Knowledge-Driven Innovation in Start-Ups and SMEs

Emerging Research and Opportunities

Joana Coutinho de Sousa and Jorge Gaspar

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Preface

Nowadays, we are witnessing an increase in innovation both on start-up and SME. The implementation of innovation has a substantial impact on the knowledge of the economy. The ability of human being in creating new knowledge can be defined as an essential skill in a global economy, which involves learning as an essential dynamism of the competition. On the other hand, the research and development activities are essential not only for universities and companies but also for the global economy. Following this and taking into account the need of developing standards and guidelines for innovation, the OECD has been working on developing and updating a set of documents to help the innovators and the innovative companies to work better. As a result of this work, two manuals were created: Frascati Manual (OECD, 2002) and Oslo manual (OECD, 2005). The first presents standards for measuring the R&D activities and provides a set of definitions and recommendations to classify R&D activities. The second one, the Oslo Manual, provides guidelines for measuring and interpreting the information about innovation. Both manuals are especially worked for SMEs.

Davenport (2013) has published a book presenting a general approach about innovation process; however, this book focuses on combining the information technology with resource management in order to get innovation in the company and improve its business. Also, Davida, Epstein, and Shelton (2006) has presented a formal innovation process but just applied to well-established companies such as HP, Toshiba, among others.

All available guidelines and works present innovation process approaches for SME suggesting how the organisation can be managed and structure in order to make a sound and sustainable innovation.

However, these guidelines are not applicable to someone that wants to start a business focus on innovation. Start-ups have not a mature organisational structure to implement those guidelines. Furthermore, people without knowledge about business and innovation do not know how to start, what

are the steps to assure that idea is novel, and what are the steps to put verify if the idea is viable and how to put it in the market. This way, there is a need to provide some guideline about the innovation process in start-ups.

However, first, it is essential to define what is innovation since sometimes the word innovation is misunderstood.

The innovation consists of a complex process. We need to create new ideas, but these ideas need to be exploited in the market, they need to have an impact, bringing the new opportunity of changing.

The innovation corresponds to the implementation of a new solution for the market or company. Oslo manual has updated the types of innovation, and according to it there are four (OECD, 2005): 1) product, 2) process, 3) organisation, and 4) marketing. However, it is essential to note that there is, at least, more one type: e) Business model. The difference between innovation in marketing and business model is little because the business model is part of marketing; however, it is not evident in the Oslo Manual. Thus, this book will also introduce a new type of innovation the "Business Model", which will be defined in Background topic.

Currently, many people (scientists, industries, policy makers, potential entrepreneurs) fight for doing innovation, but in most of the cases there is no strategy about it and, consequently, they are not able to translate science in market applications.

Funding programmes for research and innovation have been launching. In Europe, for example, in the last ten years, two programmes were worked (FP7 and Horizon 2020). Even helping to make science, these programmes fail concerning innovation. This happens because there is no tool and guidelines to help people to translate new ideas to market. We can develop the ideas, but we are weak in the implementation.

Furthermore, these programmes are very focused on technology, and innovation is more than technology. We can change the world using new technology, but also how to do business. Industries can be more productive if they innovate in the production process, start-ups can gain more notoriety if they can change the marketing methodologies, and for example, the industry of the security of personal data can change its business model, attracting more people and gain their trust.

The primary goal of this Book is to suggest an approach for innovation process, particularly for start-ups, whose don't have money and, when getting, they are not able to waste it. This Chapter presents a new conceptual approach to the innovation process in start-ups, which is divided into seven interactive steps. Furthermore, the Book also presents a method to evaluate

qualitatively the time of the innovation process, based on the Five Porter's Forces (MP, 2008).

Thus, the ten steps of the innovation process are divided into four phases: Start, Develop, Business Plan, and Go-to-Market. Each phase of the innovation process corresponds to one topic in this Book.

The Start involves Step 1 - "Have a new idea" (product, service, process, marketing and business), Step 2 - "Benchmarking", Step 3 – "The solution" and Step 4 – "Innovation Type".

During this topic, a discussion about what is an innovative idea and what are the different types of innovation will be presented. Furthermore, how we can know the market and its needs will also be described.

Based on the outputs of Start phase, the develop phase consists of developing R&D activities (Step 5), Intellectual Property (IP) (Step 6) and Step 7 – "Listen the Market".

Develop phase will discuss what the types of R&D activities are and which are those that make sense to apply for creating a start-up, and how intellectual property can be done and its importance in innovation. In order to know if developments are on the right path, it is also important to implement some small pilots. Step 7 - "Listen the market" describes the importance of market to orientate the R&D activities and to gain sensibility about how much the market is willing to pay or how the market will consume the solution (input for Step 8). This is very important for the success of the solution on the market. There is innovation if we can put a new idea on the market; otherwise, the new idea is just an invention.

In the innovation careful with the development costs and scalability of the solution but also the internalisation of it is needed. Development costs and scalability have an impact on the return on investment (ROI). Since in Develop phase some market feedback about the price and/or how it will consume the solution will get, now it is the right time to define the business plan.

However, the business plan must be flexible and must frequently be updated whenever new market opportunities arise. New market opportunities can imply some adjustments in the novel solution (Develop phase).

During Flexible Business Plan phase the description of some tools and methodologies of how to make a flexible business plan will be presented.

When finished the Develop phase and the Flexible Business plan phase, i.e., when the final functional prototype is achieved and during the definition of the business plan (Step 8), to test it in a semi-real environment is necessary. For that, the implementation of a pilot is needed. This pilot must be performed in collaboration with a good business partner (Step 9), namely with a potential

customer of the solution. This will help not only to test the solution but also to have the feedback of a real customer and improvements that must be made based on that feedback. Based on this, Flexible Business Plan topic will also present some guidelines of how can find a business partner and how can implement a pilot in order to test the novel idea.

Finally, Go-to-market phase and Step 10 is the final step of the innovation process. This step must be started when the other steps are concluded and must follow the defined business plan (Flexible Business Plan phase). It is essential to note that even in this last step, during it Step 5 must be continually monitored and updated and sometimes Step 3 must also be updated with new features, according to the market feedback.

At the end, a method for evaluating the time of innovation process is presented through Time of Innovation Process topic.

This book intends to discuss what is a new approach of Innovation Process to be applied in Start-ups and SMEs. The discussion aims at helping entrepreneurs and managers to understand what innovation is and how they can innovate.

Furthermore, in this book, recommendations, and the future of Innovation and its time will also present.

The intended audience for this publication includes entrepreneurs, business managers, marketers, suppliers, customers and investors:

- Technology manufactures
- Multimedia marketing and gaming industries
- Cloud services, big data and internet service providers
- Multimedia and video content developers
- Branding, products and services marketing industries
- Healthcare and accessibility industry
- Researchers
- Public Institutions
- Venture Capital

AN OVERVIEW OF THE BOOK

Knowledge-Driven Innovation in Start-Ups and SMEs addresses several topics in the discipline of Business articulated with the discipline of Innovation. We present material from the frontiers of Innovation as well as Innovation Process accessible to people from science, marketing, investors and other fields.

This way, this book presents a new approach for innovation process for start-ups, providing information about all steps that must be followed. Furthermore, the book also presents a method for evaluating the time of the innovation process based on Five Porter's Forces (Porter, 2008).

The book aims at contributing for the innovation community, proving the innovative entrepreneurs with guidelines of the innovation process and, consequently, helping them in to increase the probability of success in the market concerning their innovations.

The book is structured into six chapters.

We begin by introducing the modern field of Innovation. We then study in greater detail the how the innovation starts, presenting several concepts and ways to identifying a problem, study the market, design a solution and to know if the idea is or not novel. Next, we enter the Develop phase, explaining in detail what research and development activities are or not and what can be the influenced by. Based on that, we present some critical steps to perform a first development phase. After that, we are clarifying some points of how a business plan can be done and the importance of receiving feedback from the market to improve it. The business plan is an essential input for the Go to Market. Also, we present a different perspective of how we can calculate the innovation time.

At the end of the book, we decided to briefly summarise what the Innovation might be and what other researches can be done.

The purpose of the first chapter is to build a solid foundation of general knowledge in Innovation. Chapters should be read sequentially.

Chapter 1 is dedicated to the area of Innovation, presenting its history, its areas of action.

Chapter 2 presents a description of Start activity describing in detail the steps and providing information about how to create a new idea and study the market.

Chapter 3 reviews some basic principles of research and development activities in order to understand how the Development phase.

Chapter 4 is focused mainly on a business plan. Such information is essential for readers with little experience in the business. After a brief description of the business plan, we proceed with the discussion of how to develop a business plan using market feedback.

Chapter 5 explores the go to the market and the time of innovation.

Finally, Chapter 6 explores some future research in the Innovation process.

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Chapter 1
Innovation

ABSTRACT

One innovation is the implementation of a new or significantly improved product (or service), or a process, or a new marketing method, or a new organizational method in business practices, workplace organization, or relationships outside. In this chapter, the innovation concept will be discussed from the creation of an idea to go-to-market. In order to better understand the concept, a general state-of-the-art about innovation and the topics associated will be presented. This chapter is essential to understand the presented flow about innovation. Several types of innovation are explained, and the difference between innovation and R&D is also presented. Furthermore, an overview about the proposed flow is presented as well as the general steps of each phase.

INTRODUCTION

Identifying the factors that drive innovation and those that hinder it is of great value in understanding the process of innovation and in formulating policies. The interest in measuring the innovation process is due to its relationship with the performance of companies, industries and the economy as a whole. Measures of the impact of innovation on company performance are among the most critical innovation indicators, but they are also among the most difficult to achieve.

The impact of innovations on company performance varies from the effects on revenue and the market share held by changes in productivity and efficiency. Significant impacts in the industrial and national spheres include changes

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in international competitiveness and total factor productivity, overflows of knowledge of innovations in companies, and an increase in the amount of knowledge circulating in networks.

Objectives and barriers vary by type of innovation. For example, the objectives of product or marketing innovations relate primarily to demand (e.g., improving product quality, increasing the market share held by the company, entering new markets), while process or organisational innovations tend to relate to supply (e.g. reducing costs, improving production skills). Some barriers relate to all types of innovation (e.g. factor cost) while others refer to a subset of the types of innovation.

Taking advantage of the path opened by management and planning that infiltrated all organizations in the middle of the last century, by necessity or by mimicry, the tendency also reached, in a striking way, the professionalization process of Research and Development (R&D) in companies, in institutions and even in countries with specific public policies that are increasingly clear and objective. The quest for increased productivity was the order of the day and was present in all the reflections. However, to support this pragmatic management logic, it was necessary to establish transparent and representative indicators for R&D activities, heavily dependent on creativity to allow the generation of more innovative ideas. Thus, the challenge was to build R & D environments that integrated creativity and discipline, promoting maximum synergy between them and the best result of the whole.

This growing importance of innovation is due, among other reasons, to the process of globalisation and the rapid increase in the number of countries and companies that have consistently invested in R&D activities. As innovation takes place anywhere in the world, all countries are committed to actively encouraging their R & D activities as a way to seek competitive differentials that can ultimately guarantee sustainable leadership in the international arena in the long run.

For example, the activities of technological innovation are the set of scientific, technological, organisational, financial and commercial diligence, including the investment in new knowledge, that they carry out or are destined to lead to the realisation of technologically new and better products and processes. R & D is only one of these activities and can be carried out at different stages of the innovation process, being used not only as a source of inventive ideas but also to solve problems that may arise at any stage of the process until its conclusion.

Also, R&D can be differentiated from other areas of creative activities in the innovation process. As defined in the Oslo Manual, R&D is the acquisition of unincorporated technology and know-how, acquisition of embedded technology, tools and industrial engineering, a study of industrial design (not elsewhere classified), acquisition of other equipment, the start of production and marketing of technologically new and better products.

Moreover, when it comes to innovations based on public R&D programs, the process may involve a significant stage of demonstration. "A demonstration is an innovative project that, let us say, we put into practice in conditions of great value to achieve: defining a national policy or highlighting an innovation (Glennan et al., 1978).

Concerning R&D measurement, the most significant source of errors is undoubtedly the difficulty in accurately determining the boundary between experimental development and related activities required for the implementation of an innovation. The mistakes made at this level are particularly critical because, even though many innovations require expensive R & D, the costs of preparing innovation for production are often even more significant.

WHAT IS INNOVATION?

What Is Innovation? How Can We Innovate?

One innovation is the implementation of a new or significantly improved product (or service), or a process, or a new marketing method, or a new organisational method in business practices, workplace organisation, or relationships outside.

Research on innovation encompasses many disciplines, with economic approaches adopting different theoretical perspectives, each providing meaningful insights. If on the one hand, they present themselves as alternatives, they may also be complementary.

Such theories point to many innovation policies and measurement issues, such as why companies innovate, what forces lead to innovation, and the factors that obstruct innovation. Related issues address the internal workings of businesses and the types of business practices used to promote innovation. Another important topic concerns the nature of knowledge, how it is accumulated and how it circulates among the actors. Finally, the way in which innovation processes are developed within an industry and at the regional or national level is explored.

It is critical to understand why companies innovate. The ultimate reason is to improve performance, for example by increasing demand or reducing costs. A new product or process can be a source of marketing advantage for the innovator. In the case of process innovations that increase productivity, the company acquires a cost advantage over its competitors allowing a higher cost margin for the prevailing market price or, depending on the elasticity of demand, the use of a combination of lower price and higher cost margin compared to its competitors, to gain market share and increase profits. In the case of product innovation, the company can gain a competitive advantage by introducing a new product, which gives it the possibility of higher demand and a more significant cost margin.

Companies can also increase demand due to product differentiation, targeting new markets and influencing the demand for existing products. Changes in organisational methods can increase the efficiency and quality of their operations and thus increase demand or reduce costs.

Innovation can also improve the company's performance as it enhances its ability to innovate. For example, improvements in production processes can allow the development of a new range of products, and new organisational practices can improve the entrepreneurial ability to acquire and create new knowledge that can be used to develop other innovations.

Innovation also plays a key role in competitive positioning. Companies innovate to defend their current competitive position as well as to seek new advantages in their market. A company can be reactive and innovate to avoid losing a market to an innovating competitor, or it can be proactive to gain strategic market positions vis-à-vis its competitors, for example by developing and attempting to impose higher technological standards for the products it manufactures.

The decision to innovate usually occurs under great uncertainty (Rosenberg, 1994). Future developments in knowledge and technology, markets, demand for products and potential uses for technologies can be highly unpredictable, although the level of uncertainty varies by industry, product lifecycle, and many other factors. The adoption of new products or processes or the implementation of new organisational and marketing methods are also fraught with uncertainty. In addition, the search and collection of relevant information may require time and resources.

The literature on organisational innovation (e.g. Lam, 2005) focuses on the role of organisational structures, learning processes, and adaptation to changes in technology and the environment (these include institutional structure and

markets). The organisational structure of a company can affect the efficiency of innovation activities, with some structures being more appropriate to particular environments. For example, a higher degree of organisational integration can improve the coordination, planning, and implementation of innovation strategies. Organizational integration can work particularly well in industries characterised by incremental changes in knowledge and technology. A freer and more flexible form of organisation, which allows workers greater autonomy to make decisions and define their responsibilities, may be more effective in generating more radical innovations.

Marketing theories (e.g., Hunt, 1983) focus on consumer behaviour, market exchanges between buyers and sellers, and normative approaches. As buyers and sellers are heterogeneous, companies face the enormous challenge of tailoring their products to demand. Consumer heterogeneity also means that product differentiation is often as necessary in capturing demand as new product development. Demand may depend not only on the objective characteristics of products but also on their image and social characteristics that can be used by companies to influence the demand for their products. Normative marketing theories focus on the implementation of marketing practices.

Evolutionary approaches (Nelson & Winter, 1982) see innovation as a path-dependent process, whereby knowledge and technology are developed from the interaction between various actors and factors. The structure of this interaction affects the future trajectory of economic change. For example, market demand and marketing opportunities influence which products should be developed and which technologies are successful.

Very close to the evolutionary approach is the vision that assumes innovation as a system.

The innovation systems approach (Lundvall, 1992; Nelson, 1993) studies the influence of broadly defined external institutions on the innovative activities of firms and other actors. It emphasises the importance of the transfer and diffusion of ideas, experiences, knowledge, information and signals of various kinds. The channels and communication networks through which this information circulates are embedded in a social, political and cultural basis that guides and restricts innovative activities and capabilities. Innovation is seen as a dynamic process in which knowledge is accumulated through learning and interaction. These concepts were initially introduced in terms of national innovation systems, but they also apply to regional and international systems.

Systemic approaches to innovation shift the focus of policies towards an emphasis on interaction between institutions and observe interactive processes in the creation, diffusion and application of knowledge. They underscore the importance of the conditions, regulations, and policies in which markets operate, and thus the role of governments in monitoring and pursuing the fine-tuning of this general structure.

The innovations in the companies refer to planned changes in their activities in order to improve their performance. Thus, the concept of innovation used refers to changes characterised by the following aspects:

1. Innovation is associated with uncertainty about the results of innovative activities. It is not known in advance what will be the result of innovation activities, for example, if R&D will result in the successful development of a marketable product or what is the necessary amount of time and resources to implement a new production process, marketing or production method, or how successful these activities will be;
2. Innovation involves investment. Relevant investment may include the acquisition of fixed or intangible assets as well as other activities (such as payment of wages or purchases of materials or services) that may yield potential returns in the future;
3. Innovation is the substrate of overflows. The benefits of creative innovation are rarely fully appropriated by the inventor. Companies that innovate through the adoption of innovation can benefit from the overflow of knowledge or the use of the original innovation. For some innovation activities the costs of imitation are substantially lower than development costs, so an effective appropriation mechanism should be required that offers an incentive to innovate;
4. Innovation requires the use of new knowledge or new use or combination of existing knowledge. The innovating company can generate new knowledge in the course of its activities (i.e. by intramural R&D) or acquired externally from various channels (for example by buying a new technology). The use of new knowledge or the combination of existing knowledge requires innovative efforts that can be distinguished from standardised routines;
5. Innovation aims at improving the performance of a company by gaining a competitive advantage (or merely maintaining competitiveness). This can be achieved by changing the demand curve of its products (for example by increasing product quality, offering new products or - citing

new markets or groups of consumers), or its cost curve (for example, by reducing unit costs of production, purchasing, distribution or transaction), or by enhancing the company's innovation capacity (eg ability to develop new products or processes or to gain and create new knowledge);

There are two main options for the company that wants to change its products, capabilities or systems of production, marketing and organisation. The company can invest in creative activities to develop innovations internally - alone or in partnership with other companies - or it can adopt innovations developed by other companies or institutions as part of a diffusion process. These two possibilities offer countless combinations, such as whether the company adopts an organisational innovation developed by another and adjusts it to operate according to its routines, or the company adopts a new manufacturing technology to its production line, or even introduces a new component, obtained from a supplier, into a consumer product. Both, creation and adoption of innovations, may involve intensive learning, interaction with other actors or minimal external interactions.

During the last years, many definitions of innovation were presented.

Oslo Manual presents innovation as an implementation of the new or significantly improved product (service), or process, or marketing method or organisational method for company, market or world.

Following this, innovation is a new idea that is implemented, and it will have an impact, i.e., we make innovation when we try to put a new idea in the real-environment; otherwise, it is an invention.

After defining innovation, Oslo Manual (OECD, 2005) divides innovation into four types: product (service), process, marketing and organisation. The definition of each one is presented in Table 1.

However, it is vital to note that there is, at least, more one type: Business model. The difference between innovation in marketing and business model is little because the business model is part of marketing; however, it is not totally clear in the Oslo Manual. Thus, Table 1 must be updated with the innovation in Business Model, as defined in Table 2.

Even dividing the innovation into types, the innovation can result from the combination of the types of innovation. For example, the innovation can involve new features for a product, but at the same time, the product innovation can be combined with business model innovation.

Table 1. Definitions of innovation, according to the Oslo Manual (OECD, 2005)

Type of Innovations	Definition
Product	Product innovation is the introduction of a new good or service or significant improvements concerning its features. The improvements include technical specifications, components, materials, incorporated software, easy-to-use or other functional features.
Process	Process innovation consists of implementing a new production or distribution method or significant improvements. These improvements are techniques, equipment and/or software.
Marketing	Marketing innovation is the implementation of a new marketing method with significant changes in product conception and package, product position, promotion or price definition. Innovation in marketing concerns on overcoming the customer needs, open new markets or product re-position, aiming to increase sales.
Organizational	Organizational innovation is the implementation of a new organisational method in the business of the company, work organisation or external relationships. These innovations aim to improve the company performance, decreasing administrative and transaction costs, stimulating the satisfaction of workplace (and so the work productivity).

Table 2. Update to the definition of the types of innovation

Type of Innovations	Definition
Business Model	Business model innovation is the design and implementation of a new model to make business and money in a specific market or product. These innovations include interacting more with a customer, giving him some power and involving him in the process in order to feel part of the process.
Product	Product innovation is the introduction of a new good or service or significant improvements concerning its features. The improvements include technical specifications, components, materials, incorporated software, easy-to-use or other functional features.
Process	Process innovation consists of implementing a new production or distribution method or significant improvements. These improvements are techniques, equipment and/or software.
Marketing	Marketing innovation is the implementation of a new marketing method with significant changes in product conception and package, product position, promotion or price definition. Innovation in marketing concerns on overcoming the customer needs, open new markets or product re-position, aiming to increase sales.
Organizational	Organizational innovation is the implementation of a new organisational method in the business of the company, work organisation or external relationships. These innovations aim to improve the company performance, decreasing administrative and transaction costs, stimulating the satisfaction of workplace (and so the work productivity).

The definition of the types of innovation is crucial since most of the times people think that the innovation is related to a new product or service. Furthermore, the business model innovation and marketing innovation are very important since these types of innovation can change the business and

how to do business currently, providing new ways to overcome some issues in the market, especially for a costumer.

Another critical issue in innovation is the research and development (R&D) activities. According to the Frascati Manual (OECD, 2002), the R&D activities are divided into three categories, as defined in Table 3.

The innovation is the result of translating science into innovation. During this process, all types of R&D activities are fundamental; however, during the innovation process, the most critical R&D activities are Applied and Experimental because, in these types of R&D, the prototype presents a level of maturity that allows starting market research and testing it in the market. Furthermore, it is also imperative to note that R&D activities are applied not only to a product but also to the other types of innovation. R&D activity allows to research for new benefits for the market and to improve the market in several branches.

During the innovation process, the identification and registration of the intellectual property are essential. According to the World Intellectual Property Organization (WIPO) (WIPO, 2003) definition, IP refers to the creation of inventions, literacy and artistic works, designs, symbols, names and images. The IP is divided into three categories: patents, copyright and trademarks.

The registration of IP must be taken into account in innovation since it is a way to protect good ideas and it is also a way to gain notoriety and a possibility of making money from licensing.

Recently, the concept of Open Innovation has been increased in the innovation community.

Open Innovation does present as an accelerator of the innovation using the knowledge and so a faster path to put innovative solutions in the market. In fact, from Open Innovation novel applications, namely related to technology,

Table 3. The definition of the types of R&D activities, according to the Frascati Manual (OECD, 2002)

Type of R&D	Definition
Basic	Basic Research consists of theoretical work to firstly get knowledge about specific phenomena or observable fact and then generate theory about that, without any particular application.
Applied	Applied research is the original investigation aiming to acquire new knowledge. This type of research is directly related to a specific practical objective.
Experimental	Experimental research is a systematic work based on existing knowledge gained from research or practical experience. This type of research is related to producing new material, products or devices, to installing new processes, systems and services, or to improving substantially those already produced or installed.

are appearing. For example, most of the applications we use (YouTube, Facebook, Google, Python, among others) provide Application Programming Interface (API) for program free or open source tools. These APIs and tools allow developers to implement other applications and sometimes innovative applications based on the provider's technology.

