by investigating the internal and external environment, and it uses historical data, facts about markets, demographics, psychographics, consumer price index (CPI), consumer buying power, competition, and much more. The Post planning activities deal with the execution, evaluation, and control of all elements implemented through the strategic process.

PRE-PLANNING INVESTIGATION OF MARKETING ENVIRONMENT VARIABLES

Definitions of the 5 Cs of Marketing

Evaluating the 5Cs, being ***Company, Collaborators, Customers, Competitors, and Climate,*** is an effortless way to get a clear understanding of the immediate environment and competitors.

1. **Company**: The product timeline, experience in the market, etc.
2. **Collaborators:** Distributors, suppliers, and alliances. These are any business associates the company has a continuous business relationship with
3. **Customers:** They represent the market. In analyzing the "market-customers," one must ask: "what benefits they are looking for?", What motivates them during the purchase process?" "where does the customer purchase the product from?" "How is the product purchased, E.g., impulse buying, internet, etc..." Also investigate the quantity a customer buys, buying preferences, trends in consumer tastes, and consumer behavior changes.
4. **Competitors:** Investigate actual and potential competitors, those that compete directly or indirectly compete with the company. Investigate their product offering, quality, sales conditions, positioning, market shares, and strengths and weaknesses.
5. **Climate (Environment):** These are external environmental variables that affect the markets, such as governmental policies and regulations. It also involves the company's economic environment, the business cycle, inflation rate, interest rates, and other macroeconomic issues. Societal trends and fashion trends are also environmental variables.

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The Four I's of Service

The four unique elements of services, the four I's are ***intangibility, inconsistency, inseparability, and inventory.*** *Intangibility* refers to the tendency of services to be a performance that cannot be held or touched. *Inconsistency* is a characteristic of services because they depend on people to deliver them, and because people vary in their capabilities and their day-to-day performance, services may become inconsistent. *Inseparability* refers to the difficulty of separating the service's deliverer (the bartender) from the service itself (the bar). *Inventory* refers to the need to have service production capability when there is service demand (an efficiently staffed restaurant operation). In the foodservice business, services differ in terms of the balance of the offering based on food and beverage products and the part of the offering that is based on service. Because services are intangible, prepurchase evaluation is difficult for consumers.

Consumers search for experience and credence qualities to evaluate a restaurant's products and services elements to choose a service. Once a consumer tries a service, it is evaluated by comparing expectations with the experience on five dimensions: *quality, reliability, tangibles, responsiveness, assurance, and empathy*. Differences between expectations and experience are identified through gap analysis.

The Marketing Environment

The marketing environment refers to all the variables outside of marketing that affect marketing management's ability to build and maintain successful relationships with target customers. The *market environment* consists of both the ***macroenvironment*** and the ***microenvironment.*** The microenvironment refers to the forces that are close to the company and affect its ability to serve its customers. It includes the company itself, its suppliers, marketing intermediaries, customer markets, competitors, and the public. The macroenvironment refers to all forces that are part of the larger society and affect the microenvironment. It includes concepts such as the PESTLEC (Political, Economic, Social, Technological, Legal, Environmental, and Cultural.)

Market segmentation is a concept studied in both economics and marketing sciences. A *market segment* is a sub-set of a market made up of people or organizations sharing one or more characteristics that cause them to demand similar products and/ or services that satisfy their needs and wants based on qualities of those products such as price or function.

A market segment commonly meets the criteria such as the distinction from other segments, the homogeneity within the segment, the similar response to a market stimulus, and it can be reached by a market intervention. The term is also used when consumers with identical product and/ or service needs and wants are divided into groups of specific characteristics so they can be charged different prices.

These are usually interpreted as 'positive' and 'negative' applications of the same idea, splitting up the market into smaller groups to reach different results.

Positioning refers to the activity that deals with the post identification of a segment that a company can service by selling products and services. Once a market segment has been identified and targeted, the segment is then subject to positioning. Positioning involves the conviction about the quality of a product or service as perceived in the minds of consumers.

A target market is a group of potential customers that the business has decided to direct its marketing toward to and ultimately its products and services. ***A Target market*** is a first and important element to a marketing strategy (Zinkhan & Pereira, 1994; Pitt & Morris, 1995).

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In product development, this is the first question the marketing team asks*: what market and how many people can we service with the new product or service?* The target market is the part of strategic planning to which the product mix theory is applied. Target markets can be divided into *different segments,* such as *geographic, demographic or socio-economic, psychographic, behavioral, and product related.*

Competition refers to open market rivalry in which every seller tries to obtain what other sellers are looking for at the same time in terms of sales, profit, and market share by offering "in their views" the best price, quality, and service. *Competition* exists in a free-market economy in which information flows freely; therefore, competition plays a regulatory function in balancing demand and supply. The end results of competitive activities are subject to the buyer's ultimate decision in choosing a product or service promoted by a seller over that of a competitor. *Competition* exists whenever two or more parties strive for a goal that cannot be shared. Competition also occurs naturally between people living in the same environment; they compete for survival, water, food, and life partners. However, when these needs are met, deep rivalries often arise over the pursuit of wealth, prestige, and fame. Business competition is built around human competition and most companies are in competition with at least one other firm over the same group of customers, often competing within their natural environment. E.g., Wine auction companies compete for the highest bidder while bidders compete within their buying power.

Co-opetition stands for ***cooperative competition***. It first appeared in the business language in the early 1920s. In the early 1990s it was coined again and used as a neologism (new word) to describe cooperative competition. Coopetition occurs when companies work together for parts of their business where they do not believe they have a competitive advantage and believe they can share common costs. For instance, the cooperation between two or more hospitality companies sharing resources to negotiate a union contract is a form of co-opetition. By applying the principle of co-opetition, they can save money on cost-sharing while remaining competitive in all other areas.

What if There is an "if" During the Investigation?

During the Pre-Planning investigation process, the company may wish to investigate whether all marketing activities should be kept in-house or outsourced? The answer is found in the determination of the overall cost of outsourcing is lower than the total in-house cost while being effective or if the cost of outsourcing, although higher, may be more profitable if the marketing activities were kept in-house? In the modern economy and especially during difficult business cycles marked by negative downturns, hospitality companies have engaged in **Marketing Outsourcing**. For large companies, this may be a choice; however, outsourcing the marketing function may be the only solution available for smaller companies. The most profitable marketing functions outsourced by foodservice operations today revolve around the field of IT-EC (Information Technology – e-Commerce.)

- Web Design
- Website Maintenance
- Pay-Per-Click Advertising
- Content Creation
- Use of social media
- Online Reputation Management
- Video Production
- Mobile Phone Promotions

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- Website Optimization
- Email marketing
- And more…

Thus, outsourcing, even if partial, could help reduce the burden of employing staff to perform those tasks in-house, which would increase the overall payroll. It may also allow the management to focus on the core business, spend more time on strategic planning, and less time on implementation, evaluation, and control. Despite what outsourcing can do for a foodservice operation, the fact remains that the "Food and Beverage Industry" remains unique.

Research shows that even the most sophisticated and advanced outsourced service by a third party, cannot replace the personal touch of the director of marketing or that oh the restaurant owner in a small operation. Therefore, foodservice operators need to be cautious that even though outsourcing could be successful with tactical activities, it may not be beneficial in the long run. In other words, the outsourcing company would act as a surrogate with serious limitations compared to what the in-house marketing department could do. In terms of being a unique industry that requires a personal touch, one could compare the outsourced service to a "telephone answering service"; when the caller asks specific questions, the operator answers, "sorry, this is the answering service, you will have to call during operating hours." In sum, marketing outsourcing cannot be generalized as being universally effective for foodservice operations; it will be up to each company's management to decide whether a full or partial, or zero outsourcing may be the best decision for their operations.

The Value Chain

An essential issue in marketing is the *value chain*. It is how different parties in between the producer and the consumer add value to the product. In an extreme case, the producer only receives a small fraction for every dollar, ultimately charged for food and beverage products sold in restaurants. The added cost results from other ingredients, but much of the value is added from processing such as manufacturing, distribution (transportation, wholesaling, and retailing), and brand building.

The value chain provides an opportunity for many firms to add value to a product. This, of course, pushes up the ultimate retail prices of food and beverage products. However, these added costs usually result from consumer demand, where consumers are willing to pay for additional convenience or so-called services. For example, there has been an increase in the demand for "ready to eat meals" from dine-in or take-out from restaurants in recent years. It is important to note that the value chain comes about largely because a sequence of contributors allows each to specialize in what it does best or is most comfortable and best qualified to be doing.

Another example is wine and coffee. The producers receive a very small percentage of the final price; the guests pay for a bottle of wine in the restaurant. The same applies to coffee, which has seen a spike in prices due to the increased demand for specialty coffee. Nevertheless, food producers like farmers, for example, tend to be most interested in doing actual farming tasks and may be uncomfortable making deals with processors and manufacturers. Agents may specialize in this task. The costs of learning can be spread across many different farmers. The farmer may then be better off paying the agent and spend his or her time on farming instead. For the agent, having many farmers as clients is profitable. Large manufacturers can invest in brand building, and distributors can combine goods from many different suppliers to distribute and sell efficiently.

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Product-Service and Management

Product or service management includes a wide range of management activities, ranging from a new idea for a product to eventually providing ongoing support to customers who will be purchasing the new product or using the new service. Every foodservice organization conducts product management; however, how exactly a product is developed or managed or how a new service is provided and maintained is depends very much on the nature of the organization.

Innovation: Developing New Products and Services

An Innovation Strategy seeks to create, exchange, evolve, and apply new ideas, thereby producing goods and services that it is hoped will contribute to the success of an organization. Innovation is a driver of growth in today's marketplace. The pressure to innovate is unrelenting, and the contribution to total sales revenue derived from new products will increase over time.

Organizations are compelled to develop innovation strategies and budget for adequate Research & Design & Development (R&D&D) spending. Even a small restaurant must introduce new food and beverage items in their offerings to remain competitive. An innovation strategy is a plan to enable products and services to be developed, modified, marketed, and sold through new ideas' creative use.

Although there will always be barriers to innovation, companies have developed systems that promote an "innovation culture" that everyone can buy into to help the company stay competitive and sustain profit and growth. An innovation strategy can enable an organization to find new sources of competitive advantage. As a starting point to develop a product development strategy, the company must determine its primary strategic orientation. A company must recognize that it cannot be all things to all people and that it must focus on what will distinguish it in the marketplace. The best way to start developing a product is to think like a filter in a very narrow funnel; all ideas must be filtered one at the time, analyzed, and ranked in the best-worst opportunity for the company. There are many product development strategies; the following is a list of the most used in foodservice.

1. The right time to market a product or service

a. To recognize the right time for the right product or service to reach the consumer before the competition does. This is very important for foodservice companies promoting similar products as the competitors. This must be considered at the development stage.

2. Low Product Cost Strategy

a. This strategy focuses on developing a product or service with the lowest cost or highest value product. This strategy usually requires ample time to align development cost with the product cost and production process.

3. Low Development Cost

a. Franchised foodservice operations and large restaurant chains focus on minimizing development costs or developing products within a constrained budget. When a new product needs to be launched

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on a large scale, the cost involved in the development, testing, manufacturing, and processing of raw products from the source can be very high.

4. **Product Quality and Sustainability**

a. This strategy focuses on assuring high levels of product quality and sustainability. This strategy is typical of the food processing industries. The need for high levels of quality, reliability, and product safety is paramount. This strategy requires time and high cost for planning, testing, analysis, and regulatory approvals.

5. **Service**

a. This strategy focuses on providing a high level of service, being very responsive to customer requirements as part of development, and maintaining the flexibility to respond to new customers, new markets, and new opportunities. This orientation requires additional resources to provide this service and responsiveness. For example, online table reservation and food ordering system must have a high level of service reliability to customers.

Unless the company is equipped to deal with product development, especially food, it should consider contracting the service from professional companies that have far better resources than a foodservice company. These companies specialize in the development:

i. Creative Culinary Concepts
ii. Recipe Development
iii. On-Trend New Product Formulation
iv. Product Reformulation
v. Ingredient Applications
vi. Shelf-Life Evaluation

Food product development companies will assist with developing a new food product strategy, conduct food trends analysis, formulate ideation of new products, perform filtering based on potential key success factors, and illustrate the concept of the new product for marketability.

6. Brands and branding

An essential issue in product management is branding. Different foodservice companies have different policies on the branding of their products. In the restaurant industry, brands of different strength compete against each other for the same customer. The pizza segment is an example. Restaurant chains invest heavily in brand building, including advertising, distribution, and, if needed, infrastructure support. Although some national brands are better regarded than others, the national brands usually charge higher prices than the region of local brands. As the name suggests, regional brands typically operate regionally, in one area only, and cannot compete against national brands outside their areas.

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PROMOTIONS STRATEGY

Advertising Basics

Based on over three decades of personal advertising experience, the author concludes that regardless of what new technology is available for "Doing It Yourself" (DYI) and how much a company can do within its means, advertising and promotions should be planned and conducted by using a professional marketing company service. If a restaurant approaches a TV channel to launch a commercial, it will cost the same as when hiring a professional agency. The reason is that the agency has an established relationship with all media outlets they deal with, and they also get discounted rates. To the restaurant, the cost of advertising is the same, because the media does not give the same discount as it gives to agencies. Therefore, for the same price, a restaurant should use an agency's free and professional service. Furthermore, professional agencies can negotiate specific time slots to be aired, specific space in a newspaper or magazine, or a special discount on a video clip or sound bite production; otherwise, impossible to negotiate directly with media companies.

The Meaning of Advertising and Promotion

Advertising and promotions are the activities that bring a product or service to the attention of potential new customers and reinforce the awareness of current customers. Advertising is paid for by the sponsor; it is impersonal; it identifies the sponsor and persuades the reader. Advertising and promotions are carried out by implementing advertising and promotions plans according to the marketing plan's budget and objectives.

The goals will depend on the organization's overall objectives and the results of the marketing analysis, including the positioning statement. The plan includes the target markets to be reached, what features, advantages and benefits need to be conveyed, and how it will be communicated to them. This is referred to as an advertising campaign usually carried out by the marketing team. An advertising campaign is also carried with a well-defined media plan and calendar of occurrences, which specifies what advertising methods to use, what media, when, and how often.

For each element to be promoted in the advertising plan, the marketing team must consider: the target markets that need to be reached with each advertisement, what should potential customers learn from the advertisement, how the product or service will be perceived and positioned, and what means to use? E.g., Internet mail, Web sites, TV, Radio, Newsletters, hard copy, classified ads, displays/signs, posters, word of mouth, press releases, direct mail, special events, brochures, neighborhood newsletters, church bulletin, etc.

Writing Ads

Writing Ads is a skill, the same as songwriters, speechwriters, and TV or Movie writers. A marketing manager's prerequisite should include the skills and ability to write well. Poorly designed and formulated Ads can hurt or even destroy a company. Therefore, it is always recommended to seek help from a professional marketing service. Advertising agencies are marketing strategists, artists, writers, production managers, media selection experts, paid on a negotiated fee basis, or 15 percent commission. The essential element in writing Ads is to formulate the unique features, advantages, and benefits that need

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to be communicated to the customer. Generally, a sequence of events is needed before a consumer will decide whether to buy a product or service. This is referred to as the "*hierarchy of effects*." In marketing terms, this means that message being disseminated undergoes five steps process a consumer evaluates, from the initial exposure to a product or advertisement to the purchase decision: 1. awareness, 2. interest, 3. evaluation, 4. conviction, and 5. purchase. In essence, the consumer must first be aware that the product or service exists. The customer must be motivated to give some attention to the product and what it may provide. Then needs to evaluate the advantage of benefits and then may decide to act and try it. A good experience may lead to continued patronage.

Well formulated Ads must position the offering in the customer's mind that it is a "good thing" to cause the customer to react. Whatever the AD's design will be, the message must convey something that provokes the potential customer to say: Wow! Or the so-called "Wow effect." No AD can ever make a second impression. In many advertising campaigns, marketers continue to use the concept of the AIDA effect in which the AD must provoke the following:

A - Attention
I - Interest
D - Desire
A - Action

Although marketing was unknown in ancient times, some form of advertising has always existed. The oldest AD ever recorded was found throughout Europe in cities once occupied by the Romans. The original stone, similar to the one depicted in Figure 1, was excavated by archeologists in Pompeii, Italy, on November of 1936, and it is the oldest example found, which was buried on August 24, the year 79 AD. The magic square is a palindrome (*a word, phrase, passage, or number that reads the same forward and backward, e.g., "Anna" or "23832*".) The words, read in any direction, mean: Taylor Arepo Made Wheels (Guarducci, 1965; Camilleri, 1999.)

In marketing, there are endless ways of creating advertising campaigns. In terms of product and service advertising, the first type of AD is intended to ***create awareness*** of a product and brand and to ***infuse a positive reaction*** among consumers. The second type of AD is meant to be ***competitive or persuasive*** AD, and it attempts to convince the consumer that the product is good, it is superior to that of the competitors, and it may have other competitive advantages over others. The third type of AD is ***comparative advertisements.*** They serve as a ***reminder advertising*** and intend to keep consumers believe what previous ads have already established. Accordingly, advertising must be done the first time effectively. The published marketing literature is replete with samples of failed advertisement. They cause loss of money wasted on failed advertising and loss of potential business. Finally, we present two main approaches to promoting products: the ***push*** and ***pull*** strategy. The ***"push" strategy*** is closely related to the **"selling concept"** and involves **"hard" sell** and aggressive price promotions to sell at this specific purchase occasion. For example, on-line booking agencies such as Expedia and Travelocity use a *"push" strategy* to promote the products through aggressive price promotions, free room nights etc. In contrast, the ***"pull" strategy*** emphasizes ***creating demand for the brand*** so that consumers will come to the restaurant to buy the menu that has been advertised. For example, Starbucks has invested a lot of capital to create a preference for the coffee and coffee products among its customers.