Based on the definitions and information provided before, it seems that the tools to make innovation are met. However, this is not true. Even having that information, people, in most of the cases, do not make innovation; they make inventions. This occurred because there is a lack of guidelines concerning the innovation process. In innovation, people are focusing on developing new prototypes, and they think that at the end the success is guaranteed. But no. Why? They forgot the market. They forgot to make market research; they forgot to evaluate the level of innovation when comparing with the existing solutions; they forgot to listen the market during the R&D activities; they forgot to design a good business plan, and so? They go to market without any market strategy and, worse, and they do not know the needs of the market.

In fact, in literature, guidelines (CPI, 2014) about the whole process of innovation are not available; and this could be a problem to decrease the success of the innovation.

Innovation Is Not…

Stopping the Use of a Process, a Marketing or Organisational Method, or the Marketing of a Product

The interruption of an activity is not an innovation, even if it results in a better performance for the company. For example, there is no innovation when a television producer stops producing and selling a device that combines television and DVD player, or when a real estate developer or a construction company stops building certain types of condominiums. Similarly, disrupting the use of a particular marketing or organisational method is not an innovation.

Simple Replacement or Extension of Capital

The purchase of equipment identical to those already installed or small extensions and upgrades in existing equipment or software are not process innovation. New equipment or extensions should be new to the company and significant improvement in its specifications.

Changes Resulting Purely From Price Changes

The change in the price of a product or the productivity of a process resulting exclusively from changes in the price of the factors of production is not an innovation. For example, innovation does not occur when the same computer model is produced and sold for a lower price only because it has reduced the price of computer chips.

Personalization

Companies that produce to make unique and often complex items, according to consumer requests. Unless this unique item presents significantly different attributes concerning the products the company previously produced, it is not product innovation.

It is worth noting that this relates to changes in the products resulting from the customisation and not to the implementation of the custom production itself. For example, the integration of production, sales and distribution operations is an organisational innovation.

Regular Seasonal Changes and Other Cyclical Changes

In some industries such as apparel and footwear, there are seasonal changes in the types of goods or services offered, which may be accompanied by changes in the appearance of the products under consideration. These kinds of routine design changes are usually not product or marketing innovations. For example, the introduction of a new jacket by a clothing company is not a product innovation unless the jacket has, for example, a coating with substantially improved characteristics. However, if the occasion of the seasonal changes is harnessed for a fundamental change in the conception of a product that constitutes a new concept of marketing used for the first time by the company, this change must be considered a marketing innovation.

Marketing of New or Substantially Improved Products

The situation for new products is complicated in goods handling and marketing and distribution services (wholesale and retail sales, transportation and warehousing). The marketing of new or improved products is not generally a product innovation for the wholesaler, the retailer, or the transportation

and storage company. However, if this company starts to deal with a new line of goods (i.e., types of goods that the company did not previously sell), then this activity is considered a product innovation as the company starts to offer a new service.

Innovative Company

There are several ways to define the innovative condition of a company. The basic definition of an innovative company is the company that has implemented at least one innovation. An innovative product or process company is defined as a company that has implemented a product or process innovation.

Other ways to rank an innovative company are possible, depending on policy or research needs. They can be used to specify the percentage of companies (by size, sector, country, or other factors) that introduce each of the four types of innovation, or the share of companies that have implemented combinations of innovations, such as product innovations and marketing or process and organisational innovations. The innovative status classification may also include other information, such as the entity that develops the innovation, which can be used to identify companies that only adopt product and process innovations developed by other companies.

Companies can carry out innovation activities in the period of analysis without having implemented an innovation with efficiency. All activities involved in the development or implementation of innovations are innovation activities, including those planned for future implementation.

During a given period, innovation activities can be of three types:

- Successful implementation of innovation (although innovation has not necessarily been Commercially successful);
- In the process, for ongoing activities that have not yet resulted in the implementation of an innovation;
- Abandoned before being implemented.

An actively innovative company is one that has carried out innovation activities during the period of analysis, including in-process and abandoned activities. In other words, companies that have had innovation activities in the analysed period, regardless of whether their activity has resulted in the implementation of an innovation, are actively innovative companies.

Companies may arise during the review period. These include new companies and those resulting from mergers, divisions or other types of

reorganisation. The condition of these companies, for example, if they are innovative or actively innovative, is defined in the same way that other companies are defined.

THE GOALS AND IMPACT OF INNOVATION

Companies can engage in innovation activities for many reasons. Its objectives may relate to products, markets, efficiency, quality, or the ability to learn and implement changes. Identifying the motivations of companies to innovate and their importance helps to examine the forces driving the innovation activity, such as competition and opportunities to enter new markets. Objective data can also provide additional information on the characteristics of types of innovation.

Companies may or may not be successful in achieving their goals with the implementation of innovations, or innovations may have additional effects beyond those that initially motivated their implementation. Although the objectives relate to the reasons for the companies for innovation, the effects relate to the results of the innovations observed. The same factors can act on the goals and effects of innovations, although they are interpreted in different ways. The table lists the factors relevant to the objectives and effects concerning the four/five types of innovation. Several effects may be relevant to more than one type of innovation. In particular, product and marketing innovations or process and organisational innovations may have several factors in common.

The factors listed aim to clarify several forces that guide the activities of innovation in the companies. Competition, demand and markets refer to critical incentives for product innovations and in some cases to marketing innovations. The purpose of the questions about these factors is to determine the importance of the motives for product innovations, such as the short product life cycle that requires the development of new products; the need to diversify product portfolios; or efforts to increase or prevent a decline in the market share held by the company.

Also, several factors aim to identify the main reasons for changes in production and distribution, that is, whether their primary intent is to improve quality, flexibility or efficiency/cost reduction. In particular, factors related to cost reduction are specified to enable a better interpretation of the results. Factors related to workplace organisation identify the fundamental forces behind organisational changes: whether they are geared toward consumer relations, operational efficiency, or improved capture and sharing of knowledge.

The success of innovation can depend on several factors. It will undoubtedly depend on the quality of innovation. The impact of innovations can also vary from sector to sector or from region to region. Besides, such impact may depend on other changes in the company that favour innovations. For example, the success of product innovations may depend in no small extent on marketing initiatives to launch the product. Likewise, the impact of process innovations may depend on organisational changes to take advantage of these new processes. A well-documented example is the importance of organisational changes on the impact of information and communication technology (ICT) investments in productivity (Brynjolfsson & Jitt, 2000; OECD, 2004).

THE BARRIERS TO THE INNOVATION

Several factors can obstruct the innovation activity. There may be reasons not to initiate innovation activities or factors that restrain innovation activity or hurt expected results.

These include economic factors such as high costs or lack of demand, business factors such as the shortage of qualified personnel or knowledge, and legal factors such as regulations and tax rules.

Issues about barriers to innovation can provide information on many issues relevant to innovation policy. Small and medium-sized enterprises (SMEs) can identify the lack of available funding as a significant barrier to investment in innovation. Companies may be concerned about the absence of demand for new products at the prices deemed necessary to make their innovations worthwhile. Firms may not have the sufficiently skilled staff to undertake innovation activities, or their innovation activities may be constrained by their inability to find the necessary personnel in the job market. Lack of infrastructure can be a significant barrier to innovation, particularly outside large cities. Other reasons may include a lack of knowledge about the technologies or markets that would be required to develop innovation, or the company's inability to find the appropriate partners for joint innovation projects.

These barriers may relate to a specific type of innovation or all types. For example, cost factors may be relevant to all types of innovation, and market factors can affect both the development of product innovations and product design work (i.e. marketing innovations).

It is recommended to collect data on the barriers to innovation activity and their relative importance for the period of analysis. Issues about barriers to innovation activity should be addressed to both innovative and non-innovative

enterprises. Barrier issues can address all types of innovation or subsets of types, such as product and process innovations.

FROM THE IDEA TO THE MARKET

Churchill (2000) argues that "new products are one of the keys to the growth and success of a business."

However, there is no way to ensure that any new product launched by a company will be successful, but there is a well-structured and well-tested process that increases the chances of success.

Figure 1 represents our design for the innovation process.

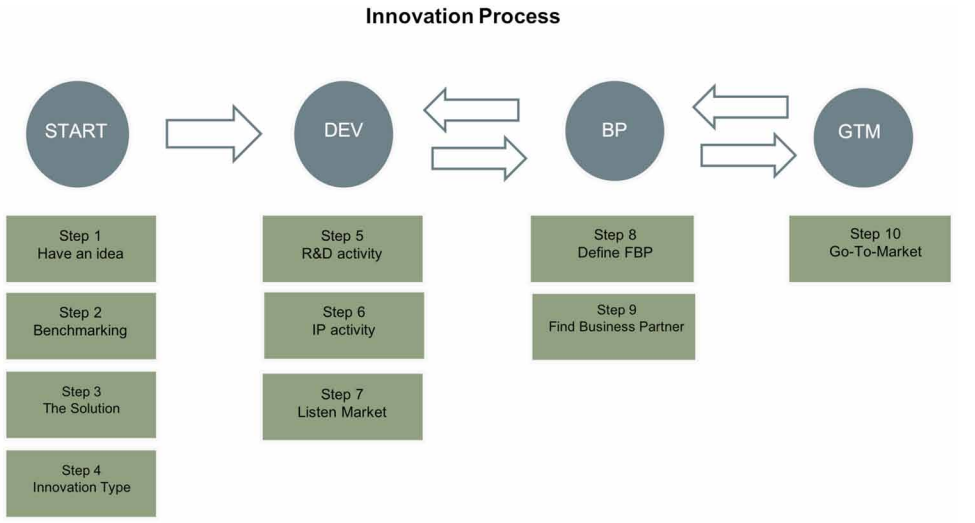
Generating Ideas

The process of creating new products always starts with a new idea. Churchill (2000) cites that according to estimates, a company needs about 60 or 70 ideas to find a new product that is workable.

By accepting this data as a premise, companies must continually seek new ideas.

Ideas can range from employees, sales staff, R&D and even customer input.

Figure 1. Innovation process



The primary technique currently used for brainstorming is a method called brainstorming.

Brainstorming is a foreign term meaning "brainstorming," and is holding a meeting with people interested in product development, where each can talk freely about a product, its features, its customers, the process of distribution, its physical composition, that is, everything that revolves around the product itself.

The most important thing in a brainstorming meeting is that any idea, even if it seems out of context, must be heard (without a reproving attitude), and then be categorised. From the initial ideas annotated, the moderator can categorise them and then create a more focused discussion, trying to evaluate each of the ideas in question.

Screening of Ideas

After the initial generation of ideas, the organisation then evaluates the ideas themselves, selecting which of the ideas deserve more attention.

This stage is known as screening ideas and aims to determine if that idea or product will help, in some way, the company to achieve its goals.

One of the most commonly used techniques for screening is the checklist, a listing of a few fundamental questions that allow identifying if a particular idea meets the needs of customers.

The items in this checklist will vary from organisation to organisation but should contain the main essential items, which, if the product does not meet, effectively does not fit the company.

Business Analysis

Only the ideas that have feasibility will be those that can become products and/or services offered by the company.

From the ideas provided during the generation, and going through the initial screening, few will reach the market.

Thus, the third step is known as economic analysis and consists of rigorously (and coldly) analysing ideas that may have passed the screening phase.

To analyse the idea regarding its commercial viability, the company will need to identify two equally important aspects:

1. **Sales Estimation:** Sales estimation is an incredibly complicated process in itself, but it is essential in the process of identifying opportunity in the market. The projection of future sales should also be made with great care, as small differences in forecasts can produce entirely different results.
2. **Cost Projection:** The cost estimate must be made according to the need for initial investment, and then with the unit costs of producing the product or service.

The honest cost estimate account subtracted from the sales estimate should generate a profit that is attractive to the company, and if the estimates are made with quality (which is a process often more laborious than it seems), the business decision it is quite simple.

Product Development

If the economic analysis results in profit, then the product can be developed. The first step is to develop specifications for the product detailing the materials and components of the final product.

Product specifications should be described based on identified customer needs.

Hence the importance of the "R" of the acronym R & D, because without conducting the marketing research, there is no way to have concrete data on the customer's needs.

This step is called product development, and also includes, where possible, the construction and testing of a prototype. The prototype is a previous version of the product, made in small quantities, to carry out the first tests.

Marketing Test

This phase is essential for the company to identify, even without making substantial investments, if the customer will buy their product.

The company can raise a sample of potential customers to test the prototype developed in situations that would typically use it. This scenario is known as market testing (which differs from the marketing test).

In marketing testing, Churchill (2000) states that new products are offered for sale in a limited geographic area for a specific time, and then sales and costs are measured. Based on the data collected in this test, the company

may have a stronger foundation for deciding whether the product should be launched on a large scale, and what investments are required to do so, and whether they are justified.

Commercialization

The last stage of the research and development process is then the marketing of the product. If the idea goes through all the steps so far, the company will structure the manufacturing, shipping and promotion of the product.

This will typically incur investments that the company has already planned in the economic analysis stage, but there may still be problems in large-scale production that did not arise during the testing phase.

Churchill (2000) states that "how the organisation handles marketing can influence responses from the target market and competitors." Thus, the company should seek to promote its products to customers in the appropriate way, using the most commonly used media of the target audience in question.

CONCLUSION

One innovation is the implementation of a new or significantly improved product (or service), or a process, or a new marketing method, or a new organisational method in business practices, workplace organisation, or relationships outside.

During the last years, many definitions of innovation were presented.

Oslo Manual presents innovation as an implementation of the new or significantly improved product (service), or process, or marketing method or organisational method for company, market or world.

Following this, innovation is a new idea that is implemented, and it will have an impact, i.e., we make innovation when we try to put a new idea in the real-environment; otherwise, it is an invention.

After defining innovation, Oslo Manual (OECD, 2005) divides innovation into four types: product (service), process, marketing and organisation. The definition of the types of innovation is crucial since most of the times people think that the innovation is related to a new product or service. Furthermore, the business model innovation and marketing innovation is essential since these types of innovation can change the business and how to do business currently, providing new ways to overcome some issues in the market, especially for the customer.

Another critical issue in innovation is the research and development (R&D) activities. According to the Frascati Manual (OECD, 2002), the R&D activities are divided into three categories.

The innovation is the result of translating science into innovation. During this process, all types of R&D activities are fundamental; however, during the innovation process, the most critical R&D activities are Applied and Experimental because, in these types of R&D, the prototype presents a level of maturity that allows starting market research and testing it in the market.

During the innovation process, the identification and registration of the intellectual property are very important.

The registration of IP must be taken into account in innovation since it is a way to protect good ideas and it is also a way to gain notoriety and a possibility of making money from licensing.

Companies can engage in innovation activities for many reasons. Its objectives may relate to products, markets, efficiency, quality, or the ability to learn and implement changes. Identifying the motivations of companies to innovate and their importance helps to examine the forces driving the innovation activity, such as competition and opportunities to enter new markets. Objective data can also provide additional information on the characteristics of types of innovation.

The success of innovation can depend on several factors. It will undoubtedly depend on the quality of innovation. The impact of innovations can also vary from sector to sector or from region to region.

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Chapter 2
Start

ABSTRACT

This chapter aims at explaining the start phase of the innovation process. Several steps are explained in detail and some examples are given. During the explanation, the importance of innovation in companies is also highlighted. Step 1 of the innovation process starts in two ways: 1) an idea that is then identified as overcoming some market needs or disruptive; 2) a market problem is identified and then an idea is designed. The next sub-steps are common (i.e., from the dream [the idea] the design of it must be done). This will involve structuring the idea by identifying the main features, the benefits, and how to make money from it. After that, the clarification about the type of innovation it is also very important.

INTRODUCTION

The generation, exploitation and diffusion of knowledge are fundamental to the economic growth, development and well-being of nations. New innovation measures are therefore essential. To the time and a panorama of the innovation have changed, such as the risk to changes and changes to the formatters of analytic instruments of analysis. A work was built during the 1980s and 1990s for the development of models and analysis structures for innovation studies. Experiments with pioneering and component research, coupled with the need for a coherent set of concepts and instruments, led to the first edition of the Oslo Handbook in 1992 in the process and process manufacturing industry (TPP) in the manufacturing industry.

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It is widely accepted that innovation is central to product growth and productivity. However, while the innovation activities and their economic impact has increased greatly, it is still deficient. For example, just as the world economy evolves, so does the innovation process. Globalization has led to dramatic crises in access to information and new markets. It has also resulted in increased international competition and new forms of organization to deal with global supply chains. Due to advantages in technologies and greater flows of information, knowledge is increasingly perceived as a central driver of economic growth and innovation. However, it is not yet known how such factors affect innovation.

In order to identify the wide variety of changes that companies implement in search of better performance and their success in improving economic performance, a more comprehensive structure is needed than product and process technological innovations. The inclusion of organizational and marketing innovations gives rise to a more complete structure, which is more apt to apprehend the changes that affect company performance and contribute to the accumulation of knowledge.

The role of organizational innovation is highlighted by Lam (2005): "Economists assume that organizational change is a response to technical change, when in fact organizational innovation could be a necessary condition for technical innovation." Organizational innovations are not only a support factor for product and process innovations; they can have a significant impact on the companies' performance. Organizational innovations can also improve the quality and efficiency of work, enhance the exchange of information, and refine the entrepreneurial capacity to learn and utilize knowledge and technology.

Companies can also allocate large amounts of resources to market research and the development of new marketing practices, such as targeting new markets or market segments and developing new ways of promoting their products. New marketing practices can play a central role in business performance. Marketing practices are also important for the success of new products. Market research and consumer contact can play a key role in product and process development through demand driven innovation. The inclusion of organizational and marketing innovation also allows for extensive analyses of interactions between different types of innovation, in particular the importance of implementation of organizational changes to take advantage of other types of innovations.

"Knowledge-based economy" is an expression to describe trends in advanced economies towards greater reliance on knowledge, information and high levels of expertise, and the increasing need for ready access to these factors by the private and public sectors. Knowledge and technology have become increasingly complex, increasing the importance of interactions between companies and other organizations as a way of acquiring specialized knowledge. A parallel economic development is the growth of service innovation in the advanced economies.

Research on innovation and policy discussions emphasize the importance of considering innovation from a broad perspective. A "knowledge-based" view focuses on the interactive processes through which knowledge is created and exchanged within and between companies and other organizations. Many knowledge-intensive industries, such as the high-tech transformation industry and commercial services, have grown strongly in a number of developed economies. In addition, a wide range of transformation and service industries have expanded the use of knowledge-intensive technologies to production processes and service provision. Although R&D plays a vital role in the innovation process, many innovative activities are not based on R&D, although they depend on highly skilled workers, interactions with other companies and public research institutions, and an organizational structure conducive to learning and exploitation of knowledge.

STEP 1: TO HAVE AN IDEA

The innovation process starts with "To have an idea" (Step 1).

To generate an idea, you need to identify a problem in order to understand what the business opportunity you are seeking or overcome.

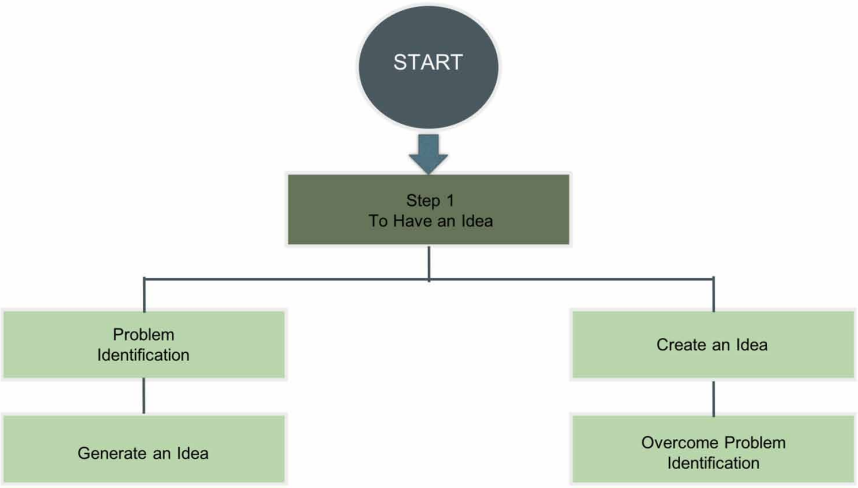
The idea can be generated from two ways:

1. A problem was identified and so it is needed to overcome it or
2. Simply an idea was created and then a problem will be identified and overcome.

Figure 1 illustrates these two ways.

As it can be seen by Figure 1, Create an Idea raises from two different perspectives: by identifying a problem or having simply an idea and then to study what is the problem to overcome.

Figure 1. Flow for step 1 – To Have an idea



Problem Identification

The ideas generation shall reply to a market problem. There are several ways for identifying a market problem; however, since you are starting, we recommend a simple approach: to understand the problem from an internal and external environment.

For example, imagine you are working in a company, where the sector is extremely aggressive. Your company should constantly search for new opportunities in order to go beyond the competitors. This can be done from two ways: 1) External environment and 2) Internal environment.

External Environment

Market research should never be underestimated. Many successful new businesses enjoy longevity because their owners conduct regular market research to understand their target market, identify consumer problems and pinpoint realistic competitors. It's the simplest way for entrepreneurs to keep up with market trends and maintain a competitive edge by sizing up your business opportunity. Market research can be carried out at various stages of a business life cycle, from pre-launch and beyond. Having a greater understanding of your marketplace from the very start will enable you to create a sound business strategy to establish and grow your brand into one that's better than the competition.

Thus, from the market research companies should take conclusions on the following topics.

Searching for New Market Needs

Laura Lake has been very assertive in what consists this topic. She defines the potential market as part of the market companies can capture in the future. This will help companies to capture costumers that are not buying you today but could be potential customers.

So, how you can do that? Studying the market needs: should you need develop new products, should you improve your products, should you work better in your brand?

But the second question raise: how do you identify a potential market?

First, from your market research you should be able identify some needs. Then, before designing the idea, you need to know if these needs have potential to be a potential market. But how you can identify it?

Again, Laura Lake clearly replies to this question:

You have to identify the potential market with your current audience. To do this, you must go outside the current audience and look for people who are a certain age, certain sex, and certain socioeconomic status and examine their certain needs. You might look at expanding the groups of people you already sell to, or you might find a new customer group that you never considered before.

For example, a company that only sells to the 35-55 age group might start selling to the 18-34 group with a new or upgraded product.

The results of this research will tell you if you have a potential market or not. For sure, this work is applied not only for bug companies but also for startups or potential entrepreneurs.

If you dream to have your own company, you need to know the needs of the market, you need to know its potential, you need to know the outputs to start designing an idea. Start your mind always with "Why?": Why they need this? What's the problem? What are the pains?

Searching for New Customers Pains

A pain point is a specific problem that customers are experiencing. In other words, you can think of pain points as problems, plain and simple. This will be identified through your research on market needs.

Viewing customer pain points allows you to start thinking about how to overcome their needs or at least how to position your company or product as a solution to your prospects' problems.

Many prospective customers' problems are layered and complex, and may combine issues from several of categories. That's why you need to view your customers' pain points holistically, and present your company as a solution to not just one particularly problematic pain point, but as a trusted partner that can help solve a variety of problems.

To identify the customer pain points, Dan Shewan (https://www.wordstream.com/blog/ws/2018/02/28/pain-points), proposed in my opinion a very good approach of how you can do that. According to Dan, the start-point or studying the customers pain points is using a qualitative research due to the fact that pain points ca be diverse.