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Figure 1. Palindrome used as a form of advertising in the ancient Roman Era
Source: *Camilleri R., 1999. Il quadrato magico – Un mistero che dura da duemila anni, Rizzoli, Milano, 1999.*



DEVELOPING AN ADVERTISING PROGRAM

The Tools and Means Needed to Create an Effective Advertising Program

When comparing the cost and effectiveness of various advertising media, one must consider the following factors:

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1. **Reach**

Expressed as a percentage, reach is the number of individuals (or homes) the advertisement needs to expose the product or service to through specific media scheduled over a given period.

2. **Frequency**

Using specific media, how many times, on average, should the individuals in the target audience be exposed to the advertising message? On average, it takes an average of three or more exposures to an advertising message before consumers act.

3. **Circulation**

A factor used to determine the number of customers receiving the message through the Print Media. (A common factor used in the measurement methodology for comparing print media)

4. **Cost per thousand**

How much will it cost to reach a thousand of the prospective customers (a common method used in comparing print media)? To determine a publication's cost per thousand, also known as CPM, divide the cost of the advertising by the publication's circulation in thousands.

5. **Cost per point**

How much will it cost to buy one rating point for the target audience, a method used in comparing broadcast media? One rating point equals 1 percent of the target audience. Divide the cost of the schedule being considered by the number of rating points it delivers.

6. **Impact**

Does the medium in question offer full opportunities for appealing to the appropriate senses, such as sight and hearing, in its graphic design and production quality? Besides the effect of the five senses, also remember the classical innate learning methods of people: auditory, visionary, kinesthetic, or a combination of. The more people learn about something, the better educated they are about it.

7. **Readership**

How many additional potential customers read the advertisement message received by the customer targeted in the circulation? For example, the doctor's office represents "one subject" that can be measured in analyzing the circulation. However, the readership is potentially much higher because most patients in the waiting room may read the message. When advertising in print media, it is always important to ask what their "circulation" is and what their Potential Readership is." This data is usually included in the "Media Kit" the print media provides to the sponsors.

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8. **Selectivity**

To what degree can the message be restricted to those people who are known to be the most logical prospects?

Also remember that Reach and Frequency are important aspects of an advertising plan and are used to analyze alternative advertising schedules to determine which produce the best results relative to the media plan's objectives.

ADVERTISING IN ACTION

Identifying the Target Audience

To identify the target market, a report can be purchased from consulting companies that conduct surveys and are familiar with the consumer's consumption habits. This can also be investigated through online research or through a survey.

Determining Appropriate Advertising Objectives

These objectives might include product or service awareness, trial, and test-tasting to develop a brand's preference.

Designing the Advertisements

As discussed earlier, this service should be outsourced from an experienced agency. There are many media for the advertiser to choose from; however, an agency may get a better deal than when a media is approached directly. It is essential to have a pilot test to pretest advertisements and to determine how effective they are in influencing consumers. Most often, Ads need to be redesigned if the pilot test results are not found to be as effective as planned.

ADVERTISING STRATEGIES

Depending on the promotional objectives set by the company, an appropriate strategy for advertising must be formulated. The following example shows what approach could be taken according to the target market and to the objective of what the advertisement should bring.

Information Dissemination and/ or Persuasion

These are effective ADs strategies that focus on comparing one product or service to another. They try to convince the consumers that the product being promoted is better. Statics show that this is not a popular approach in the U.S.; however, they appear to be the most effective. Comparative advertising is illegal in many countries in Europe and may be considered unethical in other countries where respect for others is paramount, especially the elderly, and "being judgmental" is considered highly inappropriate.

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Fear Appeals

Over the last decades, a fear has been generated by all players in the foodservice industry regarding dieting, proper eating, too much fat, too much salt etc. The adverting approach is intended to motivate consumers by telling them the consequences of either using or not using a product. For example, the scare of the amount of salt used in restaurants together with trans fats and the use of food high in Omega 3 and 6 has sparked quite a debate among all concerned. A professional agency may advise a foodservice operation to reconsider, such as a strategy.

Humor Appeal

The use of humor in advertisements is quite common. In hospitality, ADs associate with kids, and food and beverage products tend to be humorous. It appears as his method may not be effective in attracting restaurant patrons. However, more and more humorous advertisements have been noticed, especially in TV commercials. It is believed that humor in advertising may attract a few, but it may distract others because the audience may remember the funny part but not what the advertisement was intended to do. Nevertheless, an Ad about food and beverage product and service may be better perceived with a short humorous message. We all remember the Taco Bell commercial with the Chihuahua dog.

Repetition

An old proverb says: "repetition is the mother of learning." Whatever the objective of the advertisement, repetition is critical. Advertising messages, especially if not effective the first time, can be misunderstood by the audience who already have a limited motive in paying attention to what is being communicated. Therefore, a repetitive message with cumulative information may be more effective. People learn best when they have more than one opportunity to hear a message, see it, or know a subject. Few people remember a person's name the first time. The best advertising needs at least some repetition for maximum impact. However, repetition must be pleasant to be well received. Unpleasant repetition can create annoying and negative feelings about what is being advertised. Therefore, experts advise that changing advertising frequently can keep a restaurant image fresh and lively in the customers' minds.

Celebrity Endorsements

Celebrities are likely to increase the amount of attention given to an advertisement especially, if the name, the personality, or his/her preferences are directly associated with the product, the service, or even the business entity, location, and physical appearance. For example, a "Green" celebrity advocate may be directly correlated to a healthy menu and an operation that reduces waste and uses green energy. However, in some instances, celebrities may not be consistently persuasive because of their behavior or even their outspoken personal political point of view.

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METHODS OF ADVERTISING THAT REPEATEDLY GET THE MESSAGE OUT TO THE CUSTOMER

If the in-house sales and marketing team is well experienced in planning a self-organized advertising program, then the company can save a substantial amount of money by using self-publishing desk-top software. However, a professional agency can deliver a far better service

1. Brochures or Flyers Produced in House or by an Agency

Many desktop publishing and word-processing software packages can now produce highly attractive two and tri-fold brochures in letter size and legal size. Brochures can contain a substantial amount of information, graphics, pictures, menu samples, news columns, etc. This is becoming a common and inexpensive method of advertising

2. Direct Mail

Mail sent directly from the sales and marketing department to customers can be highly customized to suit their habits, needs, wants, and preferences. To do this, a mailing list is necessary. The restaurant operation can collect addresses from patrons by using comment cards, running a raffle, or simply asking. The marketing manager should keep the list electronically and up to date. Direct mail may appear as a thing of the past; however, local restaurants still use it very effectively.

3. E-Mail Messages

The proliferation of new media technologies and devices empowers people to control their own media consumption, become their programmers, develop their playlists, and create personalized media portals. These changes create an increasingly challenging environment for capturing a more significant share of the market and monetizing the audience effectively. This is an upward trend gaining more popularity than anything else. Email messages can be an ideal means of advertising and to personally communicate with anyone about the business. Emails can be personalized with “signature line and logo” at the end of each e-mail message. Many e-mail software packages will automatically attach this signature line to the e-mail if you prefer. One must also be cautious that email can be intrusive if not solicited (if customers have not voluntarily subscribed to it) and can become annoying. A restaurant should not jeopardize a potential customer because it is sending unwanted emails. Also, the Netiquette rules must be observed. There is sufficient Netiquette information available on the internet (search for keyword: “Netiquette.”)

4. Online Discussion Groups and Chat Groups, and Blogs

As with e-mail, a restaurant can gain frequent exposure by participating in online discussion groups, chat groups, and by having a personalized blog page. Except for the blog pages, social internet groups may have strict rules against using the opportunity for advertising. When you join a group, it is advisable to

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determine whether the group is public or private, and always check with the moderator to understand what content is appropriate. The best groups for a restaurant or especially a bar-wine bar- nightclub to belong to are those listed under the entertainment, sports, and lifestyle pages. These members are somehow already classified as a target audience. As for the email advertising, here too, the Netiquette should be respected. There is sufficient Netiquette information available on the internet (search for keyword: "Netiquette.")

PRINT MEDIA

Printed media was once the only means of advertising. In today's electronic age, printed media has become less effective; it reaches only a limited, targeted audience. (See circulation and readership above).

1. Magazines

Magazines ADs can be quite expensive; however, they have a lasting effect for the duration from the current issue to the following issue, depending on if the magazine is printed weekly, monthly, quarterly, semi-annually, or annually. Most importantly, one must determine the specific magazine focuses on the foodservice industry. If this is the case, then the magazine can be instrumental because it already has a circulation of readers that focuses on food and beverage or service.

2. Newsletters

This can be powerful means to conveying the nature of the company, what it sells and what it stands for. The use of a consultant is always a good idea for at least the design and layout. Further work can be done in-house.

3. Newspapers

Not everyone nowadays reads newspapers. By the time the paper is printed, the news has already been received through 24 hours news channels, over the internet at home, or from a cell phone or any other e-devises such as an iPad. It is one of the most expensive advertising media because it only stays exposed to the reader for one day or less. However, a restaurant can benefit from it by writing a letter to the editor, working on a food story with a reporter, being featured for free on the local entertainment page, etc. They offer free consultation about what and how to advertise, how often, and how big an Ad should be.

4. Posters and bulletin boards

Posters can be very powerful if placed strategically and where they can be easily seen. The best way is to place posters on bulletin boards and other places where potential customers have frequent access. Students have the best way of using the poster in promoting special events: they draw posters on sidewalks,

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terraces, and in other public places by using crayons. In this way, everyone passing by that area can see the message being delivered. Posters should always be refreshed with new ones, so they look fresh off the press. However, the use of posters and signage is strictly controlled by the municipalities in many cities. One should always inquire whether it is legal to display such messages on a poster somewhere in public city places.

5. Yellow Pages

Yellow books have become by far one of the most ineffective media to advertise in. With the use of mobile devices, landlines phones may disappear, and so will the yellow pages and yellow books. Today's internet provides directories for almost any business that does work with the public, including foodservice business. The Yellow Pages used to be very useful for advertising if the ads were well-placed in the right directory categories. Phone companies still advertise heavily to get customers to use yellow pages; however, they can only list customers who still have a business landline with them. When considering this print media, one must consider the following:

a. The display ads are costly, especially if they are in color. Remember that black is not considered a color. Therefore, a two-color display ad will consist of 3 colors: black as a base plus two colors of choice.
b. The contract should not be signed for longer than a year. Some restaurants went out of business after six months from opening; however, they were still liable to pay for the yellow page ads.
c. If the Ad is not effective, it cannot be canceled. If the restaurant threatens to stop payment, then the phone company will shut down the phone line, and the business can find itself in a dire situation. Therefore, it is strongly recommended that before signing any contracts, the expiration date and conditions must be carefully investigated.
d. One needs to be cautious that there are two kinds of books: The Yellow Book and one is the Yellow pages. The one owned by the carrier the phone number is registered with will list the business number for free and give good rates. The other book may appear almost fraudulent because their representatives do not always disclose whom they work for. Eventually, the restaurant may end up signing two contracts.

ONLINE SERVICE PROVIDERS

Service providers like "City Search" http://www.citysearch.com/allstates, which is currently owned by City Grid http://www.citygrid.com/ a localized platform that works with advertisers, ad-partners, and developers. Internet, wireless, and business mapping applications that help people find places and get there. City Search provides consumers with mapping and navigation solutions, and features, such as aerial/hybrid imagery, multi-point routing, and the ability to find the best restaurant, hotel etc. Anywhere in the U.S. It also offers place search, mapping, and directions services through desktops, cell phones, and other wireless devices. The company, through its geospatial Web services platform, delivers technology and development tools and mapping data that help businesses and developers build business mapping applications. It serves various industries, including travel and hospitality. Thus, the choice for a restau-

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rant to still rely on yellow pages to be found customers' needs to be investigated before an advertising commitment can be made.

1. Coupon Books Printed

For many restaurants, this has been a lifesaver. However, coupon books are expensive, and they only bring in volume but no profit. The notion of "buy one and get one free or at cost or otherwise" has led many operations to depend on the coupons to survive. Some coupon book companies have an outstanding print in their contract that it is hard to be noticed. It may read as follows: If the contract is not canceled 30 days before the exact expiration date, it will automatically extend itself for two additional years. Some restaurants went out of business and were still liable to the coupon books company. In sum, before signing any contract in general, one must read the fine print or let a lawyer read it. It may be less costly in the long run.

2. Coupons from Online Platforms

According to "e-investigator" https://www.einvestigator.com, in marketing terms, a coupon is a ticket, document, or code that is exchanged for a financial discount or rebate when purchasing a product. Manufacturers and retailers issue documents such as advertisements, vouchers, certificates, cards, redemption slips, and tokens. They can be issued in electronic or physical form. In addition to financial discounts, many retailers offer vouchers that are redeemable for free products, free or discounted shipping, free memberships, and for many other reasons. The purpose of a coupon is to get a person to take some sort of buying action, either to purchase a product, register their name and address, visit a store, etc. Online coupons are explicitly designed for purchasing goods or services on the internet. They are usually not redeemable in stores, but some retailers do offer the option of redeeming them in stores. These are typically referred to as "printable" versions. Retailers also offer redeemable codes to encourage customers to use the internet for purchases because the internet is typically a lower cost delivery channel for a retailer (meaning it costs less for them to sell you a product or service online than it does in a retail store).

ADVERTISING THROUGH RADIO, TV, WEBSITE, BLOGS, PRESS – RELEASE, OTHERS

1. Radio Announcements

Over the last two decades, radio has increased the audience not only in the U.S. but worldwide, especially "radio talk shows." A significant advantage of using radio for advertising is that they are usually much less expensive than television ads, and their effectiveness is even less expensive than newspapers. They have a larger audience during pick traffic periods; the average driver spends about an hour from and to work every day. Ads are usually sold on a package basis that considers the number of ads, the length of ads, and what time slot they aired. A major factor in negotiating an advertisement with a radio station is to consider getting the air announcement when potential customers listen to the radio.

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2. Television Ads

TV Ads can be the most effective form of advertising and, in the long run, the least expensive when measured in terms of effectiveness. Many restaurants do not consider television Ads because they believe it to be very expensive. As already explained, although they are more expensive than most other media, they are by far the most effective. Television ads are usually priced the same as the radio except that TV stations can also produce a shallow cost video shooting. In the case of repeat advertising, the video clips already exist, and therefore future commercials will be less expensive.

3. Web Site – Web Pages

Advertising and promotions on the World Wide Web using its web site is nowadays not a choice but a must. Without a web site, a restaurant, a bar, a catering business, or any foodservice business can no longer stay competitive. Whenever a customer is looking for a place to have dinner or someone who caters to a particular party, or a couple looking for a wedding venue, they search the internet. Therefore, businesses are developing Web pages sometimes to have a presence and a contact address even if they do not have a full web site. Using the Web for advertising requires specific equipment and expertise; however, many professional companies can help in the process, and the prices are becoming very competitive. Many restaurants have cooking classes, feature special promotions such as wine and food pairing etc. all of that can be made available to a worldwide audience through lifestreaming with a real-time webcam transmitting the event. It is a real breakthrough technology that is very helpful to any foodservice business.

4. Mobile APPS

The purpose of launching a mobile app is to allow a restaurant business to engage current customers, gain new customers while increasing revenue. Technological evolution is empowering restaurant business owners to create customer experiences by engaging them with simple mobile apps. Restaurants worldwide are developing mobile apps to allow customers to make reservations, order takeout, choose dining preferences, become part of a loyalty program, etc. Apps are used to view menu and wine list items and pricing, search for special offers, communicate with the restaurant, and interact with social media. Many companies specialize in apps development, and they are also opportunities to develop an app for free or so-called DIY App.

PROMOTIONAL ACTIVITIES THROUGH THE VARIOUS MEDIA, NEWSPAPERS, AND REPORTERS

a. Articles That you Write

The Director of marketing, the chef, should consider writing articles for the local newspaper or a magazine. In the article, one can use the opportunity to describe their own activity, the affiliation, and address some critical issues using the business. Sometimes the opportunities can be planned around a charity event, a citywide initiative to the same energy, etc.

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b. Editorials and Letters to the Editor

As happened in the case of the City of New York banning the use of salt in restaurants, a restaurant owner, a director of marketing, a chef can express their opinion about issues such as these that can affect their operation and the industry at large. Local newspapers often take a strong interest in information about these issues. Therefore, the marketing team or whoever is responsible for the advertising should regularly offer articles for publication concerning such issues.

c. Press Kits

This kit is handy when working with the media or training employees about working with the media. The kit usually includes information about the business, pictures, information about the menus, wine list, special promotions, guests' comments, etc. This is one of the first tools a marketing department usually organizes and keeps up to date.

d. Press Releases or News Alerts

They alert the press to a significant event or accomplishment and requesting, e.g., it gets included in the newspaper; they explain who, what, where, why and when; some include pictures, quotes, etc. to make it easier for the reporter to develop an announcement or story. Restaurants are attractive to reports during grape harvests for new wine, what menu is being offered on New Year's Eve, etc.

e. Public Service Announcements (PSA)s

Many radios and some television stations will provide public service announcements for nonprofit efforts. Usually, these PSAs are free. In exchange, radio stations may ask for complimentary lunch or dinners to be raffled or awarded on the air.

f. Company's Annual Reports

Disseminating company information, especially success stories to key stakeholders that include an overview of your year's activities, accomplishments, challenges, and financial status, has been proven to be very useful in positioning a product, a service, or the restaurant in the customer' mind.

g. Networking

Spread the word to peers, professional organizations, and those with whom you interact outside the organizations, e.g., educators, consultants, suppliers, clients, etc. (See also Online discussion groups and chat groups, and blogs)

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h. Novelties

They can be a powerful means of advertising if current and potential customers see the novelties. If they are food or beverage items, they will taste them if they use them and be constantly reminded of the company by looking at the logo. This, however, does increase the cost of advertising overall.

i. Presentations at Special Events

Presentations have been proven to be very effective at local seminars, Chamber of Commerce mixers meetings, trade shows, conventions, and seminars, including during commercial breaks on local TV stations. Presentations also include an open house, granting a special award, announcing a major program or service or campaign, etc. Presentations should be avoided during political events.

j. Measuring the Effort Through Advertising Effectiveness

The effectiveness of advertising is arguable among marketing experts. Published literature suggests that advertising leads to a relatively small increase in sales. In general, it appears that advertising is not as effective in selling the overall restaurant experience in selling durable goods. This could suggest that advertising is probably most effective for providing information (rather than persuading people).