The qualitative research is focused on detailed, individualized response to open-ended questions. The quantitative research is designed with standardized questions and representative, statistically significant samples sizes. Thus, the pain points should be studied by qualitative research rather quantitative research because customers' pain points are subjective. Even if two customers have exactly the same need, problem, the underlying cause could differ greatly from one customer to another. There are two primary sources of the information you need to identify your customers' pain points – your customers themselves, and your sales and support teams.

Thus, after you know the customer pain' points you should start thinking in "How?" to overcome it.

Searching for New Market Segments

Customers have different needs and wants, likes and dislikes. For example, not every person likes the same motor car or has the same taste in clothes. There are many different types of consumers with different types of needs, pains. Market segmentation helps to turn marketing into a science. It does this by separating a market into parts called segments. Each segment contains groups of customers who are likely to respond in a particular way to marketing activities. The market segmentation will help you in to answer to "How" you can overcome the customers' needs and pains.

Market segmentation involves several elements. These are:

1. **Segmentation:** Each of the parts into which market is or may be divided.

2. **Targeting:** The selection of the market parts you want to catch their attention
3. **Benefits:** The identification of benefits that your targets will get with your product, service or business
4. **Positioning:** What is your place in the market in the value-chain.

When you have the answers to those questions, you will have a clear vision of "how" you can overcome customers' needs and pains, starting think in "What?"

Searching for New Business Opportunities

What is a new business opportunity?

An article from the entrepreneur magazine writes the following:

Think back to elementary school when your teacher was explaining the difference between a rectangle and a square. A square is also a rectangle, but a rectangle isn't necessarily a square. The same relationship exists between business opportunities, independent businesses for sale and franchises. All franchises and independent businesses for sale are business opportunities, but not all business opportunities meet the requirement of being a franchise nor are they in the strictest sense of the word independent businesses for sale.

It's quite difficult to have a clear definition of what a business opportunity is, because it will depend on what your answer is to questions "How?" and "What?" when you are searching new market opportunities. Thus, we can say that a business opportunity is something that will involve a sale or lease of any product, service, equipment, patent, that will enable the purchaser-licensee to begin a business.

You only will achieve a business opportunity if you really know what are the market needs, how you can overcome those needs and with what?

Searching for New Business Models

The study of Innovation in Business Models began to gain prominence in the 2000s, from the expressive growth of the literature on Business Models in the 1990s. The process of conceptual integration between Innovation and Business Models, however, lacked uniqueness and was characterized more by alignment with the interest of researchers than by the development of a conceptual basis (Zott and Amit, 2011).

Innovation in Business Models refers to the creation and capture of value by companies from the organization of their internal processes and external relations with customers and suppliers. Internal processes and external relations are organized in a different and more appropriate way to the market in which the company is inserted than those adopted by competitors. They thus constitute potential sources of competitive advantage.

The need to adapt companies to a dynamic and ever-changing business environment is the mainspring of Innovation in Business Models (Chesbrough, 2010; Gambardella & McGahan, 2010). However, given the virtually inseparable relationship between strategy and business models, it is relatively common to take one concept for another. It is then necessary to differentiate the punctual and immediate character of adaptation to the circumstances of the strategy of the more perennial character of a business model. In this sense it is possible to understand strategy as the way in which a business model is exploited in order to obtain competitive advantages Nielsen & Bukh, 2011; Sosna, Trevinyo-Rodríguez, & Velamuri, 2010; Teece, 2010).

A business model involves the understanding of a target audience, customers, their needs and the processes and resources needed to build a value proposition that differentiate one firm from the other (Bengtsson & Kock, 2000; Casadesus-Masanell & Ricart, 2009; Chesbrough, 2007; Chesbrough, 2010; Ostenwalder & Pigneur, 2009). It is with regard to the differentiation towards competitors that Innovation in Business Models is observed.

The "What" question is very important because you will need to start thinking in how to sale it. And this will be an iterative process, because you will think once and then you will do financial forecast in order to understand the economic 'viability of your business and at the end its sustainability. For sure, the business model you will design will not fit your expectations, and then you will re-start to thinking. Probably, during this process you will need to change your answers to "How?" or/and "What?" until achieve your goal.

Hoping you will find a way but be careful: sometimes we are trying to push something is not a business, it is only our creation without any value.

Internal Environment

Searching for New Processes

Processes define the activity flow and the map of how the operational activities together contribute to produce a product or service. Thus, the processes define what will be done and how it will be done. However, few processes have been

formally designed in most organizations. Most simply evolved over time to deliver specific products or services. This evolution has usually been based on the need to "finish the job". And because every business is dynamic, the need to "finish the job" has required constant changes in the work and the way it is performed. Thus, despite being operationally successful, most processes are deployed less efficiently than they could be. (BPM CBOK 3.0)

The most efficient organizations understand that they deliver value to the customer through the execution of their business processes, and that their results are closely linked to their performance. Process performance can be optimized through analytical and redesign work, which analyses the current situation (ASIS), investigates focal points related to desired performance goals, and proposes adjustments to the process for improvement, resulting in a vision for the future (TO BE) which, when implemented, should provide the process with significant gains in its execution.

When we start the process mapping of a company or the production of a given product, the first result we find is what we call process mapping AS IS, which is an X-ray of the current situation of each process: are responsible, what are the greatest difficulties, fragilities and their opportunities for improvement.

After this survey, documentation, projection and definition of the desired future process situation, commonly called TO BE, - which is represented in flow or diagram - is also started, also known as redesign or modelling.

So, what we know by redesigning TO BE processes is how processes should work in the future, incorporating improvements identified throughout the mapping of AS IS processes, coupled with best practices on the market.

Therefore, process redesign is an important change initiative that seeks major improvements in productivity, cycle time and quality.

Process redesign aims to improve end-to-end business processes, bringing the benefits of reducing cycle costs and time (eliminating unproductive activities), and improving quality (by reducing fragmentation of work) establishing clear responsibility for the processes.

Redesign of Processes: Designing the New Process

This step consists in redesigning the existing flawed process. It starts as soon as the current process review step is completed. The design of a new process is developed to meet new organizational goals and strategies, changes in the technology base, changes in customer expectations, legal changes, obsolescence of systems and equipment, correcting the dysfunctions found and incorporating the necessary improvements.

The design of the new process begins with the redesign team reviewing all the work done in the previous steps, the problems to be solved, the innovation to be performed and the established criteria and goals for the redesign.

Based on this information and after seeking to know other practices through benchmarking in similar organizations, which can serve as a subsidy to the project to be developed, the redesign team draws up the map of the new process, more optimized than the current one, incorporating the maximum of improvements.

Examples of redesigning guidelines that can be adopted include:

- Change focus from internal procedures to service by demands.
- Eliminate all losses with slowness, bottlenecks, rework, duplicity of activities, activities that do not add value to the client, etc.
- Reduce variance in process performance.
- Improve communication between areas.
- Automate what is possible, making the most of IT.
- Standardize the service.

Searching for New Organizational Models

Organizational structure refers to how individual and team work within an organization are coordinated. To achieve organizational goals and objectives, individual work needs to be coordinated and managed. Structure is a valuable tool in achieving coordination, as it specifies reporting relationships (who reports to whom), delineates formal communication channels, and describes how separate actions of individuals are linked together. Organizations can function within a number of different structures, each possessing distinct advantages and disadvantages. Although any structure that is not properly managed will be plagued with issues, some organizational models are better equipped for particular environments and tasks.

What exactly do we mean by organizational structure? Which elements of a company's structure make a difference in how we behave and how work is coordinated?

Centralization vs. Decentralization

Centralization is the degree to which decision-making authority is concentrated at higher levels in an organization. In centralized companies, many important decisions are made at higher levels of the hierarchy.

Decentralized companies, decisions are made and problems are solved at lower levels by employees who are closer to the problem in question.

Decentralized companies give more authority to lower-level employees, resulting in a sense of empowerment. Decisions can be made more quickly, and employees often believe that decentralized companies provide greater levels of procedural fairness to employees. Job candidates are more likely to be attracted to decentralized organizations. Because centralized organizations assign decision-making responsibility to higher-level managers, they place greater demands on the judgment capabilities of CEOs and other high-level managers.

Many companies find that the centralization of operations leads to inefficiencies in decision making. For example, in the 1980s, the industrial equipment manufacturer Caterpillar suffered the consequences of centralized decision making. At the time, all pricing decisions were made in the corporate headquarters in Peoria, Illinois. This meant that when a sales representative working in Africa wanted to give a discount on a product, they needed to check with headquarters. Headquarters did not always have accurate or timely information about the subsidiary markets to make an effective decision. As a result, Caterpillar was at a disadvantage against competitors such as the Japanese firm Komatsu. Seeking to overcome this centralization paralysis, Caterpillar underwent several dramatic rounds of reorganization in the 1990s and 2000s.

However, organizations can suffer from extreme decentralization. For example, some analysts believe that the Federal Bureau of Investigation (FBI) experiences some problems because all its structure and systems are based on the assumption that crime needs to be investigated after it happens. Over time, this assumption led to a situation where, instead of following an overarching strategy, each FBI unit is completely decentralized and field agents determine how investigations should be pursued. It has been argued that due to the change in the nature of crimes, the FBI needs to gather accurate intelligence before a crime is committed; this requires more centralized decision making and strategy development.

Formalization

Formalization is the extent to which an organization's policies, procedures, job descriptions, and rules are written and explicitly articulated. Formalized structures are those in which there are many written rules and regulations. These structures control employee behavior using written rules, so that employees

have little autonomy to decide on a case-by-case basis. An advantage of formalization is that it makes employee behavior more predictable. Whenever a problem at work arises, employees know to turn to a handbook or a procedure guideline. Therefore, employees respond to problems in a similar way across the organization; this leads to consistency of behavior.

While formalization reduces ambiguity and provides direction to employees, it is not without disadvantages. A high degree of formalization may actually lead to reduced innovativeness because employees are used to behaving in a certain manner. A formalized structure is associated with reduced motivation and job satisfaction as well as a slower pace of decision making.

Hierarchical Levels

Another important element of a company's structure is the number of levels it has in its hierarchy. Keeping the size of the organization constant, tall structures have several layers of management between frontline employees and the top level, while flat structures consist of only a few layers.

In tall structures, the number of employees reporting to each manager tends to be smaller, resulting in greater opportunities for managers to supervise and monitor employee activities. In contrast, flat structures involve a larger number of employees reporting to each manager. In such a structure, managers will be relatively unable to provide close supervision, leading to greater levels of freedom of action for each employee.

Departmentalization

Organizational structures differ in terms of departmentalization, which is broadly categorized as either functional or divisional.

Organizations using functional structures group jobs based on similarity in functions. Such structures may have departments such as marketing, manufacturing, finance, accounting, human resources, and information technology. In these structures, each person serves a specialized role and handles large volumes of transactions. For example, in a functional structure, an employee in the marketing department may serve as an event planner, planning promotional events for all the products of the company.

In organizations using divisional structures, departments represent the unique products, services, customers, or geographic locations the company is serving. Thus, each unique product or service the company is producing will have its own department. Within each department, functions such as marketing, manufacturing, and other roles are replicated. In these structures, employees

act like generalists as opposed to specialists. Instead of performing specialized tasks, employees will be in charge of performing many different tasks in the service of the product. For example, a marketing employee in a company with a divisional structure may be in charge of planning promotions, coordinating relations with advertising agencies, and planning and conducting marketing research, all for the particular product line handled by his or her division.

Mixed Organizational Structures

The different elements making up organizational structures in the form of formalization, centralization, number of levels in the hierarchy, and departmentalization often coexist. This way, two configurations of organizational structures, depending on how these elements are arranged can be defined.

Mechanistic structures are those that resemble a bureaucracy. These structures are highly formalized and centralized. Communication tends to follow formal channels and employees are given specific job descriptions delineating their roles and responsibilities. Mechanistic organizations are often rigid and resist change, making them unsuitable for innovativeness and taking quick action. These forms have the downside of inhibiting entrepreneurial action and discouraging the use of individual initiative on the part of employees. Not only do mechanistic structures have disadvantages for innovativeness, but they also limit individual autonomy and self-determination, which will likely lead to lower levels of intrinsic motivation on the job.

Despite these downsides, however, mechanistic structures have advantages when the environment is more stable. The main advantage of a mechanistic structure is its efficiency. Therefore, in organizations that are trying to maximize efficiency and minimize costs, mechanistic structures provide advantages. Mechanistic structures can also be advantageous when a company is new. New businesses often suffer from a lack of structure, role ambiguity, and uncertainty. The presence of a mechanistic structure has been shown to be related to firm performance in new ventures.

Organic structures are flexible and decentralized, with low levels of formalization. In organizations with an organic structure, communication lines are more fluid and flexible. Employee job descriptions are broader and employees are asked to perform duties based on the specific needs of the organization at the time as well as their own expertise levels. Organic structures tend to be related to higher levels of job satisfaction on the part of employees. These structures are conducive to entrepreneurial behavior and innovativeness.

Business has become global, moving into new economies and cultures. Previously non-existent industries, such as those related to high technology, have demanded flexibility by organizations in ways never before seen. The diverse and complex nature of the current business environment has led to the emergence of several types of organizational structures. Beginning in the 1970s, management experts began to propose organizational designs that they believed were better adapted to the needs of the emerging business environment. Each structure has unique qualities to help businesses handle their particular environment.

Matrix Organizations

Matrix organizations have a design that combines a traditional functional structure with a product structure. Instead of completely switching from a product-based structure, a company may use a matrix structure to balance the benefits of product-based and traditional functional structures. Specifically, employees reporting to department managers are also pooled together to form project or product teams. As a result, each person reports to a department manager as well as a project or product manager. In a matrix structure, product managers have control and say over product-related matters, while department managers have authority over matters related to company policy. Matrix structures are created in response to uncertainty and dynamism of the environment and the need to give particular attention to specific products or projects. Using the matrix structure as opposed to product departments may increase communication and cooperation among departments because project managers will need to coordinate their actions with those of department managers. In fact, research shows that matrix structure increases the frequency of informal and formal communication within the organization. Matrix structures also have the benefit of providing quick responses to technical problems and customer demands. The existence of a project manager keeps the focus on the product or service provided.

Boundaryless Organizations

Boundaryless organization refers to an organization that eliminates traditional barriers between departments as well as barriers between the organization and the external environment. Many different types of boundaryless organizations exist.

One form is the modular organization, in which all nonessential functions are outsourced. The idea behind this format is to retain only the value-

generating and strategic functions in-house, while the rest of the operations are outsourced to many suppliers.

Strategic alliances constitute another form of boundaryless design. In this form, similar to a joint venture, two or more companies find an area of collaboration and combine their efforts to create a partnership that is beneficial for both parties. In the process, the traditional boundaries between two competitors may be broken.

Finally, boundaryless organizations may involve eliminating the barriers separating employees; these may be intangible barriers, such as traditional management layers, or actual physical barriers, such as walls between different departments. Structures such as self-managing teams create an environment where employees coordinate their efforts and change their own roles to suit the demands of the situation, as opposed to insisting that something is "not my job."

Learning Organizations

A learning organization is one whose design actively seeks to acquire knowledge and change behavior as a result of the newly acquired knowledge. In learning organizations, experimenting, learning new things, and reflecting on new knowledge are the norms. At the same time, there are many procedures and systems in place that facilitate learning at all organization levels. In learning organizations, experimentation and testing potentially better operational methods are encouraged. This is true not only in response to environmental threats but also as a way of identifying future opportunities.

Learning organizations are also good at learning from experience their own or a competitor's. To learn from past mistakes, companies conduct a thorough analysis of them. Some companies choose to conduct formal retrospective meetings to analyse the challenges encountered and areas for improvement. To learn from others, these companies vigorously study competitors, market leaders in different industries, clients, and customers. By benchmarking against industry best practices, they constantly look for ways of improving their own operations. Learning organizations are also good at studying customer habits to generate ideas.

Based on this state-of-the-are about organizational models, companies sometimes are changing their models in order to reply to market demand. Following this, there are some important issues that lead an organizational change.

Workplace Demographics

Organizational change is often a response to changes to the environment. Organizations may realize that as the workforce gets older, the types of benefits workers prefer may change. Work arrangements such as flexible work hours and job sharing may become more popular as employees remain in the workforce even after retirement. It is also possible that employees who are unhappy with their current work situation will choose to retire, resulting in a sudden loss of valuable knowledge and expertise in organizations. Therefore, organizations will have to devise strategies to retain these employees and plan for their retirement. Finally, a critical issue is finding ways of dealing with age-related stereotypes which act as barriers in the retention of these employees.

Technology

Sometimes change is motivated by rapid developments in technology. Such change is motivating corporations to change their technology rapidly. Sometimes technology produces such profound developments that companies struggle to adapt.

Globalization

Globalization is another threat and opportunity for organizations, depending on their ability to adapt to it. Because of differences in national economies and standards of living from one country to another, organizations in developed countries are finding that it is often cheaper to produce goods and deliver services in less developed countries. This has led many companies to outsource (or "offshore") their manufacturing operations to countries such as China and Mexico. In the 1990s, knowledge work was thought to be safe from outsourcing, but in the 21st century we are also seeing many service operations moved to places with cheaper wages. Given these changes, understanding how to manage a global workforce is a necessity. Many companies realize that outsourcing forces them to operate in an institutional environment that is radically different from what they are used to at home. Dealing with employee stress resulting from jobs being moved overseas, retraining the workforce, and learning to compete with a global workforce on a global scale are changes companies are trying to come to grips with.

Changes in the Market Conditions

Market changes may also create internal changes as companies struggle to adjust. How does a change in the environment create change within an organization? Environmental change does not automatically change how business is done. Whether the organization changes or not in response to environmental challenges and threats depends on the decision makers' reactions to what is happening in the environment.

Growth

It is natural for once small start-up companies to grow if they are successful. An example of this growth is the evolution of the Widmer Brothers Brewing Company, which started as two brothers brewing beer in their garage to becoming the 11th largest brewery in the United States. This growth happened over time as the popularity of their key product—Hefeweizen—grew in popularity and the company had to expand to meet demand growing from the two founders to the 11th largest brewery in the United States by 2008. In 2007, Widmer Brothers merged with Redhook Ale Brewery. Anheuser-Busch continues to have a minority stake in both beer companies. So, while 50% of all new small businesses fail in their first year, those that succeed often evolve into large, complex organizations over time.

Poor Performance

Change can also occur if the company is performing poorly and if there is a perceived threat from the environment. In fact, poorly performing companies often find it easier to change compared with successful companies. High performance actually leads to overconfidence and inertia. As a result, successful companies often keep doing what made them successful in the first place. When it comes to the relationship between company performance and organizational change, the saying "nothing fails like success" may be fitting. In addition to the success of a business, change in a company's upper-level management is a motivator for change at the organization level. Research shows that long-tenured CEOs are unlikely to change their formula for success. Instead, new CEOs and new top management teams create change in a company's culture and structure.

Searching for New Talents

Talent management implies recognizing a person's inherent skills, traits, personality and offering him a matching job. Every person has a unique talent that suits a particular job profile and any other position will cause discomfort. It is the job of the Management, particularly the HR Department, to place candidates with prudence and caution. A wrong fit will result in further hiring, re-training and other wasteful activities.

Talent management refers to the process of developing and integrating new workers, developing and retaining current workers, and attracting highly skilled workers to work for your company. The process of attracting and retaining profitable employees, as it is increasingly more competitive between firms and of strategic importance, has come to be known as "the war for talent".

Talent management involves individual and organizational development in response to a changing and complex operating environment. It includes the creation and maintenance of a supportive, people-oriented organization culture.

Traditionally, organizational growth has been enabled by hiring more people. However, today's economic environment requires that the productivity of existing workers increase before new headcount is considered. Organizational growth has transformed from "quantity of talent" to "quality of talent."

Talent management is the integrated process of ensuring that an organization has a continuous supply of highly productive individuals in the right job, at the right time. Rather than a one-time event, talent management is a continuous process that plans talent needs, builds an image to attract the very process that plans talent needs, builds an image to attract the very best, ensures that new hires are immediately productive, helps to retain the very best, and facilitates the continuous movement of talent to where it can have the most impact within the organization. The goal of the talent management process is to increase overall workforce productivity through the improved attraction, retention and utilization of talent.

The talent management strategy is superior not just because it focuses on productivity, but also because it is forward looking and proactive, which means that the organization is continuously seeking out talent and opportunities to better utilize that talent. It produces excellent results because it overcomes the major problem of traditional recruiting, which is isolation. It instead integrates the previously independent functions of recruiting retention, workforce planning, employment branding, metrics, orientation and redeployment into a seamless process.

It is generally accepted that a sustainable competitive advantage comes from the internal qualities that is hard to imitate rather than for example the firm's product-market positions. Human capital is such a resource and especially the resource and knowledge-based views recognises the firm's knowledge resources as its tool for achieving a sustainable competitive advantage (Odonez de Pablos, 2004).

Heinen and O'Neill (2004) argue that Talent Management can be the best way to create a long-term competitive advantage. A sustainable competitive advantage stems from the valuable, company-specific resources that cannot be imitated or substituted by competitors. Ordonez de Pablos (2004) further argues that human capital, relational capital and structural capital can all be sources of long term competitive advantage, but the most significant evidence favours human capital.

The interests in quantifying the impact of HR practices on financial performance have led to a number of studies which linked the impact of HR practices to specific firm outcomes. Investment in various HR practices have been linked to firm financial performance such as: training (Russell, Terborg, & Powers, 1985), selection and staffing (Terpstra & Rozell, 1993), appraisal (Borman, 1991), and compensation (Gerhart & Milkovich, 1992)

A research study was conducted which evaluated the financial impact of HR practices (CCH, Inc., 1995). This research resulted in a number of both general and specific findings about HR in general and the relationship between HR and financial performance in particular. Of interest for this research, this study developed an overall quality HR index based on all HR activities adopted by the firm.

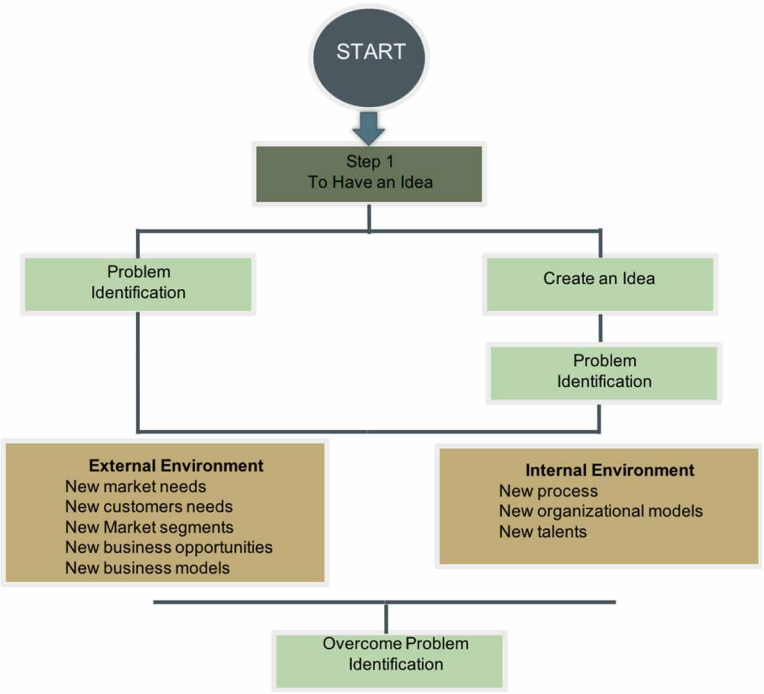
The data clearly indicated that when HR professionals perceive a higher quality of HR practices, the firms have higher business results. Evidence now exists to show that investment in HR practices impacts business results, both financial results and the market value of firms.