DRAFTING A MEDIA PLAN

A media plan is part of a marketing plan, and it is needed to allocate the advertising expenses appropriately to rely on the right message to the right audience at the right time with the most effective results. If all steps have been taken, then a media plan can be drafted.

These are the Factors To Consider in Drafting a Media Plan

1. Analyze the Market
2. Establish Media Objectives
3. Develop Media Strategy
4. Implement Media Strategy
5. Evaluate Performance

Steps toward the creation of a media plan

1. What media to use
    a. TV
    b. Radio
    c. Internet
    d. Magazines
    e. Newspapers
    f. Others…

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2. Evaluate the media
    a. Nielson ratings
    b. Distribution
    c. Circulation
    d. Readership
    e. Viewers for TV
    f. Audience for Radio
    g. Internet (Hits)
    h. Others…
3. Pre – planning activities
    a. Media Selection and Scheduling
    b. Factors Influencing Media Planning Decisions
    c. Target Market Profile
    d. Looking at Brand/Product Dynamics
    e. The Creative Execution
    f. Budget Considerations and Media Deals
    g. The Competitive Situation
    h. Availability and Timing Considerations
    i. Cost Efficiency (CPM = Cost per thousand (CPM): cost of reaching 1,000 members of the target audience with media vehicle(s) or plan.)

If thorough research has been conducted, then all relevant information will be available; however, a short checklist as a reminder to ensure that the media campaign will do what it is intended it should do will be more beneficial. This must be done before any written agreement is signed with any media. The following should remind the management if we have what it takes to draft the media plan. In other words, when we are planning to run a media campaign, do we know what we are paying for?

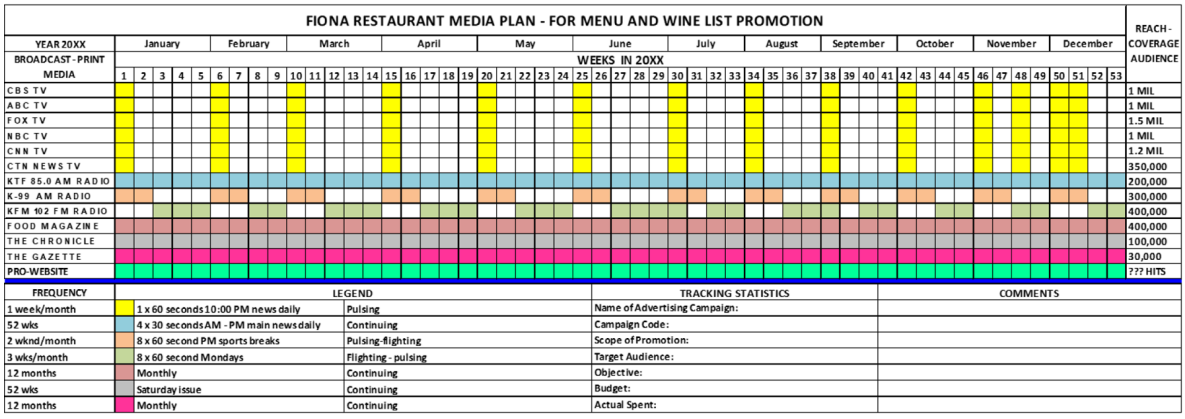
1. Do we know the potential target market?
2. Do we know who the real customer in that market?
3. Do we how to best reach potential customers?
4. Do we know exactly the demographics of the customer in the target market?
5. What is the message we are trying to convey?
6. What role does the media campaign have to play to achieve the company objective?

Pricing Strategy

Pricing decisions are affected by several factors. Price is considered a utility or a value of the product or service. Decisions about the right pricing strategy are affected by a firm's cost structure which is based on the standard of the quality of products and services, on the resources' acquisition capability, the price sensitivity of consumers, on the competition, and all other components of the external environment (See PEST analysis). Pricing strategies can be categorized based on several different variables. One variable of interest relates to the consistency of the prices. There are three broad pricing strategies:

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Figure 2. Sample Media plan



FIONA RESTAURANT MEDIA PLAN - FOR MENU AND WINE LIST PROMOTION

| YEAR 20XX | January | | | | | February | | | | March | | | | | April | | | | | May | | | | June | | | | July | | | | August | | | | September | | | | October | | | | November | | | | December | | | | REACH - COVERAGE AUDIENCE |
|---|---|---

plan can be prepared as very basic or much elaborated. Certainly, that the more detailed a plan is, the more information it provides to all stakeholders. Depending on the operation's size and the company's philosophy, a marketing plan can be prepared as very basic or much elaborated. Certainly, that the more detailed a plan is, the more information it provides to all stakeholders.

The Basic Marketing Plan Consists of the Following Components

1. Executive Summary
2. Situation Analysis
3. Marketing Strategy
4. Financials, Budgets, and Forecasts
5. Controls

Sample Content of a Detailed Marketing Plan

A Marketing plan for large or multiple unit foodservice operation typically includes the following components as "summary in the table of content following the title page."

1. Executive Summary
2. Situational Analysis (PEST analysis)
3. SWOT Analysis
4. Objectives
5. Strategy
6. Action Program
7. Financial Forecast
8. Controls

Marketing Plan Components Break-Down

1. Title page
2. Executive Summary
3. Situation analysis

a. **Current Situation:**

Microenvironment: economy, legal, government, technology, Ecological, sociocultural

b. **Current Situation:**

Market Analysis, market definition, market size, market segmentation, industry structure and strategic groupings, Porter 5 forces analysis, competition and market share, competitors' strengths and weaknesses, market trends

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c. **Current Situation:**

Consumer Analysis, nature of the investment decision, participants, demographics, psychographics, buyer motivation, and expectations

d. **Current Situation:**

i. Internal company resources: financial, people, time, skills
ii. Objectives: mission statement and vision statement, corporate objectives, financial objective, marketing objectives, long term objectives, description of the basic business philosophy
iii. corporate culture

4. Summary of Situation Analysis:

a. External threats
b. External opportunities
c. Internal strengths
d. Internal weaknesses
e. Critical success factors in the industry
f. Our sustainable competitive advantage

5. Marketing research:

a. Information requirements
b. Research methodology
c. Research results

6. Marketing Strategy:

a. Product

i. product mix
ii. product strengths and weaknesses
iii. product life cycle management and new product development
iv. brand name, brand image, and brand equity
v. the augmented product
vi. product portfolio analysis
vii. B.C.G. (Boston Consulting Group) analysis
viii. contribution margin analysis
ix. Multi-factor analysis: expenses, profit, taxes

7. Marketing Strategy:

a. **segmented marketing actions and market share objectives**

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i. by-product and service
ii. by customer segment
iii. by geographical market

8. Marketing Strategy:

a. **Price**

i. pricing objectives
ii. pricing method (cost-based, demand-based, or competitor based)
iii. pricing strategy (skimming or penetration)
iv. discounts and allowances
v. price elasticity and customer sensitivity
vi. price zoning
vii. break-even analysis at various prices

9. Marketing Strategy:

a. **Promotion**

i. promotional goals
ii. promotional mix
iii. advertising reach, frequency, flightings, theme, and media
iv. salesforce requirements, techniques, and management
v. sales promotion
vi. publicity and public relations
vii. electronic promotion (Web, or telephone)
viii. word of mouth marketing (buzz)

10. Implementation:

a. personnel requirements
   i. assign responsibilities
   ii. give incentives
   iii. training on selling methods
b. financial requirements
c. management information systems requirements
d. monitoring results and benchmarks
e. adjustment mechanism
f. contingencies (What if's)

11. Financial Summary

a. assumptions

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b. pro-forma income statement
c. contribution margin analysis
d. breakeven analysis
e.

12. Scenarios

a. Prediction of Future Scenarios
b. Plan of Action for each Scenario
c.

13. Appendix

a. pictures and specifications of the new restaurant, menus, etc.
b. results from research already completed

Measurement of Progress Explained

The final stage of any marketing planning process is to establish targets (or standards) to monitor progress. Accordingly, it is essential to put both quantities and timescales into the marketing objectives (for example, to capture 20 percent of customers from the 1st main competitor within three months.) Changes in the environment mean that the forecasts often must be changed. Along with these, the related plans may also need to be changed. Continuous monitoring of performance, measured against predetermined targets, represents an essential aspect of this. Strategic management plans only have validity if used to control a company's progress: their success lies in their implementation, not in the writing or formulation.