Thus, the problem identification can be followed the flow represented in Figure 2.

What Is My Idea?

Several entrepreneurs, start-ups or big companies, most of the times think that innovation starts with an idea after identifying a problem. The issue in this mind flow is you will design an idea without know your market, i.e, are there other solutions or alternative solutions for the problem I already

Figure 2. Problem Identification flow



identified. You always have competition in the market. Please keep in your mind, innovation doesn't mean no competition. It's completely wrong.

This way, the Step 1 of the innovation process starts from two ways: 1) to Have an idea and then identified if your idea is overcoming some market needs or it's disruptive; 2) to identify a market problem and then to design the idea.

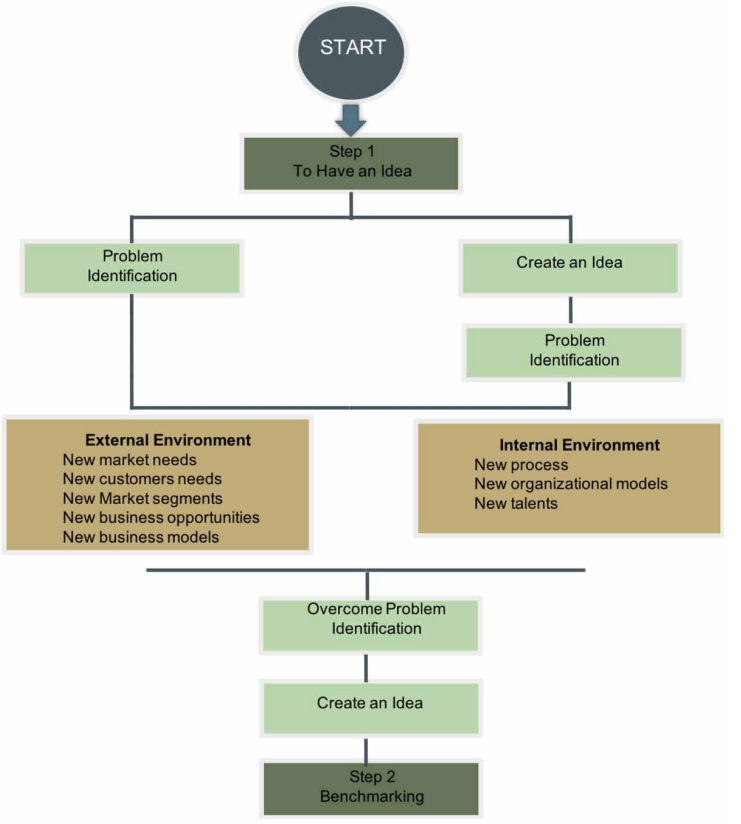
Even generating idea from two ways, the next sub-steps are common, i.e., from the dream (the idea) the design of it must be done. This will involve structuring the idea: identifying the main features, the benefits and how to make money from it. After that, the clarification about the type of innovation it is also very important.

Most of the times, new ideas are related to technological solutions; however, it is important to note that innovation covers many areas of expertise: product, process, organization, marketing and business model.

So, how we know if our idea is novel or not? When you reach this question, you will move forward to Step 2, as represented in Figure 3.

Start

Figure 3. From Step 1 to Step 2



STEP 2: BENCHMARKING

Most of the times, new ideas are related to technological solutions; however, it is important to note that innovation covers many areas of expertise: product, process, organization, marketing and business model.

So, how we can clarify the type of innovation?

First, you should reply to the question "What?". For that, you need to get an idea (the outcome of Step 1) and list the main features you consider key features to overcome the market needs or customers pain's points.

Before starting list, the features of your solution, you should perform a benchmarking. This benchmarking shall be analysed from two different points:

1. Analysing the scientific and technical state-of-the-art
2. Market research

Let's discuss a little about these two topics.

Analysing the Scientific and Technical State-of-the-Art

This analysis shall be done marking a scientific and technical state-of-the art and a search of freedom-to-operate (FTO).

State-of-the-Art

The state-of-the-art (SOA) will provide scientific and technical information about the current situation of development regarding to science, product, process, business, marketing, methodology, among others.

The SOA must include not only technical-scientific papers but also patents. Patents are very important since if there is a registration of a patent related to our idea, rights and licenses rise.

There are many tools for making a good SOA. For example, google scholar is a good and reliable tool to search for scientific papers according to specific keywords. This tool provides a digital path to get full papers or abstracts from scientific journals or magazines.

Freedom to Operate

Whenever a company is planning to develop and launch a new product, solution, service, a major risk, particularly in technology sectors where there is extensive patenting, is that commercialization may be blocked by a competitor who holds a patent for a technology incorporated within that product. This is why many companies, at an early stage, seek to secure their "freedom to operate," i.e. to ensure that the commercial production, marketing and use of their new product, process or service does not infringe the IP rights of others.

A Freedom to Operate (FTO) analysis begins by searching patent literature for issued or pending patents, and obtaining a legal opinion as to whether a product, process or service may be considered to infringe any patent(s) owned by others.

For searching patents, google patent is also a good tool. Once more, from specific keywords patents can be reached and read. These are just two examples; however, there are other tools. Please keep in mind you should be able for "Freedom-To-Operate" (FTO).

The FTO analysis based on the search of patent literature is just the first step. If the patent search reveals that one or more patents do limit a company's freedom to operate, the company must decide how to proceed.

If you identified a blocking patent, you have some options to decide:

- Purchasing the patent or licensing in. Licensing involves obtaining written authorization from the patent holder to use the patented technology for specified acts, in specified markets and for a specified period of time.
- Cross-licensing. This involves two or more companies exchanging licenses so as to be able to use certain patents owned by the other parties. In order to be able to cross-license, a company needs a well-protected patent portfolio that is of value to potential licensing partners.
- Inventing around. A third option is to "invent around" the invention. This implies steering research or making changes to the product or process in order to avoid infringing on the patent(s) owned by others.

On the other hand, if the patent search indicates that there are no patents blocking access to market and that a new technology is likely to meet the patentability criteria, a business owner may wish to seek patent protection for the new technology to ensure a greater degree of freedom to operate, instead of keeping it as a trade secret.

There is, nonetheless, a clear limit on the extent to which a patent owner has the freedom to operate. A patent in itself does not provide the right to commercialize the protected technology, but only to prevent others from commercializing it.

Freedom to operate is one of the reasons why companies apply for patent protection. While the grant of a patent is not in itself sufficient to clear the way for commercialization, it is a useful step and may prevent problems at a later stage.

When finishing this investigation, the current situation must be listed in order to differentiate our solution rather SOA. For that, to list the main features of our solution, the SOA and patents will help to organize the information and cross it. This will support the innovative entrepreneur to know how his solution is different.

Market Research

Investigation related to market must be done and it is mandatory. The name of this is market research.

Market research is a way of collecting information about existing solutions, the customers, their needs and beliefs and challenges. This way, market research will provide:

- Market information (prices, supply and demand situation and the understanding of social, technical a legal aspects).
- Market segmentation, which consists of dividing the market or targets in clusters with similar characteristics. The segmentation could be done base on some variables such as: geographic, personality, demographic, technographic (consumer behaviour), psychographic and gender. Also, for B2B firmographics (organizational behaviour) is also used.
- Market competition (who our competitors are and what they are doing). Learn from our competitors is very important in order to drive our idea and to increase the probability of success. Furthermore, blogs, magazines, news, among media means must be followed over the time in order to assure that we know the current situation of the market and so to be easier improve our solution and define the business goals.
- Market trends, which are the upward or downward movement of the market in a certain time must be evaluated since trends will have impact in our solution and business goals.
- Market size (current customers and potential customers).
- Market Value (the available market and the future market).

In fact, for designing your idea and concretize your solution, the identification of competitors (directly or indirectly), currently and alternative solutions are very important in order to understand the innovation of the solution.

Identification of Competitors

You have doubts of how to categorize your competitors?

The process is not complex, but is quite hard to be done in order to get a good picture of your competition. For that, you can follow the next steps:

1. List your Competitors

Start by listing at least three of your main competitors. These are the businesses or people who provide a similar product or service to yours. They also tend to serve the same market.

You can identify your key competitors from several ways, but to become the task easier, Google and Amazon are good tools for searching. From these tools, search for your business name, product ideas or business idea. Then, check the social media channels, organizations and online communities.

2. Write a Brief Overview

Write a brief description of the competitor's business and why you think they're a competitor.

Here, you should also list the target audience of your competitors, i.e., identify the customers that your competitors tend to attract. You can do this by going through their marketing materials, social media pages, website, blog, seeing where they advertise, etc. This material will help you figure out who they are trying to reach.

3. Categorize Your Competitors

As you find competitors, you'll should categorize them into various levels, from direct competitors to businesses that don't currently compete with you, but could easy pivot.

You can do this categorization, using the following guidelines:

- **Primary Competition:** These are your direct competitors, which means they're either targeting the same audience or have a similar product, service — or both.
- **Secondary Competition:** These competitors may offer a high- or low-end version of your product, service, or sell something similar to a completely different audience.
- **Tertiary Competition:** This category includes businesses that are tangentially related to yours, and really comes in handy when you're looking to expand your portfolio. These could be related products and services that are trending, as well as businesses that may be beneficial to partner with further down the line.

As you conduct your research, keep things organized in a spreadsheet or database.

To start, track the basics; name of store, location, mission statement (if they have one), product offering, strengths and weaknesses of their business, and category of competition.

After doing this, you should have a clear vision of what is the market and how you can move forward. You have a picture if your identified problem is already covered or not, if customers pain' points have answers, if you still have "space" to gain in the market and "what?" you do different to overcome the lacks.

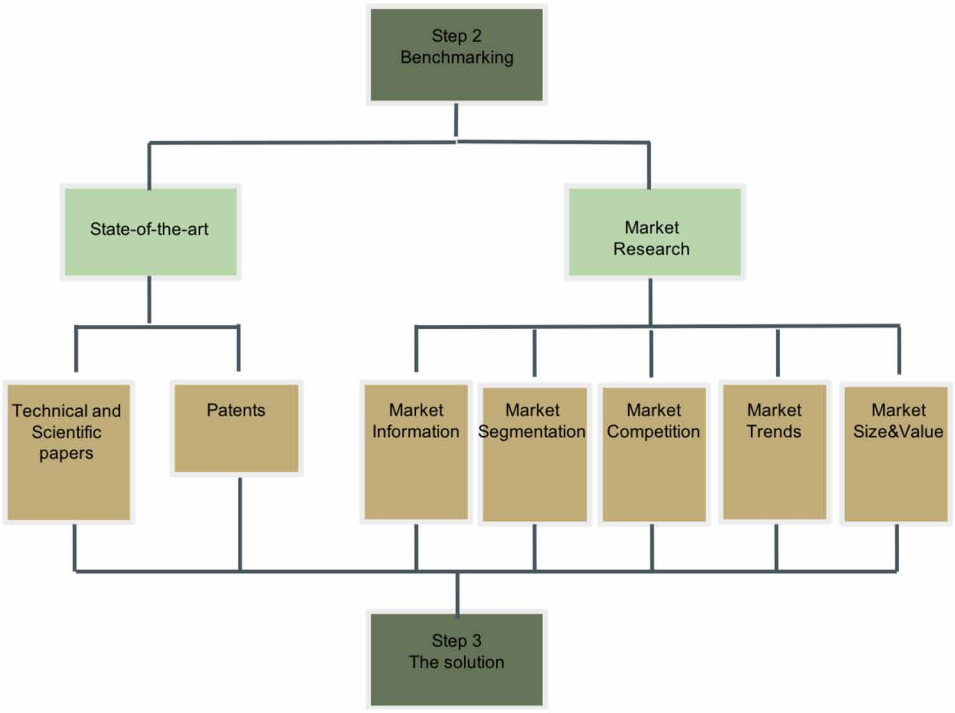
Figure 4 helps you in to understand what you need to be done in Step 2.

Taking into account, you can start designing your solution: Step 3 – The solution.

STEP 3: THE SOLUTION

The Step 3 consists of designing your idea in terms of features and comparing with your competitors. Based on this information, the solution's design shall

Figure 4. From Step 2 to Step 3



be an interactive process, since you should design a different approach when comparing to competition and, consequently, to develop something that brings add-value for the market.

Design

Before starting to list the features, use the customer information you have and design the user journeys. How you can do that?

User Journey

A user journey is a series of steps (typically 4-12) which represent a scenario in which a user might interact with the thing you are designing. This will help you on understanding how your customer can or could interact with your solution. Why this is beneficial for your solution?

Investing time into design user journeys will allow you:

- **Demonstrating the Vision for the Project:** User journeys are a great way to communicate what you are trying to achieve with stakeholders. They show an example of what the future state of whatever it is you are designing could be. Along with personas they can be one of the key outputs from the requirements gathering stage at the beginning of a project.
- **They Help Us Understand User Behavior:** User journeys can help you work out how users are going to interact with your system and what they expect from it.
- **They Help Identify Possible Functionality at a High Level:** By understanding the key tasks they will want to do to you can start to understand what sort of functional requirements will help enable those tasks.
- **They Help You Define Your Taxonomy and Interface:** By understanding the 'flow' of the various tasks the user will want to undertake you can start to think about what sort of taxonomy can help support those tasks and what kind of interface the user will be needing to accomplish them.

User journey design comes after you define the personas, i.e., the representation of a particular audience segmented for your idea, based on your market research. This representation should capture the customer's

motivations, pains and the "essence" of who they are. Thus, the user journey will allow you to have a picture of user requirements and feed into other design activities like architecture and wireframing specifications.

This way, a user journey will include a several steps, which best represent the journey.

For that, each journey should include:

1. **The Context:** Where is the user? What is around them? Are there any external factors which may influence them?
2. **Progressing:** How the user can jump from one step to the next one?
3. **Functionality:** what type of functionality are they expecting? Is it achievable?
4. **Emotion:** Are they engaged, bored, annoyed?

If the purpose of your user journey is to show the current state of affairs then make sure to highlight any changes to pain points which a future solution will solve. If it is to show the future state then think of ways which an ideal world could look, highlighting the benefits to the user and the business.

The user journey will help you to start designing your solution in terms of functional and non-functional requirements, if it is a technological solution. If not, you will be able to get the requirements for your business model, marketing strategy, process flows.

At the end of this activity, you should also describe the benefits for the customer, not only in terms of idea, but also feature by feature. This will help you to perform a comparison with your identified competition. But why you should make a comparison with?

Comparison With Competitors

Making a comparison with your competition will provide you with a big picture of what is novel or not in your idea.

For a simple and easy competition analysis, create a cross-table with features and competitors. Then, identified who presents or not the features you selected (Table 1). At the end you should be able to get your opportunity, your weaknesses, and the add-value of your idea.

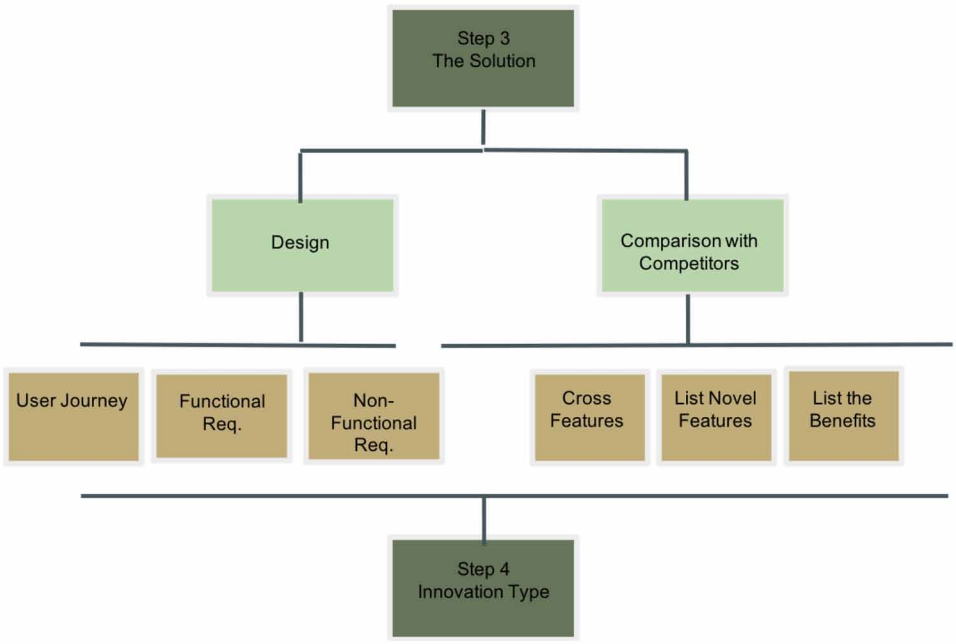
Table 1. Competitors Analysis crossed table

	Competitor 1	Competitor 2	Competitor N	Your solution
Feature 1	YES	NO	NO	YES
Feature 2	YES	YES	NO	YES
Feature 3	NO	NO	YES	YES
Feature N	NO	YES	YES	NO

After defining the features and business goals of the idea, to define why the idea is different is needed. For that, based on knowledge, the identification of the features that are novel must be listed in order to be possible the identification of the Innovation Type – Step 4. Another important point is to identify the benefits for your target. This will help you in understanding the add-value for the market.

For sure, this is an iterative process. If you identified that your solution doesn't present significant add-value for the customer/market, you can re-design your solution.

Figure 5. From Step 3 to Step 4



Logically, we can conclude that the identified problem already covered by your competitors and no need of further solutions.

STEP 4: INNOVATION TYPE

Innovation Type

What is innovation? How we can innovate?

One innovation is the implementation of a new or significantly improved product (or service), or a process, or a new marketing method, or a new organizational method in business practices, workplace organization, or relationships outside.

During the last years, many definitions of innovation were presented.

Oslo Manual presents innovation as an implementation of new or significantly improved product (service), or process, or marketing method or organizational method for company, market or world.

Following this, innovation is a new idea that is implemented, and it will be impact, i.e., we make innovation when we try to put a new idea in the real-environment; otherwise it is an invention.

After defining innovation, Oslo Manual (OECD, 2005) divides innovation into four types: product (service), process, marketing and organization. Innovations and product and process innovations are closely related to the concepts of product technological innovation and process technological innovation. Marketing innovations and organizational innovations broaden the pool of innovations.

Product Innovation

A product innovation is the introduction of a new or significantly improved good or service with respect to its intended features or uses. This includes significant improvements in technical specifications, components and materials, embedded software, ease of use, or other functional features. Product innovations may use new knowledge or technologies, or may be based on new uses or combinations of existing knowledge or technologies. The term "product" covers both goods and services. Product innovations include the introduction of new goods and services, and significant improvements in the functional or use characteristics of existing goods and services.

New products are goods or services that differ significantly in their characteristics or intended uses of products previously produced by the company. The first microprocessors and digital cameras were examples of new products using new technologies. The first portable MP3 player, which combined existing software standards with miniaturized hard drive technology, was a new combination of existing technologies.

The development of a new use for a product with only a few minor modifications to its technical specifications is a product innovation. An example is the introduction of a new detergent with a chemical composition that had previously been used as an input only for the production of coatings.

Significant improvements to existing products can occur through changes in materials, components, and other characteristics that enhance their performance. The introduction of ABS brakes, GPS navigation systems (Global Positioning System), or other improvements in automobile subsystems are examples of product innovations based on partial changes or the addition of a subsystem to several integrated technical subsystems. The use of breathable fabrics in clothing is an example of a product innovation that uses new materials that can improve product performance.

Design is an integral part of the development and implementation of product innovations. However, changes in design that do not imply a significant change in the functional characteristics of the product or in its intended uses are not product innovations. Still, they can be marketing innovations. Routine updates or seasonal changes also do not configure product innovations.

Process Innovation

A process innovation is the implementation of a new or significantly improved production or distribution method. Significant changes in techniques, equipment and/or software are included.

Process innovations may aim to reduce production or distribution costs, improve quality, or produce or distribute new or significantly improved products. Production methods involve the techniques, equipment, and software used to produce goods and services. Examples of new production methods are the introduction of new automation equipment in a production line and the implementation of computer-aided design for product development.

Distribution methods relate to the logistics of the company and its equipment, software and techniques to supply inputs, allocate supplies, or deliver final products. An example of a new distribution method is the introduction of a bar code or asset identification system by radio frequency.

Process innovations include new or significantly improved methods for the creation and provision of services. They may involve substantial changes in the equipment and software used in service-oriented companies or in the procedures and techniques that are employed for the distribution services. Examples include the introduction of tracking devices for transportation services, the implementation of a new booking system for travel agencies, and the development of new techniques for managing projects in a consulting firm.

Process innovations also encompass new or substantially improved techniques, equipment, and software in ancillary support activities such as purchasing, accounting, computing, and maintenance. The implementation of new or significantly improved information and communication technologies (ICT) is considered a process innovation if it is to improve the efficiency and / or quality of an auxiliary support activity.

Marketing Innovation

A marketing innovation is the implementation of a new marketing method with significant changes in product design or packaging, product positioning, promotion, or pricing.

Marketing innovations are geared to better serve the needs of consumers, opening new markets, or repositioning a company's product in the market, with the goal of increasing sales.

The distinctive feature of a marketing innovation compared to other changes in a company's marketing tools is the implementation of a marketing method that has not previously been used by the company. This should be part of a new concept or marketing strategy that represents a substantial distance from the existing marketing methods in the company. The new marketing method can be developed by the innovative company or adopted by other companies or organizations. New marketing methods can be implemented for new or existing products.

Marketing innovations comprise substantial changes in product design, constituting a new marketing concept. Changes in product design refer here to changes in the shape and appearance of the product that do not alter the functional or use characteristics of the product. They also include changes in the way products are packaged such as food, beverages and detergents, where packaging is the main determinant of product appearance. An example of marketing innovation in product design is the implementation of a significant change in the style of a furniture line to give it a new look and broaden its

appeal. Product design innovations may also include introducing significant changes in the shape, appearance, or taste of foods or beverages, such as the introduction of new flavorings into food products with the goal of reaching a new consumer segment. An example of packaging marketing innovation is the use of a container with a totally new shape for a body lotion, in order to give the product a new look and a different appeal for a new market segment.

New methods of marketing in product positioning involve primarily the introduction of new sales channels. Sales channels refer here to the methods used to sell goods and services to consumers, not to logistics (transport, storage and handling of products) methods that deal primarily with efficiency. Examples of product placement marketing innovations are the introduction for the first time of a franchise system, direct sales or exclusive retail, and product licensing. Innovations in product positioning may also involve the use of new concepts for product presentation. One example is the introduction of furniture showrooms, redesigned according to themes, which allows consumers to view the products in fully decorated rooms.

New marketing methods in product promotion involve the use of new concepts to promote products or services of a company. For example, the first use of a substantially different medium or technique - such as positioning products on movies or television shows, or using celebrity endorsements - is a marketing innovation. Another example concerns the establishment of the brand, such as the development and introduction of a fundamentally new symbol for a brand (other than regular updates on brand appearance) aimed at positioning the product of a company in a new market or giving it a new image. The introduction of a personalized information system, for example with loyalty cards, can also be considered a marketing innovation to adapt the presentation of products to the specific needs of individual consumers.

Price-fixing innovations include the use of new pricing strategies to market the goods or services of a company. Examples are the first use of a new method of price variation of a good or service on demand (eg when demand is low, price is low) or the introduction of a new method that allows consumers to choose specifications of a product on a company's web site and then see the price for the specified product. New pricing methods whose sole purpose is to differentiate prices according to consumption segments are not considered innovations.