Performance Analysis

This is the most critical element of marketing performance, which is typically tracked. They include:

1. Sales Analysis

Most organizations track their sales results and profit results as key success factors. The detailed analysis includes the analysis of "variance,' which is the deviation from the target figures - which allows a clearer picture of deviations to become evident.

2. Market Share Analysis

Tracking market share is very important. One can easily notice if the parking lot of a competitor is empty. This is usually a sign that it is losing market shares. When market share is tracked, there are several factors to be considered:

a. overall market share
b. segment share

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c. relative share of the market leaders
d. annual fluctuation rate of market share

3. Expense Analysis

The key ratio to observe is the marketing expense to sales ratio. As a rule of thumb in contemporary best practices, marketing expenses represent about 6% to 10% of sales depending on the objectives of the operation. Although this may be broken down into other components such as advertising to sales, sales administration to sales, etc. it can measure the marketing efforts compared to the incremental revenues generated by the marketing expenditures.

4. Financial Analysis

The end results of all marketing activities should be a more favorable bottom line. There are several separate performance figures and key ratios which can be tracked analyzed:

a. Contribution margin
b. Net profit
c. Gross profit return on investment
d. Net contribution profit on sales

Free resources such as business plan and marketing plan templates can be accessed for free at https://www.score.org/ and https://www.sba.gov/; these are non-profit U.S. Government-sponsored organizations to help entrepreneurs with business start-ups (SCORE, 2020; SBA, 2020).

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Chapter 13
E-Commerce

ABSTRACT

The chapter outlines the importance of being connected over the internet and the opportunities the world wide web (WWW) offers to the foodservice industry. Restaurants, bars, and catering companies can significantly benefit from the exposure a website gives them internationally 24/7/365. Today's business landscape is far more connected worldwide than ever before. Not having a presence on the internet with a website and or an e-commerce business means being left out without exposure and without the possibility of expanding the business. The questions a foodservice operator should ask are not about the need for the internet and a website, but rather how much should be invested in it. Millions of businesses like restaurants worldwide have benefited from their website and presence on the WWW. The opportunities to increase revenue and compete against others have never been greater, from online table reservation systems to selling recipe books and merchandise.

INTRODUCTION

With the evolution of the Internet, the business world has become increasingly involved in the practice of using the so-called "World Wide Web" (WWW) or the "information superhighway", to deal with unlimited business undertakings. The Internet is a collection of interconnected computer networks that provide free exchanging of information all the time.

Table 1 shows the world internet usage and statistics by continents. As of December 2019, about 57% of the world's population, or 4,574,150,134 people, use the Internet. The largest share of users is in Asia, with 50.3% usage as a ratio to the total world's usage. As such, the Internet has become a powerful channel for business marketing and communication, and new business opportunities - as it is often called as "e-business" or "e-commerce" today (Napier et. al, 2001; Flynn & Anderson, 2003).

This virtual marketplace allows all companies to compete for the same products or services they provide. Under the same wave, online customers can enjoy a more extensive choice of products or services, more competitive prices and discounts, and being able to buy their favorite products or services from the sellers located anywhere on the globe.

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Table 1. World internet usage and population statistics, World Internet Users and 2020 Population Stats

WORLD INTERNET USAGE AND POPULATION STATISTICS 2019 Year-End Estimates						
World Regions	**Population (2020 Est.)**	**Population % of World**	**Internet Users 31 Dec 2019**	**Penetration Rate (% Pop.)**	**Growth 2000-2020**	**Internet World %**
Africa	**1,340,598,447**	17.2%	**526,374,930**	39.3%	11,559%	11.5%
Asia	**4,294,516,659**	55.1%	**2,300,469,859**	53.6%	1,913%	50.3%
Europe	**834,995,197**	10.7%	**727,814,272**	87.2%	592%	15.9%
Latin America / Caribbean	**658,345,826**	8.5%	**453,702,292**	68.9%	2,411%	10.0%
Middle East	**260,991,690**	3.9%	**180,498,292**	69.2%	5,395%	3.9%
North America	**368,869,647**	4.7%	**348,908,868**	94.6%	222%	7.6%
Oceania / Australia	**42,690,838**	0.5%	**28,775,373**	67.4%	277%	0.6%
WORLD TOTAL	**7,796,615,710**	**100.0%**	**4,574,150,134**	**58.7%**	**1,167%**	**100.0%**

NOTES: (1) Internet Usage and World Population Statistics estimates are for Dec 31, 2019, as of March 3, 2020. (2) CLICK on each world region name for detailed regional usage information. (3) Demographic (Population) numbers are based on data from the United Nations Population Division. (4) Internet usage information comes from data published by Nielsen Online, by the International Telecommunications Union, by GfK, by local ICT Regulators and other reliable sources. (5) For definitions, navigation help and disclaimers, please refer to the Website Surfing Guide. (6) The information from this website may be cited, giving the due credit and placing a link back to www.internetworldstats.com. Copyright © 2020, Miniwatts Marketing Group. All rights reserved worldwide.

Source: Internet World Stats: https://www.internetworldstats.com/stats.htm

The Internet also provides communication between consumers and companies and through electronic data interchange (EDI), buyers and sellers can exchange standard business transactions such as invoices or purchase orders with remarkably easy.

What is E-Commerce?

E-commerce involves multiple transactions or payment information transfer across a secure internet connection in exchange for goods and services. Retail e-commerce represents trade, commercialism, mercantilism, and all other business transactions for business, personal or commercial activities that have the sole objective of supplying commodities via an online storefront. E-commerce has been defined as "*the buying and selling of products and services by businesses and consumers over the Internet.*" E-commerce refers to both online retail and online shopping as well as electronic transactions.

Entrepreneurial firms and research institutes invest in exceptional people with bold ideas, freeing them to go beyond the domain of traditional research labs and venture funds. They use the Internet's power to transform existing processes, making them better, faster, and more efficient.

The Internet and e-commerce give consumers an opportunity, through the easy online information gathering and convenient online shopping, to be better prepared to purchase the right product or service at the right time. New entrepreneurs from traditional small to medium-sized businesses are the pioneers exploring the forefronts of e-commerce.

E-commerce is governed by the Department of Commerce, created in 1913; it is the federal organization with the United States that promotes and administers domestic and foreign trade. The DOC monitors

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B2B and B2C eCommerce dealings both online and off-line. It covers a broad range of markets, from consumer-based retail sites, auctions, and peer-to-peer sites to business exchanges negotiating commodities between corporations. These organizations help regulate eCommerce operations and corresponding business rules. It is essential to know that the department itself uses the Internet to its fullest capability to provide necessary service online not only fast, but also very efficient. Detailed data can be accessed at www.commerce.gov/ and https://www.census.gov/retail/index.html#ecommerce where their state:

The Department of Commerce has actively pursued the use of the Internet for conducting business online. Not only do we provide information that is helpful and informative, but we also offer the opportunity to apply for fishing permits, export licenses, patents and trademarks, and to complete survey forms.

Internet business applications include service operations, such as health care, banking and financial institutions (e.g., e-banking), and the hospitality & tourism industry (e.g., e-booking of hotel/motel rooms, restaurant reservations, airline tickets, car rental reservation, etc.) (Kimes, 2009). Those online applications have generated a vast amount of attention due to the demand for information exchange, which is a crucial part of a business operation. Internet applications give the customer advantage because the online services are less expensive to provide access 24/7/365 from anywhere in the world regardless of time zone restrictions.

A well-established e-business can satisfy the consumer with at least one of the following advantages: lower price, a more comprehensive selection of goods and services, better choices, superior services, and more convenience. However, the physical presence and the human interaction are replaced by virtual reality, and that is something customers still need to get accustomed to. For some products and services, e-commerce does have its limitations. Not all types of services or products can be delivered online, such as SPA treatment with champagne service, a massage, a hot cooked meal, or a freshly brewed coffee. Specifically, the services requiring customer participation and physical presence for the interaction or items demanding immediate delivery are difficult, if not impossible, to be purchased and delivered online. With the emergence of e-commerce business during the last decades, several eCommerce business solution providers have also grown.

These days, even restaurants are running under the e-commerce system. E-commerce solutions providers can perform many jobs for the Restaurant industry, such as a feature of an online restaurant menu, online restaurant ordering system and table reservation system, and selling of merchandise. E-commerce has changed the way people do business forever. Global e-commerce business has been a new trend in e-commerce and now plays a pivotal role in the global economy. Also, e-commerce business solution providers' role cannot be ignored because one cannot imagine a successful and fruitful eCommerce business without their assistance (Dixon, Kimes & Rohit, 2009). As the request for e-commerce business grows, so will the business of e-commerce providers.

How Does E-Commerce Work?

According to the Department of Commerce, and in a perfect world, e-commerce is a straightforward process any business can use and benefit from.