Seasonal, regular, or routine changes in marketing instruments are usually not marketing innovations. For such changes to shape marketing innovations, they must involve marketing methods not previously used by the company. For example, a significant change in the design or packaging of a product

that is based on a marketing concept already used by the company for other products is not a marketing innovation, nor is it the use of existing marketing methods to reach a new market geographical area or a new market segment (eg a group of socio-demographic customers).

Organizational Innovation

An organizational innovation is the implementation of a new organizational method in the company's business practices, in the organization of its workplace or in its external relations.

Organizational innovations can aim to improve a company's performance by reducing administrative costs or transaction costs, stimulating workplace satisfaction (and thus labor productivity), gaining access to non-tradable assets (such as knowledge unencrypted external) or reducing the costs of supplies.

The distinctive features of organizational innovation, compared with other organizational changes in a company, is the implementation of an organizational method (in business practices, workplace organization, or external relations) that has not previously been used in the enterprise and that is the result of strategic decisions made by management.

Organizational innovations in business practices include the implementation of new methods for organizing routines and procedures for conducting work. This includes, for example, the implementation of new practices to improve the sharing of learning and knowledge within the company. An example is the first implementation of practices for knowledge coding, for example by establishing databases with best practices, lessons and other knowledge, so that they become more accessible to others. Another example is the first implementation of practices for employee development and improvements in worker permanence, such as education and training systems. Other examples are the first introduction of management systems for general production or for supply operations, such as supply chain management systems, business reengineering, lean production, and quality management systems.

Innovations in workplace organization involve the implementation of new methods to distribute responsibilities and decision-making power among employees in the division of labor within and between the activities of the company (and organizational units). There are also new concepts for the structuring of activities, such as the integration of different business activities. An example of workplace innovation is the first implementation of an organizational model that empowers a company's employees with

greater autonomy in decision making and encourages them to contribute their ideas. This can be achieved through the decentralization of group activities and managerial control or by the establishment of formal or informal work teams in which individual workers have more flexible work responsibilities. However, organizational innovations may also involve centralization of activities and greater ultimate responsibility for decision-making. An example of organizational innovation in business structuring activities is the introduction of build-to-order production systems or the integration of engineering and development with production.

New organizational methods in the external relations of a company include the implementation of new means to organize relations with other firms or public institutions, such as establishing new types of collaborations with research organizations or consumers, new methods of integration with suppliers and the use of outsourcing or the introduction of subcontracting of business activities into production, procurement, distribution, recruitment and ancillary services.

Changes in business practices, workplace organization or external relations based on organizational methods already in use in the company are not organizational innovations. Nor is innovation considered the formulation of management strategies per se. However, organizational changes that are implemented in response to a new managerial strategy are considered an innovation if they represent the first implementation of a new organizational method in business practices, workplace organization or external relations. For example, introducing a written document on a strategy to improve the efficient use of firm knowledge is not in itself an innovation. Innovation occurs when the strategy is implemented through the use of new software and practices to document information aimed at encouraging the sharing of knowledge between different divisions.

Mergers or acquisitions of other firms are not considered organizational innovations, even if a firm joins or acquires them for the first time. Mergers and acquisitions may involve organizational innovations, however, if the firm develops or adopts new organizational methods in the course of merger or acquisition.

The definition of each one is presented in Table 2.

However, it is very important to note that there is, at least, more one type: Business model. The difference between innovation in marketing and business model is little, because the business model is part of marketing; however, it is not totally clear in Oslo Manual. Thus, the Table 1 must be updated with the innovation in Business Model, as defined in Table 3.

Table 2. Definitions of innovation, according to Oslo Manual (OECD, 2005)

Type of Innovations	Definition
Product	Product innovation is the introduction of a new good or service or significantly improvements concerning its features. The improvements include technical specifications, components, materials, incorporated software, easy-to-use or other functional features.
Process	Process innovation consists of implementing a new production or distribution method or significant improvements. These improvements are techniques, equipment and/or software.
Marketing	Marketing innovation is the implementation of a new marketing method with significant changes on product conception and package, product position, promotion or price definition. Innovation in marketing concerns on overcoming the customer needs, open new markets or product re-position, aiming to increase sales.
Organizational	Organizational innovation is the implementation of new organizational method in the business of the company, work organization or external relationships. These innovations aim to improve the company performance, decreasing administrative and transaction costs, stimulating the satisfaction of workplace (and so the work productivity).

Table 3. Update to definition of the types of innovation

Type of Innovations	Definition
Business Model	Business model innovation is the design and implementation of a new model to make business and money in a specific market or product. These innovations include to interact more with customer, giving him some power and involving him in the process in order to feel part of the process.
Product	Product innovation is the introduction of a new good or service or significantly improvements concerning its features. The improvements include technical specifications, components, materials, incorporated software, easy-to-use or other functional features.
Process	Process innovation consists of implementing a new production or distribution method or significant improvements. These improvements are techniques, equipment and/or software.
Marketing	Marketing innovation is the implementation of a new marketing method with significant changes on product conception and package, product position, promotion or price definition. Innovation in marketing concerns on overcoming the customer needs, open new markets or product re-position, aiming to increase sales.
Organizational	Organizational innovation is the implementation of new organizational method in the business of the company, work organization or external relationships. These innovations aim to improve the company performance, decreasing administrative and transaction costs, stimulating the satisfaction of workplace (and so the work productivity).

Business Model Innovation

The innovation of the business model is a wonderful thing. In its simplest form, it does not require new technologies or the creation of entirely new markets: it is about delivering existing products that are produced by existing technologies to existing markets. And as this often involves invisible changes to the outside world, it can bring about advantages that are difficult to copy.

The challenge is to define what business model innovation really implies. Without a framework to identify opportunities, it is difficult to be systematic about the process, which explains why it is usually done on an ad hoc basis. As a result, many companies miss out on cheap opportunities to improve profitability and productivity.

Innovations seek to create growth opportunities for business. Sustainability innovations refer to those focused on products or services that aim for higher levels of profitability in an existing business model. Disruptive innovations, in turn, have a transforming character as an industry by promoting the simplification of something complex or the incorporation of products from another industry into a marketplace (Christensen & Johnson, 2009). To reach new clients or markets in a differentiated and effective way is what characterizes Innovation in Business Models (Christensen & Johnson, 2009; Ostenwalder & Pigneur, 2009).

Based on the idea that any business model is essentially a set of key decisions that collectively determine how a company earns revenue, incurs costs, and manages risk, we see model innovations as changes in those decisions: what you should offer, when decisions are made, who takes them and why. Successful changes in these dimensions improve the combination of revenues, costs and risks for the company.

I read the work done by Karan Girotra and Serguei Netessine, authors of The Risk-Driven Business Model: Four Questions That Will Define Your Company (Harvard Business Review Press, 2014) and they replied with simplicity of what you need to define an innovative business model. According to them, you need to answer to the following questions: What?; When?; Who? Why?

What combination of products or services should you offer?

Narrow Focus. Focused business models are most effective when they appeal to distinct market segments with clearly differentiated needs. So**,** if your company currently serves multiple segments, it may be best to subdivide it into focused units instead of trying to apply a model. The main disadvantage of a focused business is that it must depend on a single segment of product,

service or consumer - and can leave aside key customer needs. People buy both bread and butter.

Look for common points between products. Common points are not just components shared between different products. They may also be the capabilities needed to serve multiple product, customer, and market segments. As a result, companies can add products or services to their mix that reflect new applications of their resources. For example: in the late 1990s, Amazon expanded from books to music, video, and games - all of which require the same logistic capabilities as books. This allowed the company to take the risk of not obtaining sufficient participation in any of these categories with a potentially greater participation in another. The pursuit of commonalities can, however, entail significant costs if the components need to be designed for a wide range of makes and models. In addition, the strategy requires that products with shared components do not all simultaneously have increases or decreases in demand.

Create a protected wallet. Just as financial institutions try to create investment portfolios that cover each other's risks, companies can select multiple products or markets to reduce the overall risk of the business model. LAN Chile uses this approach: unlike most large US airlines, which earn less than 5% of their revenue from freight, LAN uses the same wide-body airplanes on international routes to transport both passengers and cargo. As almost every trip from the Americas to Europe is made on night flights, only passenger airlines keep their planes on the ground for long periods. LAN uses downtime to carry cargo: a plane to Santiago that has taken cargo in Europe can deliver it in other Chilean cities before returning to the capital for its next night flight.

Of course, this strategy works for combinations of products and markets where fluctuations in demand have a negative correlation.

When should you make key decisions?

Often decisions need to be made before you have enough information to take them with confidence. There are three strategies that, depending on the circumstances, can improve a business model by changing the timing of decisions.

Postpone decision. In many industries, companies make firm pricing decisions long before actually selling something. This, of course, exposes them often to risk. It is risky, for example, to set the price of airfare in advance, because the demand for a route depends heavily on the economy and other conditions and can vary according to the time of day, the day of the week or the week of the month.

American Airlines solved this problem in the 1980s by using the reservation system known as Saber, which makes it relatively easy to change prices quickly by inserting new information. The ability to set prices dynamically changed the aviation industry forever. On a given flight, the price that passengers actually pay to fly - even in the same class - can vary tremendously. Recently Uber, a touring car rental company, has adopted the same feature: in periods of high demand, it charges the "peak price": the rent goes up, reducing demand and increasing supply.

Change the order of decisions. Some companies do not have the option to change the term within which they operate, but they can change the order in which decisions are made in order to postpone investment commitments until all relevant information is known.

Product development, for example, usually begins with the proposal of a solution or technology to a customer's need. If, after the initial investments, the solution turns out to be a failure, you have to go back to square one. But more and more companies, including the pioneers of open innovation, InnoCentive and Hypios, have found that if they shift this sequence to first performance and investment later, they can transfer much of the risk of R&D to others.

These companies offer customers ("applicants") a secure website in which they can present R & D problems to a global freelance community of engineers, product designers and qualified scientists ("solvers"). Companies help applicants define their problems - which can range from the chemical synthesis of a particular molecule to the design of a new product - with sufficient specificity to attract the interest of a qualified subset of solvers. Applicants offer monetary rewards for the right solutions (sometimes more than one), and the resellers compete to develop the best solutions and earn the rewards.

A similar change of order explains the success of a call center company, LiveOps. Traditional call centers make initial investments in facilities and heavy infrastructure (mainly communication) before having a single customer or answering their first call. They also need to decide how many attendants to hire, what their skill and experience levels should be, and provide training. They should then get customers whose needs match the capabilities they have assembled. Finally, they need to create daily and weekly work schedules to ensure that there are enough clerks and the right skills to handle the phone calls.

LiveOps, by contrast, employs callers as it receives calls. Your attendants work independently at home and inform LiveOps when they are ready to receive a call. They are paid according to the duration of the call and the ability they

have to meet customer needs - since the calls are automatically recorded and evaluated. Intelligent software routes customers to the most qualified callers available, depending on the nature of the call, so that capacity and human resources are constantly adjusted in real time to meet effective demand.

Divide key decisions. The lean startup movement is storming the worlds of startups and corporate innovation. At the heart of the movement is a new approach for entrepreneurs who are making decisions about their business. In the past, starting a risky new venture involved putting together a detailed business plan that covered all the essential parts of the business model and then executing the plan. All the key decisions were made at once just in the beginning.

The lean startup approach divides key decisions. An enterprise begins with relatively imprecise and limited assumptions about where there may be an opportunity. Next come a number of information gathering steps and "pivots" as the business model is revised until it reaches the final, validated version. Typically, the founders radically change their assumptions as the enterprise unfolds.

In the world of startups, this approach is now the rule rather than the exception.

Who are the best decision makers?

Many companies find that they can dramatically improve value chain decision making by simply changing the people who take them. Companies can:

Appoint a better informed decision maker. All employee empowerment movement is based on assigning decision rights to the most informed person or organization.

While the advantages of making better informed decisions are evident, empowering employees, suppliers or customers and collecting extensive data often entails costs and difficulties.

Transfer the risk of the decision to the party that can best deal with the consequences. The key to Amazon's initial prosperity was its dropshipping model, which allowed it to offer more than one million books while stocking only two thousand of the most popular titles. For others, Amazon would pass on orders to book or publisher wholesalers, who then shipped the products directly to customers using Amazon packaging.

In this innovative model, Amazon's network of wholesalers and publishers independently managed their inventories. They, rather than Amazon, ran the risk of stockpiling books without knowing what the demand would be for

them. But as the risk was widely distributed, everyone was able to manage their own share of it with relative ease.

Transferring the risk of the decision to the party most able to support it is usually an appealing strategy when no decision maker has clearly superior information.

Select the decision maker who has the most to gain. In many business models, key decisions are made by those who have less to gain than others in the chain. Customers of a company, for example, often feel that they earn less than this company when they buy products from it.

Why do top decision makers make the choices they make?

When decision makers collaborate to create value, they must also be able to pursue their particular goals without undermining the value chain. Many innovations in business models, therefore, come from adjusting the motivations of decision makers. There are three ways to do this:

Change revenue stream. Changing the revenue stream to align the interests of the parties involved in a decision works best when performance can be fully and clearly defined. It would be difficult to establish reasonable performance standards and develop appropriate metrics for, for example, a new aircraft using advanced technologies and materials because the unknowns involved would be very numerous.

Synchronize the horizons of time. Traditionally, procurement of products and services depended on competitive rituals that guaranteed low prices and moderate but acceptable quality. The chosen supplier kept the business for a relatively short period of time, after which the competitive process was repeated.

But as foreign supplies increased, this model was flawed. Distant suppliers have resolved to save on quality control and reliability of materials. Even worse, revelations of abusive labor practices and diversion and falsification of products have emerged. And because in most cases each transaction was an isolated business, poor quality suppliers had few consequences - until, of course, multinationals felt the corrosive impact of successive performance problems on their brands.

Integrate incentives. Companies without a trusted intermediary can develop contractual clauses and management systems (such as the famous balanced scorecard) to focus independent agents on maximizing an agreed outcome. That's basically what's about one of the most promising healthcare reforms in the US. Through the overall payment system, which covers the whole process of assisting a person in each case of need, all parties involved in the treatment agree to measure the performance according to the outcome for the patient.

Achieving full integration is not easy. Many organizations are rightly hesitant to assume the direct execution of activities other than their core competencies. Therefore, we tend to consider that this is a last resort, to be adopted only if the other approaches are not enough.

Using this framework, any experienced manager can find ways to create a better business model. Companies can also use it to make their innovation processes more systematic and open, so that reinventing the business model becomes a continuous and inclusive process, rather than a series of isolated, internally focused events. When they do, they will find that the resulting capabilities will give them a sustainable competitive advantage.

How We Can Distinguish Among Innovation Types

Even dividing the innovation in types, the innovation can result from the combination of the types of innovation. For example, the innovation can involve new features for a product, but at the same time, the product innovation can be combined with business model innovation. It is important for research purposes the ability to distinguish between types of innovation in frontier cases. However, many innovations may have characteristics that appear in more than one type of innovation. It may be difficult and misleading, in terms of the types of innovation activities undertaken by firms, to categorize these innovations as being of one type.

Collecting data on different characteristics found in various types of innovation will rarely create problems for interpretation and will in fact improve the quality of results. For example, a company that introduces a new product that also requires the development of a new process is clearly an innovator of both product and process. The same holds true for a company that introduces a new marketing method to market a new product, or a company that first adopts a new organizational method in the course of introducing a new process technology.

Product Innovation vs. Process Innovation

With respect to goods, the distinction between products and processes is clear. For services, however, it may be less evident because the production, distribution, and consumption of many services can occur at the same time. Some differentiating guidelines are:

- If innovation involves new or substantially improved features of the service offered to consumers, it is a product innovation;
- If innovation involves new or substantially improved methods, equipment and / or service performance skills, then it is an innovation process;
- If innovation involves substantial improvements in the characteristics of the service offered and the methods, equipment and / or skills used for its performance, it is a product and process innovation.

In many cases, a service innovation may be of one type only. For example, companies can offer a new service or new features of a service without substantially changing the method by which it is offered. Likewise, significant improvements in processes, for example the reduction of distribution costs, may not make any difference to the characteristics of the service sold to consumers.

Product Innovation vs. Marketing Innovation

The main differentiating factor of product and process innovations is a significant change in the functions or uses of the product. Goods or services that have significantly improved functional or use characteristics compared to existing products are product innovations. On the one hand, the adoption of a new marketing concept that involves a substantial change in the design of an existing product is a marketing innovation but not a product innovation, as the functional or use characteristics of the product have not changed significantly. Clothing produced with new fabrics and better performance (breathable, waterproof, etc.), for example, are product innovations, but the introduction of a new format for clothes aimed at a new group of consumers or to give to the product a high degree of exclusivity (and thus allow a higher mark-up compared to the previous version of the product), is a marketing innovation.

In some cases, innovations can be considered product and marketing, if companies implement changes in existing products that involve both significant changes in the functions or use of the product as significant changes in the form and appearance or packaging of the product, constituting a new marketing concept.

The main factor that differentiates service innovations from marketing innovations is whether innovation involves a marketing method or a service (ie, a product). Companies will generally be able to distinguish between their sales / marketing methods and their products.

This distinction may depend on the nature of the company's business. An example is the innovation regarding internet sales. For a company that produces and sells goods, the first introduction to e-commerce is a marketing innovation in product positioning. Companies that are in e-commerce businesses (for example, "auction" companies, websites providers that allow other companies to advertise or sell their products, companies that organize the sale of travel tickets, etc.) are offering " sales ". For these companies, a significant change in the characteristics or capabilities of your web site is a product (service) innovation.

Some innovations are both product and process, such as when a company implements a new sales or consumer service operation, introducing a new marketing method for its products (direct sales), while offering consumers additional services (for example, repair) and information about their products.

Process Innovation vs. Marketing Innovation

Process and marketing innovations may involve new methods of transporting goods or transmitting information, but their purposes are different. Process innovations refer to production and distribution methods and other ancillary support activities aimed at reducing unit costs or increasing product quality, while marketing innovations aim to increase the sales volume or the slice changes in product placement and reputation.

Border cases can arise in marketing innovations that involve the introduction of new sales channels. For example, innovations that introduce a new sales channel (ie a new medium for the sale of goods and services to consumers) may also include the implementation of new methods of logistics (ie transport, storage and handling of products). If these innovations aim at both increasing sales and reducing unit distribution costs, they should be considered process and marketing.

Process Innovation vs. Organizational Innovation

The distinction between process innovations and organizational innovations is perhaps the most frequent frontier in innovation research because both types of innovation seek - among other things - to reduce costs through new and more efficient concepts of production, internal organization. Many innovations contain aspects of both types. For example, the introduction of new processes may also involve the first use of new organizational methods,

such as group work. Organizational innovations, such as the introduction of a total quality management system, may involve significant improvements in production methods to avoid certain types of failures such as new production logistics systems or new and more efficient information systems based on new software and new ICT equipment.

The starting point for differentiating process and / or organizational innovations is the type of activity: Process innovations deal primarily with the implementation of new equipment, software, techniques or procedures, while organizational innovations deal primarily with people and work organization. The guidelines for distinguishing the two types in border cases are as follows:

- Whether innovation involves new or significantly improved production or supply methods aimed at reducing unit costs or the quality of the product, it is a process innovation;
- Whether the innovation comprises the first use of new organizational methods in business practices, in the organization of the workplace or in relationships organization, it is an organizational innovation;
- If innovation implies new or significantly improved methods of production or supply, there is a process and organizational innovation.

Marketing Innovation vs. Organizational Innovation

Border cases can arise for innovations that involve the introduction of marketing and organizational methods. As noted earlier, if an innovation has characteristics of both types, it is both a marketing and organizational innovation. However, organizational innovations that involve sales activities (eg, integration of sales departments with other departments), but do not involve the introduction of new marketing methods, are not marketing innovations.

Marketing Innovation vs. Business Model Innovation

It is quite difficult to disassociate Marketing Innovation and Business Model' Innovation since, most of the time, they are running in parallel.

Marketing innovation is the implementation of a new marketing method with significant changes on product conception and package, product position, promotion or price definition. Innovation in marketing concerns on overcoming the customer needs, open new markets or product re-position, aiming to increase sales.

Business model innovation is the design and implementation of a new model to make business and money in a specific market or product. These innovations include to interact more with customer, giving him some power and involving him in the process in order to feel part of the process.

Innovation in business models results from one of four market objectives: 1) meeting existing but unmet needs of the market; 2) to bring new technologies, new products or services to market; 3) improve, provoke or transform an existing market with a better Business Model; and 4) create an entirely new market (Chesbrough, 2010; Ostenwalder & Pigneur, 2009).

In established companies, the effort for Innovation in Business Models typically reflects the existing organizational model and structure, with the following factors: reaction to crises, adaptation to the environment, expansion of markets and exploration of future opportunities. (Ostenwalder & Pigneur, 2009). Regardless of their underlying motivation, potential gain or loss, conflicts with the current model, implications of the new model on brands and other existing intangible assets, and possible customer reactions are issues to consider when designing new models (Osterwalder, 2004 Osterwalder, 2007, Ostenwalder, Pigneur, & Tucci, 2005; Ostenwalder & Pigneur, 2009). Questions about whether or not the new model is independent of the current structure, resource sharing, culture suitability, and the internal or external development of a new model permeate the discussions on Innovation in Business Models.

Innovation in Business Models is thus both a structured and sometimes chaotic way of rethinking how businesses are made by changes that require reactions or adaptations, or by promoting change in a competitive arena (Osterwalder, 2004). Osterwalder, 2007, Ostenwalder, Pigneur, & Tucci, 2005; Ostenwalder & Pigneur, 2009).

Table 4 presents a sum-up of how to distinguish innovation's types.

The definition of the types of innovation is very important since most of the times people think that the innovation is related to a new product or service. Furthermore, the business model innovation and marketing innovation is very important since these types of innovation can change the business and how make business currently, providing new ways to overcome some issues in the market, especially for costumer.

Table 4. How to distinguish innovation types

	Product	Process	Marketing	Organizational	Business
New or substantially improved functional features?	YES	NO	NO	NO	NO
New or substantially improved methods, equipment?	NO	YES	NO	NO	NO
New functional features and methods?	YES	YES	NO	NO	NO
Substantial change in the design of an existing product?	NO	NO	YES	NO	NO
Substantial change in sales?	NO	NO	YES	NO	NO
Significant changes in the functions and significant changes in the form and appearance or packaging of the product?	YES	NO	YES	NO	NO
Reducing unit costs or increasing product quality	NO	YES	NO	NO	YES
To increase the sales volume or the slice changes in product placement and reputation?	NO	NO	YES	NO	YES
Increasing sales and reducing unit distribution costs?	NO	YES	YES	NO	YES
New organizational methods?	NO	NO	NO	YES	NO
New or significantly improved methods of production or supply?	NO	NO	NO	YES	NO
New model to make business and money in a specific market or product.	NO	NO	NO	NO	YES

How to Apply the Concepts?

From the market research, a list of market characteristics crossed with the main features of our solution must be listed in order to evaluate the level of innovation of our solution. This evaluation must be done also taking into account the SOA study.

These features must be crossed with the innovation definitions according Table 2, aiming to clarify the innovation type.

Depending on the features, the innovation can be one or more types. This clarification is important since it is the starting point for studying the market and the state-of-the art. It is really novel? Where the idea is different? How it will bring add-value for the market/customers. The definition of the

innovation type will clarify the points where the idea will be new or where the idea will/can introduce significant improvements.

For example, an idea for product innovation implies that the idea must introduce in the market significant changings in technical specifications, components, materials, software, user-interface or other functional features. On the other hand, strategy innovation implies that you will introduce new methodologies of business and marketing, involving new business models, new ways or significant improvements on product design, package or promotion.

We have selected a couple the core features of your idea and you already crossed with the competitors. Based on this comparison, you should be able to know if those features represent new functional features, if the idea will reduce the costs of some process, if you are changing something in the company organization model, or if your idea propose a new marketing approach to increase sales. So, you are in the position to know what's innovation type you are offering.

But how you know your idea represents high innovation or not? This question is normal and necessary.

Most of the times, we categorize the level of innovation into five categories "No innovation", "Low", "Medium", "High" and "Disruptive". In fact, this is not incorrect and help us to understand if we have or not innovation. For example, if the classification is "No innovation" the innovation process must be stopped; otherwise the features that were considered as innovative in step 1 must be updated in accordance with the results of the analysis of the state-of-the-art and market.

Also, and unfortunately, most of the times, people categorize their innovation as Disruptive.

One can define this innovation as one that has a significant impact on a market and the economic activity of companies in that market. This concept focuses on the impact of innovations, as opposed to their novelty. For example, impact may change the structure of the market, create new markets or make existing products obsolete (Christensen, 1997). However, it may not be clear if an innovation is disruptive until well after its introduction. This makes it difficult to collect data on disruptive innovations within a period of analysis in a research on innovation.

Thus, are you really sure your innovation is Disruptive? Do you know what is the innovation impact?

After identifying your innovation's type, you need to categorize it in order to know your innovation position and if the investment will be good or not. Thus, you need to know the Innovation's Degree.

Innovation's Degree

By definition, all innovations must contain some degree of novelty. Three concepts for novelty of innovations are discussed below: new to the company, new to the market, and new to the world.

The entity that develops innovation is also related to its degree of novelty and diffusion and establishes whether innovations are primarily developed within companies or in cooperation with other companies or public research institutions or if they are developed outside the company.

New to the Company

The minimum requirement to consider an innovation is that the change introduced has been new to the company. A production, processing and marketing method or an organizational method may already have been implemented by other companies, but if it is new to the company (or if it is the case of significantly improved products and processes), then it is an innovation for this company.

New to the Market

The concepts of new to the market and new to the world relate to whether or not a given innovation has been implemented by other companies or that the company was the first in the market or in industry or the world to implement such innovation. Companies pioneering the implementation of innovations can be considered drivers of the innovation process. Many new ideas and knowledge originate from these companies, but the economic impact of innovations will depend on the adoption of innovations by other companies. Information on the degree of novelty can be used to identify the agents who develop and adopt the innovations, to examine patterns of diffusion, and to identify market and follower leaders.

Innovations are new to the market when the company is the first to introduce innovation into its market. The market is defined as the company and its competitors and it can include a geographic region or a product line. The geographical scope for what is new to the market is therefore subject to the company's own view of its operating market and may include domestic or international companies.

New to the World

An innovation is new to the world when the company is the first to introduce innovation in all markets and industries, domestic or international. Thus, a new innovation for the world implies a qualitatively greater degree of novelty than a new innovation only for the market. Although a number of surveys may claim that questions about novelty for the market are sufficient to examine the degree of novelty of innovations, to consider the fact that innovation is new to the world offers an option for researches wishing to examine the degree of novelty with greater detail.

When you identified the degree of novelty, the level of innovation should be easier to identify, and for sure you will have a good picture if your idea will lead you an active innovative company or not.

Figure 6 represents the flow of Step 4.

As we mentioned several times, the innovation process is an interactive process. Thus, the first activity of the innovation process starts with to have an Idea and end with the selection of the innovation type. For sure, during this flow, you will update several times your idea and you also can conclude that no innovation exists. However, before moving forward Develop Activity, you should assure that your idea is novel and presents innovation for the market.

Don't confuse invention from innovation! Innovation is novel and brings something new and add-value for the market or for the company.

Figure 7 represents the flow from Start Activity to Develop Activity.

Table 5. How to cross the innovation's degree

	New to Company	New to the Market	New to the World
Production, processing and marketing method or an organizational method in your company	YES	-	-
Innovation has been implemented by other companies	YES	-	-
Your company was the first to introduce innovation into its market.	-	YES	-
Company is the first to introduce innovation in all markets and industries, domestic or international	-	-	YES

Start

Figure 6. The Step 4's flow

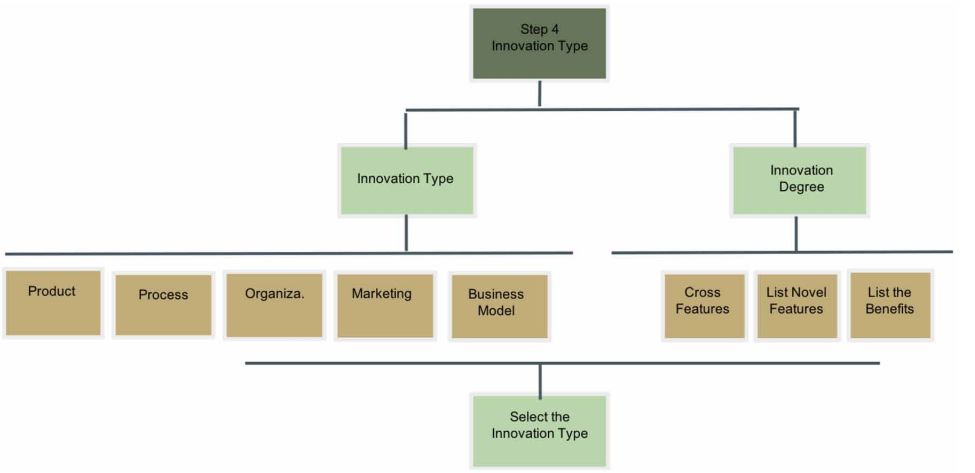
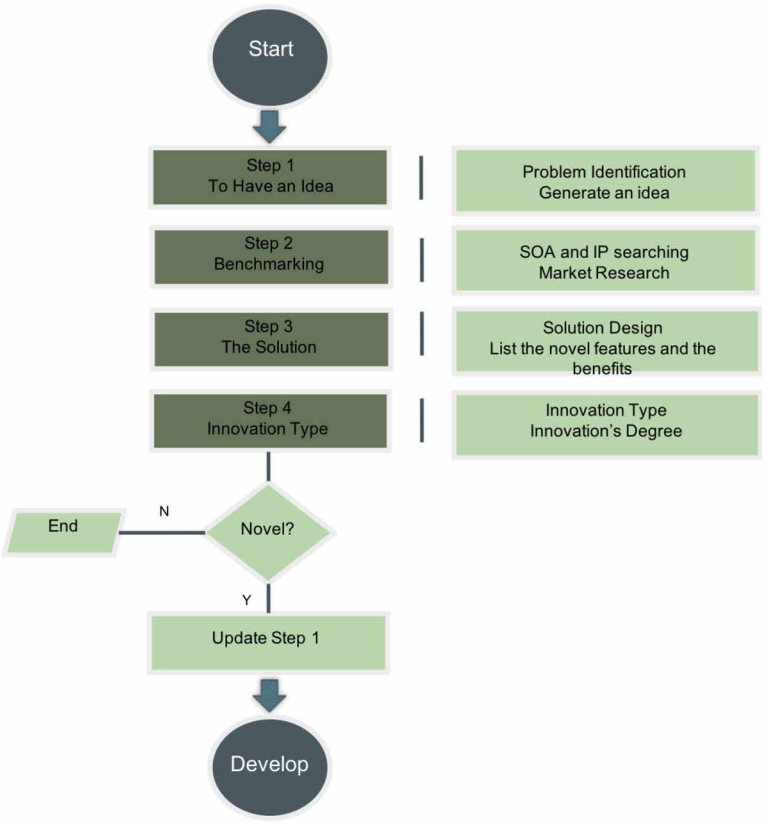


Figure 7. Start Activity to Develop Activity



CONCLUSION

One innovation is the implementation of a new or significantly improved product (or service), or a process, or a new marketing method, or a new organizational method in business practices, workplace organization, or relationships outside. The minimum requirement for defining an innovation is that the product, process, marketing method, or organization is new (or significantly improved) for the company. This includes products, processes and methods that companies are the pioneers to develop and those that have been adopted by other companies or organizations.

Innovation activities are scientific, technological, organizational, financial and commercial steps that lead or are intended to lead to the implementation of innovations. Some innovation activities are in themselves innovative, others are not new activities but are necessary for the implementation of innovations. Innovation activities also insert R&D that is not directly related to the development of a specific innovation. A general aspect of an innovation is that it must have been implemented. A new or improved product is implemented when marketed. New processes, marketing methods and organizational methods are implemented when they are effectively used in business operations.

The nature of innovation activities varies greatly from company to company. Some companies are involved in well-defined innovation projects, such as the development and introduction of a new product, while others are making continuous improvements in their products, processes and operations. Companies of both types may be innovative: an innovation may consist of implementing a single significant change, or a series of small incremental changes that may together constitute a significant change.

An innovative company is one that has implemented an innovation during the review period.

An innovative product / process company is the one who implemented a new or significantly improved product or process during the review period. This definition, which considers all companies that have implemented a product or process innovation.

By definition, all innovations must contain some degree of novelty. Three concepts for novelty of innovations are discussed below: new to the company, new to the market, and new to the world.

The entity that develops innovation is also related to its degree of novelty and diffusion and establishes whether innovations are primarily developed within companies or in cooperation with other companies or public research institutions or if they are developed outside the company.

The innovative condition of a company can be defined in several ways. The basic definition of an innovative company is the company that has implemented at least one innovation. An innovative product or process company is defined as a company that has implemented a product or process innovation.

To generate an idea, you need to identify a problem in order to understand what the business opportunity you are seeking or overcome.

The ideas generation shall reply to a market problem. There are several ways for identifying a market problem; however, since you are starting, we recommend a simple approach: to understand the problem from an internal and external environment.

The Step 1 of the innovation process starts from two ways: 1) to Have an idea and then identified if your idea is overcoming some market needs or it's disruptive; 2) to identify a market problem and then to design the idea.

Even generating idea from two ways, the next sub-steps are common, i.e., from the dream (the idea) the design of it must be done. This will involve structuring the idea: identifying the main features, the benefits and how to make money from it. After that, the clarification about the type of innovation it is also very important.

Most of the times, new ideas are related to technological solutions; however, it is important to note that innovation covers many areas of expertise: product, process, organization, marketing and business model.

You should reply to the question "What?". For that, you need to get an idea (the outcome of Step 1) and list the main features you consider key features to overcome the market needs or customers pain's points.

Before starting list, the features of your solution, you should perform a benchmarking (Step 2). This benchmarking shall be analysed from two different points: 1) Analysing the scientific and technical state-of-the-art; 2) Market research

The Step 3 consists of designing your idea in terms of features and comparing with your competitors. Based on this information, the solution's design shall be an interactive process, since you should design a different approach when comparing to competition and, consequently, to develop something that brings add-value for the market.

Finally, you need to know if your ideia is novel and what the innovation type is. One innovation is the implementation of a new or significantly improved product (or service), or a process, or a new marketing method, or a new organizational method in business practices, workplace organization, or relationships outside, or business model.

After you have all this information, and if your idea is novel, you can move forward the Development Phase.

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Chapter 3
Develop

ABSTRACT

The goal of this chapter is to explain the development phase of the innovation process. The development of R&D phase is a dynamic phase. Throughout the R&D process, the solution development is needed, but the analysis of SOA and market must continue in order to know how science and market are progressing, and according to that, update the R&D work. Protecting the results of innovative projects can assure the maximization of its value, taking into account the competition and the position of the solution in the market. In order to know if the developments are on the right path concerning the market needs, the implementation of small pilots is essential. These points are crucial for the success of the solution on the market. Listening to the market can be considered the last step of the development activity. From here, the prototype will be improved, and guidelines for designing the business plan are available.

INTRODUCTION

Taking into account the inputs of Start Activity, the next activity is to develop the solution. This activity is divided into three steps: R&D (Step 5); IP (Step 6) and Listen the market (Step 7).

Experimental research and development (R&D) includes systematically employed creative work, with the aim of increasing the volume of knowledge, encompassing knowledge of man, culture and society, as well as the use of this knowledge for new applications.

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The term R&D covers three activities: basic research, applied research and experimental development. Basic research consists of experimental or theoretical works developed primarily to acquire new knowledge about the fundamentals of observable phenomena and facts, without considering a particular application or use. Applied research also consists of original works undertaken with the aim of acquiring new knowledge.

However, it is primarily directed to a particular practical goal. The experimental development consists of systematic work based on existing knowledge gained from research or practical experience, to launch the fabrication of new materials, products or devices, to establish new procedures, systems and services or to improve existing R&D. It includes both formal R&D and informal R&D or occasionally other units.

R&D Is Not…

The needs of R&D surveys must be dissociated from a wide range of related activities based on science and technology. These other activities are closely linked to R&D both through information flows and concerning functioning, institutions and staff, but as far as possible should be excluded when measuring R&D.

These activities are:

- Education and training
- Other related scientific and technological activities
- Other industrial activities
- Administration and other support activities

Education and Training

It will be appropriate to exclude all teaching and training activities of the staff in the fields of exact sciences, natural sciences and engineering, medicine, agriculture, social sciences and humanities, carried out in universities and specialised institutes of graduation and postgraduate. However, research conducted by PhD students in universities should be taken into account in the best possible way in R&D activities.

Other Related Scientific and Technological Activities

The activities listed here should be excluded from R&D, except for those that are exercised exclusively or primarily for an R&D project.

Scientific and technical information services:

The specific activities of:

- Collection (developed by scientific and technical staff);
- Indexing (developed by bibliography services);
- Registration (developed by the trademark and patent services);
- Classification (developed by information dissemination services
- scientific and technical services and advice);
- Dissemination (developed by scientific conferences);
- Translation;
- Analysis;
- Evaluation

should be excluded, except when they are exclusively or mainly for R & D support (e.g. preparation of the original report on R&D results will be included in R&D activities).

Collection of data of general interest:

This activity is usually carried out by public bodies with the purpose of carrying out surveys on natural, biological or social phenomena that are of public interest or that only the government has the means to carry out. As an example, we can cite the current work of the establishments of topographic maps, of geological, hydraulic, oceanographic and meteorological surveys, as well as the astronomical observations. Data collection exclusively or mainly in R&D processes is included in R&D activities (data on trajectories and particular characteristics inside nuclear reactors, for example). This rationale applies equally to the processing and interpretation of data. The social sciences, in particular, rely heavily on the precise compilation of societal facts in the form of censuses, sample surveys, and so on. If these data are specially collected or treated to perform scientific research, its cost must be imputed to research and cover planning, systematization of the data. However, data collected for other purposes or of a general nature, such as quarterly unemployment surveys, should be excluded, even if they are exploited for research purposes. Market studies are also excluded.

Trials and normative work:

This topic addresses the maintenance of national standards, adaptation of secondary standards, testing and analysis of current practices of materials, components, products, processes, soils, climate.

Feasibility study:

Studying engineering designs in accordance with existing techniques, in order to provide additional information before making any implementation decisions, is not part of R & D. In the social sciences, feasibility studies are about examining the socioeconomic characteristics and consequences of particular situations (e.g. a study of the possibility of setting up a petrochemical complex in a given area). However, feasibility studies on research projects are part of R&D.

Specialty Medical Care:

This topic addresses the work of current practice and the usual application of medical knowledge. However, there may be an element of R & D, which we call "specialised medical treatment", when administered in university hospitals, for example.

Trademark and patent treaties:

This is all administrative and legal work related to trademarks and patents. However, work on the patent that is directly linked to R&D projects is part of R&D.

Political studies:

The word "politics" here includes not only national politics but also regional and local policies and corporate policies pursuing an economic goal. Studies of a political nature follow objectives such as: evaluation of ongoing programs, current policies and activities of ministries and other government institutions, the work of units involved in the analysis and permanent control of external events (such as, for example, analysis of defense and national security issues), and the work of the parliamentary committees of inquiry on the policies and activities of government and ministries.

Recurring software development activities:

Current software-related activities are not considered part of R & D. These activities cover work on exciting improvements, specifically those systems or programs that were available to the public prior to work. The technical problems that have been overcome in the course of previous projects, targeting the same systems of exploration and architecture of information, are also excluded. Current maintenance work on computer systems is not included.

Other industrial activities:

These activities can be divided into two headings, which overlap partially.

Other innovation work. These works are defined as the totality of the scientific, technical, commercial and financial stages, except R & D, necessary for the realisation of products or new services, as well as improvements and commercial exploitation of new processes or improvements. This category includes the purchase of technologies (incorporated into products or not), tools and industrial engineering, industrial design (not otherwise specified), other acquisitions of capital, manufacturing and marketing of new or improved products.

Production and related technical activities. This topic covers industrialisation, industrial production and distribution of goods and services, as well as various technical services related to the business sector and the economy as a whole, as well as related social science disciplines such as studies of the market.

Administration and Other Support Activities

We distinguish two aspects of this category.

Activities limited to R&D funding:

Activities carried out by ministries, research organisations, foundations or charities to collect, managing and distributing funds to R&D funds are not part of R&D.

Indirect support activities:

This topic addresses a series of activities that do not correctly constitute R&D but supports it. By convention, R&D staff figures include R&D per se, but exclude so-called indirect support activities, while they are taken into account in R&D expenditures by their overhead executors. Transport, storage, cleaning, repair, maintenance and security activities provide examples of this. Administrative activities and office work that are not carried out solely for R&D purposes, including the activities of central finance and staffing, are also part of this topic.

The Boundaries of R&D Activities

R&D vs. Related Activities

The fundamental criterion for distinguishing between R&D and related activities is the existence in R&D of an element of novelty, not insignificant, and the dissipation of scientific or technological uncertainty, in other words,

when the solution to a problem does not seem obvious to someone who is perfectly aware of the full set of basic knowledge and techniques commonly used in the industry under consideration.

R&D vs. Education and Training

In higher education institutions, research and education are still very closely related, because most teachers carry out these two activities and buildings, both often use instruments and equipment.

Given that research results contribute to education and that information and experience gained in teaching can often result in a contribution to research, it is difficult to determine precisely where education or training of connected staff ends to higher education and its students and where they begin the activities in R&D and vice versa. R&D is an activity in which innovative aspects are distinguished from the usual educational system and other professional activities. However, it is difficult to know whether or not to add in R&D scientific activities that are the by-products of a teaching or training activity.

R&D vs. Related Scientific and Technological Activities

The difficulty in distinguishing R&D from other scientific and technical activities arises when several activities are carried out in the same institution. When the surveys are carried out, specific empirical rules allow determining more easily the shared part of R&D. For example:

The institutions or units of the institution and the companies where R&D is the primary activity and which often have secondary activities other than R&D (scientific and technical information, testing, quality control, analysis). To the extent that secondary activity was primarily performed in the interests of R&D, it should be classified as R & D. If it is primarily intended to meet needs other than R&D, it should be excluded.

Institutions where the main vocation is a scientific activity related to R & D, and which often carry out specific research related to this activity. It will be convenient to dissociate this research and take into account the breadth of R&D.

R&D vs. Other industrial Activities

Care must be taken to exclude activities that, while undoubtedly part of the innovation process, are rarely R & D resources. This is the case of patent filing and licensing, market research, the preparation of the launch in the manufacture of tools and the redesign of the design of a manufacturing process. Specific activities such as tool development, method development, prototype design and realisation may have a non-negligible element of R&D, hence the difficulty of accurately determining what should and should not be considered as R & D. This applies particularly in the defence industry and large-scale civilian industries such as aerospace. Similar difficulties may arise when it comes to distinguishing specific technology-based public services, such as inspection and control, related to related R&D activities, e.g. in food and pharmaceuticals.

Experimental development is governed by systematic work based on knowledge gained through research and/or practical experience, in order to begin the fabrication of new materials, products or devices, to establish new procedures, systems and services or to improve substantially existing ones ". It is difficult to precisely trace the line between experimental development and pre-production development, for example, establishing demonstration models for users and corresponding test models, as well as products designed to be applicable in all cases industry. In fact, it would be necessary to elaborate a series of conventions or criteria by a branch of activity. The general rule established by the United States National Science Foundation (NSF) provides a practical basis for assessing difficult cases. In this rule read:

If the primary purpose of the work is to provide new technical improvements to the product or process, they fall under the definition of R & D. If, on the contrary, the product or method or approach is mostly 'fixed'; and whether the goal is to find opportunities for pre-production plans; or that of guaranteeing the production system; or control jobs, then this is not about R&D.

STEP 5: RESEARCH AND DEVELOPMENT

Types of R&D Activities

The term R&D covers three activities: basic research, applied research and experimental development.

Basic Research

Basic research consists of experimental or theoretical works carried out mainly with the aim of acquiring new knowledge about the fundamentals of phenomena and observable facts, without considering a particular application or a particular use.

The basic research analyses properties, structures, and relationships to formulate and test hypotheses, theories, or laws. The reference to "without considering an application or a particular use" in the basic search definition is paramount because the executor does not necessarily know the effective applications as he or she performs surveys and responds to the survey questionnaires. The results of basic research are not usually negotiable but generally result in publications in scientific journals or are communicated to colleagues in the area who are interested. In certain circumstances, the disclosure of basic search results may be "restricted" for security reasons.

In the area of basic research, scientists have some flexibility to define their own goals. This research is usually conducted in the higher education sector but in addition to a certain extent in the public sector. Basic research can be targeted or targeted to large areas of general interest, with the explicit aim of unleashing it in a wide range of applications. This is the case, for example, with the public research programs in nanotechnology, developed by several countries. Eventually, the private sector conducts this type of research to anticipate the next generation of technology. Fuel cell research is a good example. This is a basic search following the above definition, and no particular use is anticipated. In the Frascati Handbook, it is defined as "basic oriented research".

To distinguish basic oriented research from pure basic research, it can be said that:

- Pure basic research is carried out to advance knowledge, with no intention of reaping the long-term economic or social benefits without effort to apply the results of this research to practical problems or transfer them to responsible sectors of their application.
- Targeted basic research is carried out with the expectation that it will lead to the creation of a broad knowledge base that allows solving the problems and perceiving the opportunities that present or may present themselves at a later date.

Applied Research

Applied research also consists of original works undertaken to acquire new knowledge. However, it is primarily aimed at a goal or a particular practical purpose.

Applied research is performed to determine the possible uses of the results of basic research, to establish methods or new ways to achieve specific goals, interrupted in advance. It is about considering existing knowledge and deepening it to solve specific problems. In the business sector, the distinction between basic and applied research is often manifested by the development of a project to explore a promising result obtained from a basic research program.

The results of applied research are firstly based on a single product or a limited number of products, operations, methods or systems. This research allows the operational formatting of ideas. The knowledge or information gathered from applied research is often patented, but may also be kept secret.

Experimental Development

The experimental development consists of systematic work based on existing knowledge gained through research and/or practical experience, intending to the fabrication of new materials, products or devices, to establish new processes, systems and services or to improve existing ones considerably.

In the social sciences, experimental development can be defined as the process of converting acquired knowledge through research into operational programs, including demonstration projects developed for testing and final evaluations. This category has little or no meaning in the case of the human sciences.

How to Distinguish the Types of R&D Activities

The adoption of these categories presents numerous theoretical and practical problems. They suggest the existence of a sequence and the limits that are rarely found in reality. It turns out that the same centre houses three types of R&D and that, in essence, the works are carried out by the same team. It is also a bidirectional process. When an R&D project reaches the stage of applied research or experimental development, for example, we may be required, before proceeding further, to invest in additional experimental research or theoretical research to better understand the mechanisms underlying the phenomena studied. Besides, some research projects may be embedded into several categories. This is how the study of the variables that influence the level of education attained by children belonging to different ethnic and social groups can be considered under the domain of basic research and applied research.