E-commerce can be divided into subgroups of activities:

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1. *E-tailing or "virtual storefronts"* on Web sites with online catalogs, sometimes gathered into a "virtual mall."
2. *The gathering and use of demographic data* through Web contacts
3. *Electronic Data Interchange (EDI),* the business-to-business exchange of data, e-mail, and fax and their use as media for reaching prospects and established customers (for example, with newsletters)
4. *Business-to-business buying and selling* (B2B)

Types of E-Commerce Web Sites

Electronic commerce offers much promise to U.S. firms interested in using the Internet as another vehicle for exporting. However, the marketing executive should be familiar with the steps necessary to make the firm's web site e-export capable. Many U.S. companies have a web site that fulfills one or more marketing functions tailored to their business specialties. These sites feature one or more of the following characteristics (Note: all the sites given as examples below have been internationalized or have localized mirror sites to facilitate cross-border e-commerce)

Transactional Site

People who shop online are most familiar with this type of website. A transactional site may be an electronic storefront for a brick-and-mortar retailer or a catalog business, e.g., William Sonoma, or a manufacturer showroom for those wishing to sell directly to the public, e.g., Dell Computer. Transactional sites conduct full "end-to-end" transactions via the website, allowing customers to search for, order, and pay for products online and contact the company for after-sales service. The most sophisticated sites create efficiencies by integrating the transaction process with back-office systems such as accounting, inventory, sales, and others, e.g., Amazon.

Information Delivery Site

This site generates sales by promoting corporate awareness rather than facilitating online transactions. Its function is like a brochure, providing information about the product or service and contact information on how to proceed with a purchase. Because this site is often static and does not require the software systems necessary for online transactions, it is less expensive to design and maintain than the transactional site. An information delivery site is ideal for companies that market products and services that cannot be provided online or goods that cannot be sold online, E.g., a restaurant dinner. A modified version of this site permits the buyer to shop online for the best price from competing vendors providing the identical product, e.g., a wedding booking. Information on options available for a particular type of service or event, to allow the wedding couple to "visualize" the venue, the menu, to obtain an estimated price for the event, which the customer can then compare with a competitive restaurant (Verma &Young, 1997).

E-Marketplaces

These sites are market-makers: they bring buyers and sellers together to facilitate transactions. Participation in a brokerage often provides an efficient way of finding a customer without the expense of build-

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ing a proprietary transactional website. Types of brokerages include eBay www.eBay.com and Amazon www.amazon.com, and matching services www.buyusa.gov.

How to Start Going Online

These steps should be used to create the business website and marketing the company using the Internet and key internet service providers (ISP).

Select A Domain Name

Selecting a domain name for the company's website(s) is the first important decision to make and can potentially have significant marketing implications. A name starting with a letter "A," may have a better chance of showing first among all lists presented in alphabetical order. Start by looking in Network solution's website https://www.networksolutions.com/

Register at Search Engines

Helping potential customers find the website by registering with the major search engines on the World Wide Web.

Choose a Web Host

Chose the best and dependable "web hosting service" to house the localized website. Many hosting providers offer additional value-added services such as site maintenance, search registration, site development, etc.

Website Content Adapted to the Online Target Customer

Targeting customers by tailoring the website to online demographic and according to their needs and wants that may reflect the product and service being offered

Execute Orders

Allowing customers, a variety of options that meet business practices, from reservation to prepaying and sending confirmation, the customer should feel the advantage of doing business online.

Market Development on the Web

Market development is an essential component for all the above models and must be an integral part of a firm's e-business presence on the Internet. Companies should consider and evaluate the advantages of advertising online as an extension and an integral component of their corporate growth strategies and as part of their marketing efforts (Westerlund, 2000). . Advertising messages often appear on portals or other websites that draw viewers with content such as news, information, and services such as email, chat, forums, etc. Companies may seek to advertise on search engines that attract high traffic volume,

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e.g., Yahoo, Google! Alternatively, target a specialized demographic. Some portals sell favorable link positioning or advertising keyed to search terms in a user query, e.g., Overture. Companies may also consider using an advertising network that feeds ads to a network of sites, thereby enabling large marketing campaigns.

Use of Direct E-mail

Direct E-mail may be an excellent way to promote web presence, depending on the market, product, or service. Direct e-mail is an inexpensive way to reach thousands of potential customers.

The Direct Marketing Association suggests that any email marketing should have:

1. an honest subject line;
2. no forged headers or technological deceptions;
3. the identity of the sender, which includes a "physical" address, and
4. an opt-out that works and is easy to find and easy to use

Whether the business is targeting domestic or international customers, companies should be aware before choosing direct e-mail to promote web presence of the potential for backlash against unsolicited e-mails by consumers who feel overwhelmed by the number of such e-mails received.

E-COMMERCE ESSENTIALS

Customer Service

Online business poses unique challenges and opportunities for customer service. Online businesses must have an effective customer service program to build and maintain a customer base and should consider hours of operation, local hires, not outsourced, etc. Customer service should be an integral part of the website design and overall business strategy (Dixon, Kimes & Verma, 2009).

Resolving Complaints

Disputes between buyers and sellers are inevitable, whether the transaction occurred on or offline. How customer complaints are resolved is essential to building trust and confidence with an online exporter's clientele. For most companies involved in e-commerce, the most practical way of dealing with disputes is alternative dispute resolution (ADR, also known as ODR or online dispute resolution). ADR mechanisms can be more flexible, creative, timely, and cost-efficient than courts in finding solutions that satisfy both parties. There are several commercial websites and private service providers that maintain information on international ADR. Companies may also choose to participate in a Trustmark program (also known as a consumer confidence seal program) that includes ADR services. Dispute resolution and other terms should be displayed online under "Terms of Service" (TOS).

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Be Responsible

In the online world, success and reliability are equal partners. Before using the Internet, companies should review their online practices and ensure that they are seamless with their offline business practices, worthy of their customers' confidence, and conform to the relevant laws of the target market. Companies should pay particular attention to taxation, privacy, security, unsolicited commercial emails (UCE), advertising content, and jurisdiction. Of course, companies should always deal in good faith, E.g., Better Business Bureau (BBB).

Privacy

U.S. organizations that collect personally identifiable information online should display their privacy policies prominently and offer data subjects (i.e., customers, employees, other business contacts) choices about how their personal information is used. Customers, for example, should have the opportunity to refuse to have their personal information shared with others or used for promotional purposes.

Security

Compared to other forms of consumer purchasing, the Internet is safe if the online merchant takes prudent business precautions. Encryption software like (SSL), generates confidence to the consumer to do business on the site.

Electronic Signatures

In legal terms, an online sale is an enforceable contract, a valid and binding agreement. However, in some overseas markets, a contract is only enforceable if it is signed "in writing." Such jurisdictions do not recognize electronic signatures and would not enforce an agreement made via email or through a website in the event of a dispute. While many countries have modified their laws to recognize electronic signatures, online business owners should check to be sure their target market accepts electronic signatures.

Unsolicited Commercial E-mail (UCE)

UCE, also known as an Unsolicited Bulk E-mail (UBE) or spam, is controversial and many domestic and international jurisdictions have laws about UCE. Violations may result in penalties. In addition, many email service providers, such as Google, AOL, and Yahoo!, have rules of conduct that forbid the use of their service for sending UCE. More guidance on UCE can be found at the Direct Marketing Association website, http://www.the-dma.org/. There is a lot of information online regarding spam emails, see an example at the Spamhouse website https://www.spamhaus.org/consumer/removelists/

Advertising Content

Most countries have laws about advertising content, which may be applied to websites, banner ads, and marketing e-mails sent from the U.S. The U.S. Federal Trade Commission has information for online

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advertisers available on its website. See website about regulatory issues in advertising online https://search.usa.gov/search?query=advertising+online&affiliate=ftc_prod

Although the Commission's publications focus on domestic law, they contain important information about "best practices" in the online environment. The International Chamber of Commerce offers global internet guidelines at https://iccwbo.org/media-wall/news-speeches/icc-issues-new-guidelines-on-marketing-and-advertising-using-electronic-media/

Jurisdiction

Online exporters must be aware that they are doing business in a foreign jurisdiction, which means the target market's laws and regulations apply to the goods and services being sold.

Good Faith

Dealing in good faith is perhaps more critical for online businesses than bricks-and-mortar because customers rely heavily on reputation. Moreover, it is illegal in most countries to behave otherwise!

How can a Foodservice Operation Start an e-Commerce Business and Benefit From it?

Restaurants that were new entrants to e-commerce saw an immediate benefit in applying new technologies to their websites through e-commerce. Online table reservation systems using third-party service providers have had a significant impact on restaurants' revenues. Online Ordering systems make up the difference since they are considered what once was "outside catering," meaning that a satellite outlet that did not exists before can suddenly be created. Utilizing (Application Programming Interfaces (APIs) with Point-of-Sale System (POS), Fax, and Email Integration - restaurateurs have a variety of choices on how to promote their product and service via online business "e-commerce." Literature shows that online ordering in specific restaurant segments (Quick Service Restaurants (QSR) with take-out service revenues can increase substantially. Because of convenience, lower cost, and incentives, people may order more food and drinks when ordering take-out and delivery online.

What are the Ways a Restaurant can Promote Itself Online?