The following examples illustrate the general differences between basic research, applied research and experimental development in the exact, natural and engineering sciences, as well as in the social and human sciences.

Exact, Natural and Engineering Sciences

In a study of a given class of polymerisation reactions under various conditions, the products that result and their physical and chemical properties follow basic research. In attempting to optimise one of these reactions of a polymer endowed with physical properties or mechanical data (which confer particular utility), we are concerned with applied research. The experimental development is then to carry out on a large scale the optimised process in the laboratory and to search for and evaluate possible methods of producing the polymer and possibly the articles that can be made with this polymer.

The study of the absorption of electromagnetic radiation by a crystal to obtain information about the electronic structure is part of the basic research. The study of the absorption of electromagnetic radiation by this same material, varying the experimental conditions (temperature, impurities, concentration), to obtain specific properties of detection of the radiation (sensitivity, speed) is the applied research. The development of a device that uses this material to obtain better current radiation detectors (in the spectral range considered) is part of experimental development.

Determination of the chain of amino acids in an antibody molecule is part of the basic research. The work developed to differentiate the antibodies corresponding to the various conditions is characteristic of applied research. The experimental development will, therefore, be to find a method for synthesising the antibodies corresponding to a given condition based on what we know of its structure and performing clinical trials to verify the efficacy of this antibody synthesis in patients who have accepted to submit to this advanced treatment on an experimental basis.

Social and Human Sciences

Theoretical research on the factors that determine the gaps that characterise regional differences in economic growth is part of the basic research. Nevertheless, the same works developed to elaborate a governmental policy in the matter are part of the applied research. The establishment of operational models based on laws revealed by research is intended to attenuate inequalities in the development of regions within an experimental development.

The analysis of environmental factors that determine learning ability is part of the basic research. The analysis of these factors, with the objective of evaluating educational programs aimed at correcting some environmental disadvantages, is part of the applied research.

The basic research follows the development of new theories related to the risks. The study of new types of insurance contracts, to cover new risks related to the market, is part of the applied research. It works in the same way for the study of new types of savings instruments. However, the development of a new method to manage an investment fund is undergoing experimental development.

Studying the structure and grammar of a hitherto unknown language is part of the basic research. The analysis of regional variations or other variations in the use of a language to determine the influence of some geographic or social factors on the evolution of language is part of the applied research. About what is part of experimental development in the field of human sciences, no significant example can be found.

Examples of software development:

- The discovery of other possible calculation methods, such as quantum computation methods or quantum theory of information, is the responsibility of basic research.

- The work aims to apply the treatment of information in new areas or new processes (for example, the development of a new programming language, a new operating system, new program generator systems). The works that aim at the application of information processing with the objective of developing tools, such as geographic information systems and specialised systems, are in applied research.

The development of new software, systems-sensitive systems, application programs, among others, are proper to experimental development.

How to Start

R&D Activities

Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock knowledge, including knowledge of man, culture and society, and the use of this stock knowledge to devise new applications – Frascati Manual. (OECD, 2002)

R&D activities are classified into three categories: basic research, applied research and experimental research.

According to the definitions and since the goal is to create a start-up, the idea defined in step 1, if it involves R&D activities, the development of it must be focused on applied or experimental research.

The choice will have an impact on the development process and, consequently, in the time-to-market. This last one is crucial to consider because in innovation the time is fatal, and if the innovative entrepreneur is slow in to put the novel solution in the market, a business opportunity can fail.

The development of R&D activities is a dynamic phase. Throughout R&D process the solution development is needed, but the analysis of SOA and market (Step 2) must continue in order to know how science and market are progressing and according to that, updating the R&D work.

In order to better manage the work, firstly a plan must be designed. This plan must include:

- Goals of the solution;
- Features;
- Tasks need to be performed;
- Start date to begin the task and due date to finish the task;

- Milestones to achieve;
- Equipment or Tools need;
- Costs.

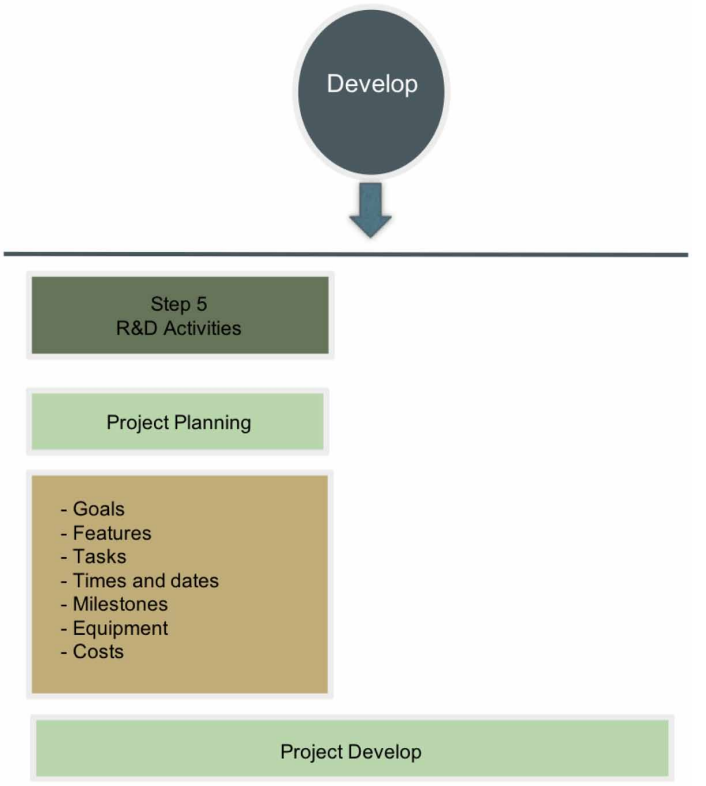
In fact, the points listed above are the basis of a project management planning. When those points are defined, the project Gantt must be drawn. This Gantt is critical since it provides an image of all tasks that must be accomplished and the time of the development.

During the project plan, two considerations must be taken into account: Open Innovation and Budget.

Open Innovation

Open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the market for external use

Figure 1. Representation of the R&D project planning



innovation, respectively. [This paradigm] assumes that firms can and should use the external idea as well as the internal idea, and internal and external paths to market, as they look to advance their technology – Henry Chesbrough

The use of Open Innovation brings several advantages, such as (CH, 2003):

- R&D costs can be decreased;
- There is a potential to improve the development;
- Customers can be incorporated in an early stage of the development process;
- Synergies between internal and external innovations can be made.

However, the Open Innovation is associated with some risks that must be viewed as challenges and not necessarily as disadvantages, such as (CH, 2003):

- There is a possibility of sharing information that is not intended (see IP section);
- To lose a competitive advantage as a consequence of revealing the intellectual property (see IP section);
- To lose the control of the innovation.

If the innovative entrepreneur knows those risks and if he chooses for Open Innovation, he must perform a contingency plan in order to assure that the level of those risks is shallow.

Furthermore, and related to tools, open source must be chosen. Depending on the idea and the type of innovation, there are several open source tools with high quality and performance. These tools will also help to reduce both development and deployment costs.

Budget

The budget is concerning the costs of the development. The costs should include human resources, equipment, tools, software, licensing, among others.

In innovation and also in start-ups the project cost is, in the most of the times, neither planned nor analysed; however, this will be one the main essential issues to analyse the economic value of the solution.

The budget will provide a total value spent on developing a specific solution, and so it will have an impact on the return-of-investment (ROI). Taking into account that in the innovation market, the lifecycle of a particular novel product

is approximately two years, the finance goal will establish the break-even before that. This will have an impact on the price of the solution and so in the sales volume. So, using the information from step 2, namely, market analysis, the innovative entrepreneur must know if the target (consumer) is or not price-sensitive. This is important because if the customer is price-sensitive, the verification of the break- before two years is essential in order to assure the success of the project and the success of making money with innovation.

Thus, to make a forecast of the budget and its update during the development is also needed.

After planning the project, the development can start.

The development in this phase must follow the designed plan, and tasks and costs must be updated. This update is critical in order to have an overview of the project progress.

During the development, there are two other steps needed to be in consideration: Intellectual property (IP) (Step 6) and Listen the Market (step 7).

STEP 6: INTELLECTUAL PROPERTY (IP)

The ability of firms to appropriate the gains from innovation activities is an essential factor with effects on innovation. If, for example, companies are not able to protect their innovations from imitation of competitors, they will have less incentive to innovate. On the other hand, if an industry works well without formal protection methods, the promotion of these methods can curb the flow of knowledge and technology and lead to higher prices for goods and services.

Policies play a central role in designing legal methods of protecting innovations. The data on what types of methods are used and their relative importance can help instruct businesses to maximise the economic and social benefits derived from intellectual property rights.

According to WIPO definition (NF, 2010), IP refers to the creation of inventions, literacy and artistic works, designs, symbols, names and images. The IP is divided into three categories: patents, copyright and trademarks. The importance of IP is vast (NF, 2010):

- It provides the exclusive rights for using and exploiting inventions;
- It gives the opportunity to license or sell the invention;
- It empowers the negotiation;
- It reinforces the company notoriety;

- It avoids the competitors to copy;
- It enhances the transfer of technology;
- It provides the importance to understand the commercial value of IP assets when developing a business plan;
- It is an instrument for obtaining business financing from institutional and private investors.

This way, IP has value because it can (NF, 2010):

- Be legally protected;
- Create income;
- Be valued;
- Attract investors;
- Boost R&D.

Protecting the results of innovative projects can assure the maximisation of its value, taking into account the competition and the position of the solution in the market. IP can also help to define new business strategies to elaborate and negotiate contracts of knowledge transfer.

The following list of protection methods is suggested:

Formal methods:

- Patents
- Design records;
- Trademarks;
- Copyright;
- Commercial agreements.

Informal methods:

- Secrets not covered by legal agreements;
- Product design complexity;
- Time advantages over competitors.

Another formal method used in some countries is smaller patents or utility model patents, which are rights to protect inventions guaranteed without any formal examination.

Patent data, both the solicitations and the concessions, act as an intermediate result of the innovation activity and also provide information on the company's innovative capabilities. For example, a company that applied for patents is presumably capable of developing innovations that are new to the world (occasionally only new to the market, depending on the patenting strategies of other companies). Data on whether or not firms requested or did not obtain a patent can then provide useful information for innovation research and can be used in specialised intellectual property rights (IPR) surveys. It should be noted that the patent data should be relative to the country where the patent was developed and not to the country where the patent was applied for.

Design registration is the primary method of protecting the aesthetic design of products to prevent other companies from using it. Companies can also register trademarks for the company as a whole or a product line, thus protecting the company image and the association of the products with the company. Copyright relates to the end use of certain types of products and rights established to claim payment for the use of copyrighted products.

Patents are methods of protecting R&D results. Confidential agreements between companies and other organisations are also formulated to protect the work of R & D while allowing the company to interact with other organisations in that work.

Options for questions on protection methods include:

- References to product and process innovation only. A further question may be raised about marketing innovations and organisational innovations (for example, if some formal method of protection was used for these innovations). An ordinal scale can be used to inquire about the relative importance of different methods;
- References all types of innovation combined. An ordinal scale can be used;
- References to each type of innovation individually, allowing companies to choose innovations that are relevant to each method of protection. This would allow a higher degree of detail on the use of protection methods, such as identifying formal methods used for marketing methods, for which innovation patents are used, and whether secrets and other methods are used for organisational innovations or other innovations.

Thus, taking into account the value of IP and following the patent research performed in step 2 (Benchmarking), during the development activities, the identification of IP opportunity concerning to the solution must be made. This step must be performed as soon as possible in order to protect and be possible presenting the idea/the results in conferences without problems. Figure 2 represents Steps 5 and 6.

After having a project planning and staring the IP activity, the entrepreneur can start the development of the project. As referred at the beginning of this topic, the development is a dynamic phase. This dynamism is related not only to the development activities but also the IP activity. Thus, the entrepreneur should update the development continually. Small releases in a short time are the best way to achieve the full scope. Thus, Figure 2 can be updated as shown in Figure 3.

Figure 2. The activities for IP management

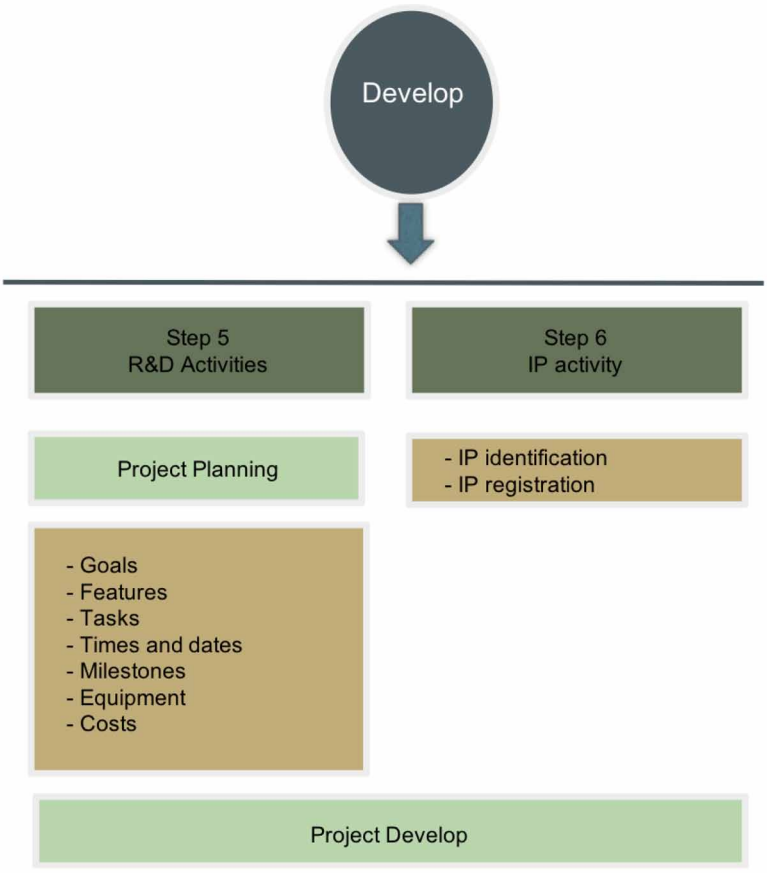
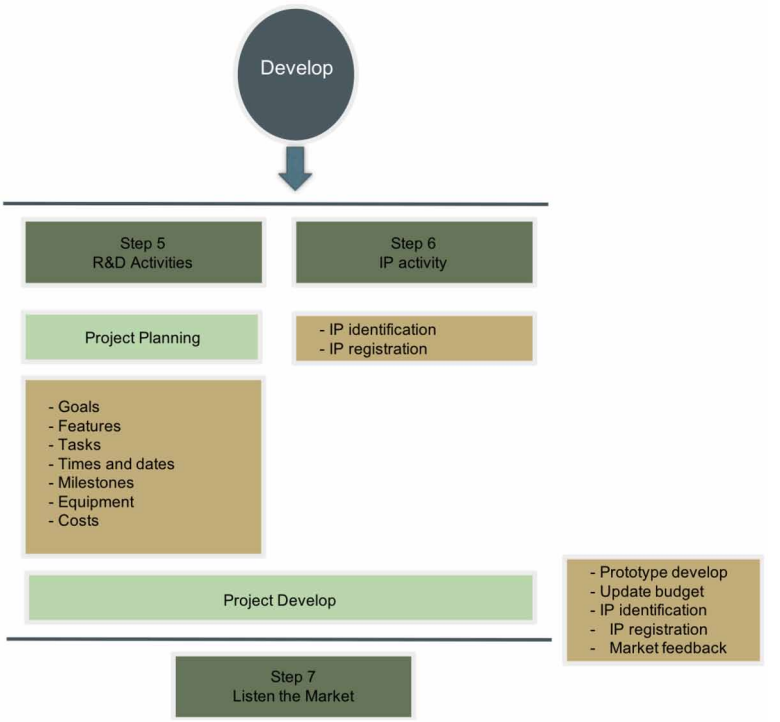


Figure 3. Project develop updated



However, an essential thing in the success of the solution is the feedback of the market. This is crucial for updating or improving the solution, thinking about the market success. Thus, the step 7 of the innovation process is "Listen to the Market".

STEP 7: LISTEN TO THE MARKET

In order to know if the developments are on the right path concerning the market needs, the implementation of small pilots is essential. The aim of these pilots is not to launch the solution but test the prototype in a controlled environment (as a proof-of-concept) in order to collect feedback from customers (their acceptation) and how much they are willing to pay. Thus, this feedback will provide information for:

- **The Development (Step 5):** The acceptation of the concept and its feedback concerning its functionality must be used as input to improve the solution. Some features will be removed, others updated and others added. This aims to fit the solution to the real needs of the market and so to try becoming the solution realistic, increasing the potential to have a viable business;
- **The Market (Step 5):** How much the customers are willing to pay and how they will consume the solution are essential issues to design a good business plan. Furthermore, these inputs will provide information for the calculation of ROI and, consequently, the real viability of the business in two years.

For listening to the market, the recommendation is to divide into two different pilots: Alfa pilots and Beta pilots.

Alfa Pilots

Alfa pilots should be a small but representative sample of customers that will provide feedback on User Experience and System Stability.

Don't forget to test the user journeys already defined. So, on the surveys, please assure to get metrics or information if user journeys are corrected or not.

Beta Pilots

Betas pilots should consist of a more significant sample of customers. Form these pilots apart from the user experience and system stability the entrepreneur should be able to have feedback about the system performance, scalability and flexibility as well as business model.

All the inputs from pilots should be included in the project develop and should be a useful input for the business plan and marketing strategy. These points are crucial for the success of the solution on the market.

Figure 4 represents the Step 7 flow.

Listen to the market can be considered the last step of the development activity. From here, the prototype will be improved, and the guidelines for designing the business plan are available.

Thus, during these activities, Business Plan Activity (BP) shall be started.

There is innovation if we can put an innovative idea on the market; otherwise, the new idea is just an invention.

Figure 4. Step 7 flow

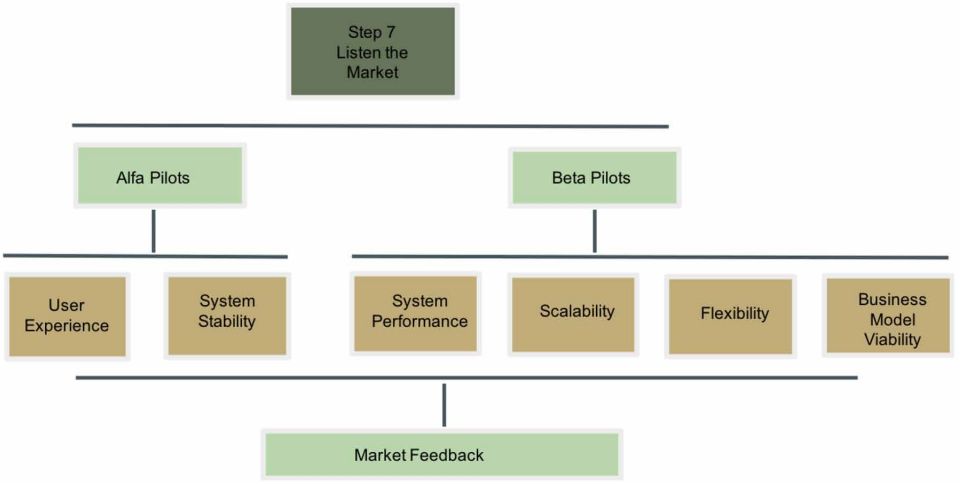
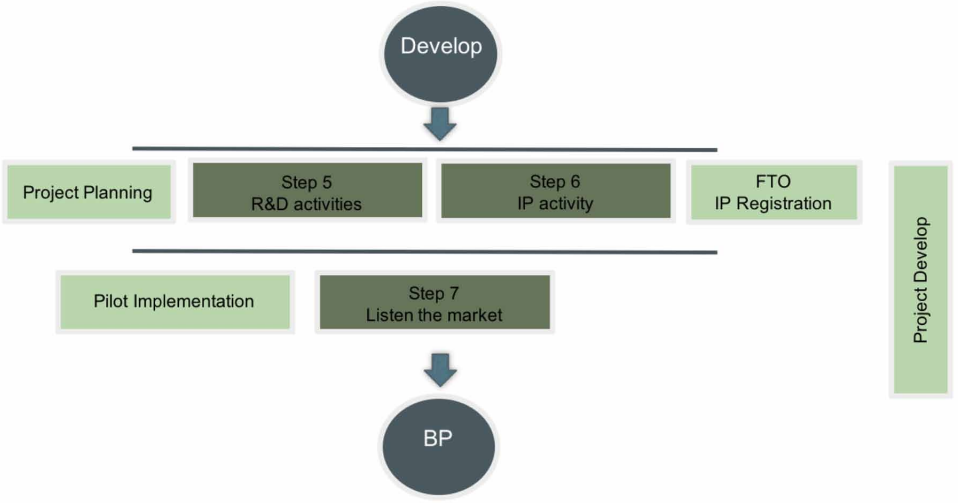


Figure 5. From development activity to business plan (BP) activity



AN EXTRA STEP

During research projects, to find intermediate R&D outcome throughout the project development is normal. Thus, the entrepreneur should take advantages of this, creating the Project Innovation Pipeline.

Thus, when finding intermediate R&D results entrepreneur can create innovation, the entrepreneur should study it as a new idea, i.e., take those results and follow the steps of Phase – Start, starting by Step 2.

According to the type of innovation and the time of innovation, to prioritise the Innovation Pipeline is crucial in order to focus on the central innovation, driving it to the market.

Figure 6 illustrates the Extra Step.

CONCLUSION

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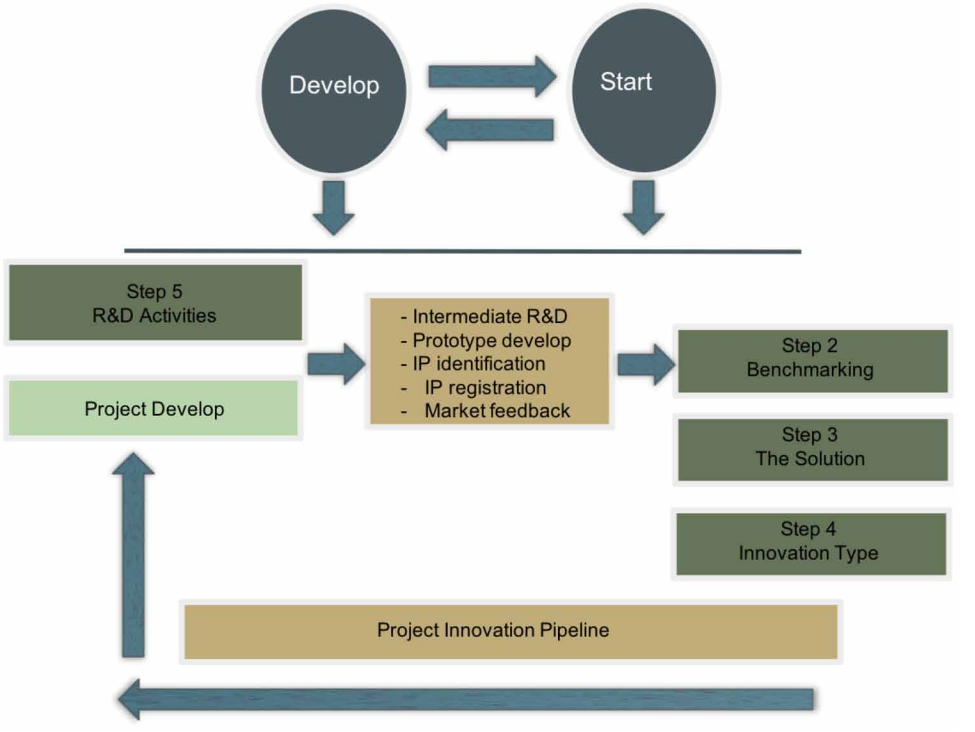
Figure 6. Extra step flow in the development phase



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Protecting the results (Step 6) of innovative projects can assure the maximisation of its value, taking into account the competition and the position of the solution in the market. IP can also help to define new business strategies to elaborate and negotiate contracts of knowledge transfer.