1. have the latest personal computer available
2. chose an impressive domain name
3. build and launch a website
4. build an e-commerce business
5. use search engine email alert
6. include a Party, Wedding & Event Planning Toolbox on the website
7. a social network like Facebook to promote the restaurant by building a community of online friends
8. use linked-in to connect customers with the business
9. market the restaurant using online marketing tools through via popular sites like city search, Facebook, my space, YouTube, twitter and hospitality professionals' sites such as Plaxo
10. use free email subscription and blogs to generate a list of followers

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11. offer online cooking and wine bookshop/book club
12. Create brand and product awareness
13. Add a photo gallery of food and beverages, staff to the site, which can be customized to create albums, add picture captions and share photos with business friends, family, or all online users. Visuals have significant effect for online users

How can a Website Developer Promote E-Commerce for a Foodservice Operation?

1. E-Commerce
2. Identity & Branding
3. Web Design
4. Flash Design
5. Search Engine Optimization
6. Landing Page Optimization
7. Databases
8. Dynamic Pages
9. Data Integration
10. Content Management
11. Custom Images
12. Custom Newsletter System
13. Social Media Setup
14. Link-Building Consultation
15. Business Blog Setup
16. E-mail Accounts
17. Site Access 24/7
18. Search Engine Optimization & Web Analytics (SEO)
19. Submissions to Industry-Specific Directories
20. Landing Pages Optimization
21. Pay Per Clicks/Adwords Management (PPC) Traffic Measurement
22. News and Articles Development and Distribution Strategy
23. White Papers

Integrated Table Reservation System

As of the Spring of 2009, the largest provider of online restaurant reservation system was "OpenTable," https://www.opentable.com/ representing thousands of customers throughout the United States, Canada, Mexico, the United Kingdom, Germany, France, Spain, and Japan. It is followed by Restaurant Diary, Magellan, and GuestsBridge. They offer direct service to the restaurants' websites and through third-party providers. As technology advances, so are ISPs companies. OpenTable links their website to the iPhone, and other phone companies have followed suit.

According to the March 2009, Cornell Hospitality Report by Sheryl Kimes, restaurants that use online reservation systems have significant advantages and gain benefits such as reduced processing costs, increased volume and revenue, and improved service quality (Kimes, 2009). Moreover, online reservations provide customers with increased convenience, increased control over their reservation time,

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and a more consistent and reliable reservation experience. In a recent study, the Nielsen Company found that approximately 38 percent of U.S. consumers had made an online reservation during the previous six months (Nielsen Ratings, 2008).

eCommerce Analytics, the Most Critical Factor in eCommerce

Ecommerce measurement allows a business to measure the number of transactions and revenue that the website generates. On a typical eCommerce site, once a user clicks the "purchase" button in the browser, the user's purchase information is sent to the web server, which carries out the transaction. If successful, the server redirects the user to a "Thank You" or receipt page with transaction details and a purchase receipt. For example, with Google service, one can use the analytics.js library to send the eCommerce data from the "Thank You" page to Google Analytics. Therefore, understanding the capability of analytics is crucial because, without an educated approach, a business will not know:

- How many people are visiting the site/ store?
- Where are they coming from?
- Which categories and products they frequent?
- What the average buyer journey looks like?
- Whether the paid ads are making an impact?
- And much more.

The basic 5 types of eCommerce metrics one must be very familiar with are:

1. Audience
2. Acquisition
3. Behavior
4. Conversions
5. Paid marketing activities

However, the conversion rate is the most critical factor. According to Coredna https://www.coredna.com/blogs/ecommerce-analytics-tracking#5 conversion data refers to the point when an online user turns into an actual customer (Coredna, 2020).

The business should track conversion data over time and identify when conversion rates increase, decrease, and the potential causes. The Entrepreneur Magazine website offers several recommendations as to how the conversion rate can be increased: https://www.entrepreneur.com/article/300426.

Understandably, restaurants are different from consumer goods shopping on Amazon because the product requires a physical encounter; therefore, the metrics may be different from analyzing user data. Regardless, without analytics, the restaurant business will never be able to measure if the advertising's dollars spent will be any costumers into the restaurant. Hence, analytics and conversion rate are the most crucial metrics a restaurant can use to determine the website's attractiveness and effectiveness.

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CONCLUSION

Electronic commerce is a new form of marketing with potential growth over the next few years. The technology available on the market is very complex and will become more complex as new payment methods and Web technologies come on stream, especially when the Internet will become more wireless. The marketing approach is also new and different (Vassos, 1996). The key to success is to find innovative ways to use that technology to attract customers and build a business.

This chapter intended to give an overview of the essential concepts in electronic commerce, such as basic guidelines for the restaurant business, guidelines for technical requirements, and guidelines for creating a successful web site. Because restaurant e-commerce is relatively new and the industry is vast, there is room for expansion for both developers and restaurateurs and to benefit from new marketing opportunities as they arise (Dixon, Kimes & Verma, 2009).

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APPENDIX

e-Commerce Internet Resources

Small Business e-commerce resources are available at the Small Business Development Center

National Information Clearinghouse website: https://sbdcnet.org/about.php. The Small Business Development Center National Information Clearinghouse (SBDCNet) mission is to meet the information needs of the SBDC community in the United States and its territories. SBDCNET serves as a resource providing timely, relevant research, web-based information, and training to SBDC counselors and their small business clients. The goals of SBDCNet are to:

- Support the SBDC Counselor with research and relevant analyses.
- Empower the entrepreneur with business information.
- Educate through on-site training.
- Facilitate the exchange of SBDC best practices and program ideas.

Restaurant Management, for Detailed Contact Information, go to:

https://www.restaurant.org/business/sites_mgmt.cfm

- RestaurantOwner.com
- The Restaurant Doctor
- Restaurant Marketing Group
- RestaurantReport
- Eldred Training and Development
- Foodservice.com
- FoodserviceCentral
- Profitable Hospitality
- General Small Business Advice
- American Express
- Entrepreneur
- Small Business Administration
- U.S. Business Advisor
- IRS Small Business and Self-Employed Community

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Internet Information Sources and Usage Statistics

AfriNIC:

AfriNIC (information) for the purpose of managing the IP addressing in the African continent. In the future it is expected that African organizations that presently obtain IP address space from RIPE or ARIN will obtain the IP addresses space from the AfriNIC.

APNIC:

One of the four Regional Internet Registries (RIRs) APNIC provides allocation and registration services which support the Asia Pacific region.

ARIN:

One of the four Regional Internet Registries (RIRs), ARIN - the American Registry for Internet Numbers - manage the Internet numbering resources for North America, a portion of the Caribbean, and sub-equatorial Africa.

ClickZ Stats:

ClickZ Stats is a guide to Internet statistics, Internet marketing demographics, Internet advertising research, e-commerce trends.

Detailed Domain Count:

Statistics on the number of active domains and those deleted from the Internet each day.

ICANN:

The Internet Corporation for Assigned Names and Numbers, better known as ICANN, is responsible for managing and coordinating the Domain Name System (DNS) to ensure that every address is unique and that all users of the Internet can find all valid addresses. It also ensures that each domain name maps to the correct IP address. ICANN is also responsible for accrediting the domain name registrars.

Internet Domain Survey:

The Domain Survey attempts to discover every host on the Internet by doing a complete search of the Domain Name System.

Internet History:

The Living Internet is recommended reading as a general reference to Internet history

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Internet News:

Internet dot com provides enterprise IT and Internet Industry professionals with the news, information resources, and community they need to succeed in today's rapidly evolving IT and business environment.

Internet News:

InternetNews provides real-time news updates throughout the business day, covering IT issues and Internet-related technologies, Internet trends, browser statistics, e-commerce statistics, advertising statistics, demographics, and surveys.

Internet Traffic Report:

The Internet Traffic Report monitors the flow of data around the world. It then displays a value between zero and 100. Higher values indicate faster and more reliable connections.

Internet:

Internet description from Wikipedia, history, creation, growth, structure, uses, and other basic data.

LACNIC:

One of the four Regional Internet Registries (RIRs), LANIC- The Latin American and Caribbean Internet Addresses Registry - is the organization that administrates IP addresses space, Autonomous System Numbers (ASN), reverse resolution and other resources of the Latin American and Caribbean region (LAC).

Net Craft:

Netcraft provides network security services and market research on many aspects of the Internet.

RefDesk:

Reference source to Internet Usage.

RIPE NCC:

One of the four Regional Internet Registries (RIRs) providing Internet resource allocations, registration services, and coordination activities that support the operation of the Internet globally.

Technology & entertainment company categories, for detailed contact information, go to https://www.restaurant.org/business/buyersguide/categories.cfm?SuperCat=T

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The CAIDA Web Site:

CAIDA, the Cooperative Association for Internet Data Analysis, provides tools and analyses promoting the engineering and maintenance of a robust, scalable global Internet infrastructure.

Top-Level Domain Count:

Statistics on distribution of Top-Level Domain Names by Host Count.

Statistics and trends in browser usage, operating systems and screen resolution.

Web Side Story:

Since 1999, WebSideStory® StatMarket® provides valuable market share data on which browser versions, operating systems, and screen resolutions web surfers are using worldwide. This statistical information is made available through a web browser interface and can be segmented into 245 countries and 120 industry categories.

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