Thus, taking into account the value of IP and following the patent research performed in step 2 (Benchmarking), during the development activities, the identification of IP opportunity concerning to the solution must be made.

In order to know if the developments are on the right path concerning the market needs, the implementation of small pilots is essential - Step 7.

All the inputs from pilots should be included in the project develop and should be a useful input for the business plan and marketing strategy. These points are crucial for the success of the solution on the market.

Listen to the market can be considered the last step of the development activity. From here, the prototype will be improved, and guidelines for designing the business plan are available.

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Chapter 4
Business Plan

ABSTRACT

This chapter describes how to design a flexible business plan and the importance of implementing pilots in real environments. The lack of a business plan is the main reason for the failure of several start-ups. The business plan will provide a mean to design the business strategy and also how to implement it. This is a dynamic process. When the final functional prototype is done, it needs to be tested in a scalable and semi-real environment. For that, the implementation of a real pilot is mandatory. It is advised to perform the pilot in collaboration with the right business partner.

INTRODUCTION

[The Business Plan is] a written document describing the nature of the business, the sales and marketing strategy, and the financial background, and containing a projected profit and loss statement. (Rampton, n.d.)

The lack of a business plan is the main reason for the failure of several start-ups. The business plan will provide a mean to design the business strategy but also how to implement it. The business plan must be updated during the implementation in order to keep it up-to-date according to the changes happened in the go-to-market (Step 10).

This way, the definition of a flexible business plan is the Step 8 of the innovation process.

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STEP 8: DEFINE A FLEXIBLE BUSINESS PLAN

Generally, business plans consist of:

Chapter 1: Title Page and Contents
Chapter 2: Executive Summary
Chapter 3: Description of the Business
Chapter 4: Description of the product or service
Chapter 5: Market Analysis
Chapter 6: Competitive analysis
Chapter 7: Marketing Plan
Chapter 8: Operations and Management
Chapter 9: Financial Components of Business Plan

There are many templates for making a business plan; however, before starting with this document, some critical steps must be performed in order to support and help with the document:

1. Update market analysis (step 2 – market research);
2. Based on 1), define the markets (countries) to commercialise;
3. Study of the chosen markets;
4. Describe the benefits of the new solution for those markets (update step 1 – features and its benefits);
5. Define a price based on market feedback (step 4);
6. Calculate the shared quote to achieve;
7. Define the channels used for putting the solution on the market;
8. Define the channels for communicating;
9. Fill the business plan canvas;
10. Find a business partner (step 6);
11. Do the business plan document.

During this phase, there are some tools and methods can help in filling each point listed before.

Following, some points will be briefly discussed.

Define the Markets (Countries) to Commercialize

The definition of markets (2) to commercialise the solution must be based on the market analysis performed in step 2 – market research. This should be done because it provides information about which are the best markets and why. The analysis can be made following infinite variables. Here the innovative entrepreneur must be creative in to find those variables according to the analysis, and he must cross the information about the market. Furthermore, the definition of those variables will provide valuable information for studying the chosen markets (3. Study the chosen markets).

Furthermore, the internationalisation of the solution is also very important, because it can expand the business and increase the sales. However, the internationalisation is not a simple process. When choosing the markets and countries, the culture of different countries must be taking into account. This is important because both price and solution might be adjusted according to each country. Thus, culture information will be an input for the business plan, which must be flexible and be frequently updated whenever new market opportunities arise. New market opportunities can also imply some adjustments in the solution (step 3) and, consequently, in the business plan.

Study the Chosen Markets

The study of the market (3) must answer the following questions:

Question 1: How the market is characterised?
Question 2: What is the total value of the market (€)?

Regarding the *Question 1*, the answer can be getting from the analysis of Porter's Five Forces (MP, 2008) and Ansoff matrix.

Porter's Five Forces shape every industry, and helps determine an industry's weaknesses and strengths based on:

- Competition in the industry;
- Potential of new entrants into the industry;
- Power of suppliers;
- Power of customers;
- A threat of substitutes products/services.

Table 1. Ansoff matrix

		Products	
		Existing	News
Market	Existing	*Market Penetration*	*Product Development*
	News	*Market Development*	*Diversification*

The Ansoff matrix is the model used to determine the growing opportunities of business. This is made based on the following matrix (Table 1).

Concerning Question 2, many methodologies can be applied; however, to get the answer to this question, the innovative entrepreneur must answer to:

Question 2.1: Total turnover generated in the said market (€)?
Question 2.2: Total number of clients/customers?

Define a Price Based on Market Feedback

The definition of the price is an essential issue in the business.

In innovation, care with customers and their behaviour related to price (price-sensitive or not), but also the development cost and the scalability of the solution are essential issues, whose input to define a price.

Development costs and scalability have an impact on the return-of-investment (ROI); on the other hand, the sales are making if the customer purchase, so, the price must be defined, namely based on what customers are willing to pay and how they will consume the solution (step 4).

Based on this, the final ROI can be calculated, and the economic viability of the solution will be transparent. One crucial issue must be noted: the life cycle of an innovative solution is between 2-3 years. So, the break-even must be achieved in the middle of the cycle; otherwise, the business viability can be compromised, namely because the solution after 2-3 years probably will be obsolete for the market. Even so, the price must be defined by the market feedback and not in the development costs. To define a price based on development costs can be the beginning of the end.

Calculate the Shared Quote to Achieve

Define business goals is mandatory.

Business goals will be translated into the shared quote.

Thus, the calculus of shared quote (6) will use some information about:

- Total turnover generated in the market;
- Total number of clients/customers, and
- Price of the solution.

Furthermore, based on the characterisation of the market (Question1), the innovative entrepreneur will make a forecast of the number of customers he will achieve in the first year. Then, according to it and multiplying by the price of the solution, the innovative entrepreneur will have the business goal in euros. To get the shared quote, the business goal will be divided by the Total turnover generated (Question 2) in the market.

This way, for calculating the shared quote, the following questions must be answered:

Question 3: What is the business goal (€)?
Question 4: What is the shared quote (%)?

Marketing Strategy

Regarding points 7 and 8, channels and communication, respectively, the philosophy is to minimise marketing costs, but maximising marketing results. Thus, digital marketing and online tools for selling present an excellent way to achieve the business goal at the beginning.

According to Smart Insights and TFM&A 2014 report (CD, 2014), 58% of the respondents are convinced that the investment in digital marketing can deliver and 56% said the business has the potential for improving

This way, using digital marketing involves:

- Website (Desktop experience);
- Mobile (Mobile site and/or apps);
- Landing pages;
- Email marketing;
- Social media marketing;
- Content marketing;
- Paid digital media.

Business Plan Canvas

The Business Model Canvas (BMC) (Strategyzer, 2015) is a strategic management template for developing new or documenting existing business models. The BMC consists of nine blocks, describing the value's proposition, infrastructure, customers and finances. The Nine blocks are:

1. **Customer Segments:** This must be filled with the information from market research about the customers;
2. **Value Proposition:** This must be filled with the benefits of the solution;
3. **Channels:** This must be filled with the channels to put the solution on the markets and the channels to communicate and promote the solution;
4. **Customer Relationships:** This must be filled using the information of how the customer will consume the solution;
5. **Revenue Streams:** This must be filled with how the innovative entrepreneur will make money with the solution;
6. **Key Activities:** This must be filled with strategic activities needed to deliver the proposition (e.g. find a business partner (step 6);
7. Key resources;
8. Key Partnerships;
9. Cost Structure.

BMC is the most popular tool for business model innovation, namely because it provides: focus, flexibility and transparency.

It is a tool to have a good overview of the business and significant support to start writing the business plan document.

Figure 1 represents the Step 8.

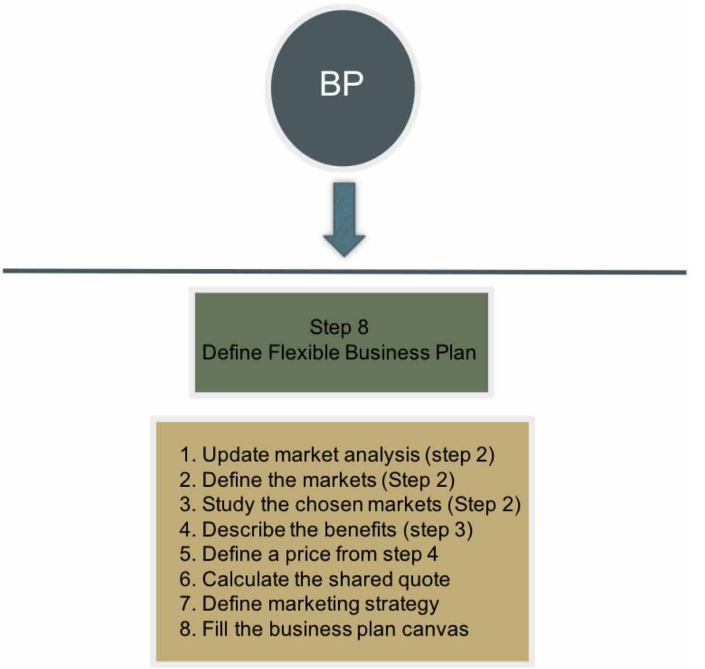
STEP 9: FIND A BUSINESS PARTNER

When Step 7 is finished, i.e., when the final functional prototype is done, to test it in a scalable and semi-real environment is needed. For that the implementation of a real pilot is mandatory.

This phase corresponds to the step 9 of the innovation process, and it is advised to perform the pilot in collaboration with the right business partner.

This business partner is not a venture capital but also a potential customer of the solution.

Figure 1. Step 8 details



Thus, the identification of the customers and study the market is essential in order to know what type of business partner must be found.

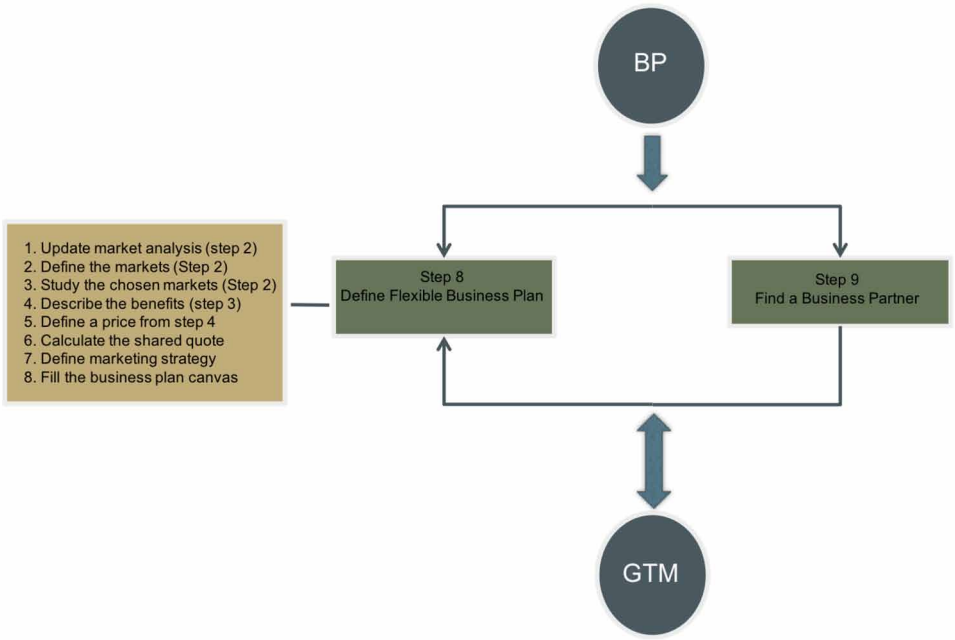
Making a real pilot with a potential customer will help not only to test the solution but also to have feedback from a real customer. This feedback must be used to improve the solution (step 3) and also the business plan.

Furthermore, involving an excellent potential customer in an early stage, the quality of the solution can be, and the probability of the success in the market can be increased.

A good business partnership can be used to promote the solution and, consequently, to gain notoriety in the market and start attracting other customers.

Figure 2 illustrates the flow of Business Plan phase.

Figure 2. From BP to go-to-market (GMT)



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Chapter 5
Go-to-Market

ABSTRACT

The importance of defining how to go-to-market is described in this chapter. Go-to-market (GTM) is the final step in the innovation process. It is the time of making money. The first part of the go-to-market plan (what is the target?) needs to be defined in your company's value proposition. Who will buy what the company sells? Why is the product or service better than the competition? The second part (how to hit the target?) can be built with a go-to-market plan. This plan is a roadmap for deciding how the entrepreneur will enter the market. What will be the price of the product, how many people will the sales team need, through which channels will the product be sold? One critical thing in the innovation is to understand if the time is right. For that, this chapter proposes a simple method using Porter's five forces.

INTRODUCTION

Having Go-to-Market planning is to have a short to medium term action plan that specifies how a company will work its business front to reach its customers and achieve a specific result in a particular market. It is a work that is based on the detailing of a strategy, usually the long-term vision, with the objective of establishing a model for the dissemination, marketing and delivery of a product or service to the final customer. All these considering factors such as the structuring of offers and ways that they must go to reach the target market.

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The Go-to-Market strategy is broadly similar to a business plan - although the latter is broader in scope and considers factors such as financing and return in the long run. It is a method that is also suitable for companies that want to restructure, expand their portfolio, expand their market or apply the repositioning of a product or the brand itself.

This type of planning is often associated with product launches and market expansion, but it can also be used to describe the specific steps the business needs to take to address customer interactions with existing products.

Shooting all over does not work. If having a company and therefore the goal of selling something, setting the target is key to success in the long run. Whenever a business starts, or a new product is created, one needs to understand for whom this product will be useful and what will be the strategy to reach people or companies willing to pay for it.

The innovation time also plays a significant role.

Innovation management faces a paradox. The paradox of innovation is that when the company needs it, it cannot, and when it does not seem to need it, it is when it is in a position to innovate.

At the moment things are going well the company does not feel the need to innovate. After all, the team that is winning does not move, right? With these and other issues, sometimes companies fail to renew themselves, attending to their core business. Paradoxically, it is at this time that the company has more resources available. It can invest time. It has financial resources that are generated by the success of the existing operation that can be selectively targeted for future opportunities. At that time the company also relies on the people to try the new.

On the other hand, when the result starts to get damaged the scenario reverses. The company definitely needs innovation. However, it no longer has resources that need to be allocated in initiatives that could generate short-term results to finance the company's survival and continuity of operation. In this situation, unfortunately, the company also loses confidence, has no time to invest in uncertain opportunities, and no organisational cohesion to discover new paths.

When the negative situation becomes more pronounced, and the damage takes hold, there is no more managed innovation approach to do. The only output is a turnaround.

Investing in innovation is the best way to ensure future results. Innovative betting is the best alternative to generate future cash flow from new opportunities. The challenge is to create the right context, structure, and processes to induce investment of time, management attention, and financial

resources into innovative opportunities while the company is doing well and presenting financial health.

No matter how much need to innovate and what resource availability business has for both. The entrepreneur has to start earlier than necessary. In that case, the entrepreneur is the master of the reason that sets the right time to start innovating.

Thus, the time of innovation is crucial, and it should be monitored. When we are trying to innovate, we need to know if we have the time or not.

The complexity of the solution, the level of competition is an essential factor that should be analysed. For that, this chapter is proposing a new method to analyse the innovation time.

STEP 10: GO-TO-MARKET

Go-to-market (GTM) is the final step in the innovation process. It is the time of making money.

This step must start when the other steps are concluded and must follow the defined business plan (step 8). Most of the information necessary for planning the go-to-market is included in the business plan.

It is imperative to note that even in this last step, during it step 8 must be continually monitored and updated and sometimes step 3 must also be updated with new features, according to the market feedback.

Planning the Go-To-Market

Basically, in implementing a Go-to-Market plan, the concept of the business, or one of its divisions, is clearly defined and exploited. The competition practices, the profile of the customers and the characteristics of the target market are studied. After making the necessary analyses, an executive summary is prepared, a summary of the topics covered, and each topic is treated separately.

As an initial step in this activity, it is necessary to define the target audience for a particular product or service, both geographically and by type of population or business profile if we are talking about B2B. In the case of a new offer, the company will decide whether it has existing customers that can be treated as prospects or whether it will be necessary to seek new consumers in the market.

Then it is necessary to analyse the product or service to be offered, and its particular benefit to the intended customers, and then from the proposal of a defined value can determine a strategy of prices. This can be a big challenge, especially if a company is shifting from product offering to service sales and needs to adopt a new pricing model, for example. Moreover, that is where the business methods and techniques used in this type of planning, when well applied, can be decisive.

Essential Components of a Go-To-Market Plan

Such a plan needs to cover essential aspects, which serve to have an initial perception of a market, its trends, and even a viability analysis of a launch strategy. These essential components can be divided into seven topics.

Business Summary

It presents a high-level overview of the business environment and a summary of what the plan will do. The summary should address the critical business drivers behind the decision to sell the product or service that will be addressed; highlight the key performance indicators that will be used to measure the success and identify the market to be worked and critical competitors along with the differentials that will be highlighted to compete in the market.

A complete Go-to-Market plan should also include detailed forecasts and specifications on expected market behaviour.

Product Strategy

This section of the plan identifies the offers that will be launched along with any special promotions or other tactics that will help sell both to new customers and to the active portfolio.

At this point, details about the differentials between the company's offerings and those of its competitors need to be investigated and clarified. They can help build a more persuasive business message at launch and also throughout the sales cycle.

Channel Strategy

In the channel strategy, it identifies the primary channels used both to sell the products and to support the customers, along with the resources, training actions and incentives that drive performance on this front.

By channel is meant the broad concept of the word, including distributors, internal sales force, remote sales force, internet, telemarketing.

Marketing Strategy

This section summarises the activities that will be used to drive awareness and generate business in both the identified markets and the chosen customer base. This strategy can also include activities to generate internal awareness (actions of endomarketing, for example), and needs to exploit very well the internet and its communication platforms, in addition to the more 'traditional' channels, as a way to optimise investments. This topic is crucial since a good marketing strategy will leverage the business.

Thus, we would like to discuss a little more about this topic, mainly, what is a straggly marketing plan. This will be done in the next section.

Customer Experience

This section documents the consumer journey: the steps it must take since discovering a need related to the company's offering to the decision to buy the product or service that will be launched or repositioned.

It is thinking of the customer experience that a plan for how consumers will be attracted to the product, the messages they will receive to heal their doubts and objections. How to gain confidence and decide to buy; then what will be done when the potential customer is already ready to close the deal, and after the sale, how the product or service will bring a good experience to the purchaser.

By planning the customer experience well, it is possible to reduce churn rates, increase satisfaction, and gain positive feedback and feedback, which can be instrumental in increasing sales rates and profitability with the released product.

For this topic, the information received from pilots (Step 7 – "Listen the Market") should be analysed. They should provide with valuable information to define a customer strategy.

Metrics to Evaluate Results

The Go-to-Market plan also includes the creation of metrics and performance indicators to assess the success of the actions handled and the product/service in the market. It is essential to be as specific and detailed as possible to outline goals and evaluate the tactics used by marketing and sales teams. This will help keep everyone involved in line, set appropriate goals, and evaluate them with assertiveness.

Execution Chronogram

Finally, it is necessary to establish the implementation schedule, including the next steps, the critical path for decisions, essential milestones and circumstances to review and refine the plan. This last point should not be forgotten: the right Go-to-Market strategies are not static but evolve over time.

Marketing Strategy Plan

As we mentioned before, the marketing strategy is one of the essential components for Go-To-market.

Having a plan of marketing activities is fundamental since the competition is increasingly fierce because, with the advent of digital marketing, there are possibilities to work with all sizes of budgets. Thus, strategically structuring products and services, getting to know the target audience and communicating with them effectively is not a differential but rather a fundamental need for survival. What is a strategic marketing plan?

What Is a Strategic Marketing Plan and What Is It for?

A strategic marketing plan is considered as a creative process in which the company strives to implement actions of communication with the market and dissemination of its products and services in order to establish and maintain a stable flow of business.

Strategic marketing planning involves the combination of experience and organisation history with what the general direction of the company wants and needs to do to succeed. For example, market segmentation plays a vital role in strategic marketing. Therefore, knowing the data of the target audience (who is the ideal customer, what he seeks, in which situations he uses the company's products and services) can help to understand buying habits and serve as a guide when it comes to thinking of brand positioning and the purest form of communication.

It is also correct to say that strategic marketing planning allows companies to identify their strengths and weaknesses, meet the competition, adjust their key messages to communicate best with the market, develop products and services according to the needs detected, among other factors.

The Central Actions That Makeup a Strategic Marketing Plan

Strategic marketing planning consists of five pillars:

1. Determine the position of the company

At this point, to understand very well the current position of the company concerning its results, competitors and customers is critical. This analysis allows the planning team to identify what has been done so far and evaluate the success of the overall plan with historical results as the basis.

2. Define the goals and strategies

Strategic marketing planning is never complete without formalising the organisational goals and strategies to be implemented. By doing so, it becomes easier to rationalise the resources used in production, distribution, and marketing, and to turn objectives into goals to be achieved.

For example, a goal may be set to indicate the intent to improve brand recognition and corporate reputation, and throughout the plan, it is sought to list the actions corresponding to the definition of the media or promotion and the most appropriate methods to achieve the results linked to that objective.

3. Map market opportunities

The plan should always assess emerging or existing market opportunities that can be leveraged in the short and long term. By doing this, it becomes more comfortable and less risky to dedicate resources to marketing actions, because these will be prioritised and the most promising opportunities will be addressed.

4. Define the target market

Another point contemplated in an excellent strategic marketing plan is the definition of who are the ideal people or companies to direct the products and services that the company develops and markets. Defining the target market is crucial because it allows researching consumer needs, demands and even preferences. Moreover, this helps drive sales and relationship efforts with the target audience.

5. Allocate the marketing budget

It is also in the marketing plan that is defined the amount of money that will be allocated for the execution of actions such as publication of announcements, events, sponsorships, strategies in the digital environment, among others.

The Benefits of Having a Strategic Marketing Plan

The main advantages are:

- **It Elevates the Self-Knowledge:** The company immerses in its strategy and demonstrates more efficiently to all the involved ones where it is and where it wants to arrive;
- **Improvements in Brand Positioning:** Allows the business to create and use consistent messages, both internally and externally;
- **Differentiation From Competitors Increases:** By knowing how similar companies position themselves, how they communicate and how their products and services are, the business starts working more actively to differentiate itself;
- **Sales Increase:** Having more targeted marketing actions, the commercial result tends to improve;
- **Increasing Value-Added:** Better planning the marketing, the company gains more confidence in the consumer and, with it, gains more reputation and more value;

- **Profitability Gain:** The companies that invest the most in marketing are the ones that get the most profits because they position themselves better, know their customers better and sell more.

The go-to-market must follow the defined business strategy, and the innovative entrepreneur must be prepared to fight with obstacles, competitors, among others, and psychologically prepared for the failure. Remember that just 1% of the innovation have success.

The primary market must be well worked and then, the other markets. It is also imperative to continue to listen to the market feedback and adjust the strategy. This is the harder phase but the funniest. Don't lose the north is an essential thing and follow the feelings as well.

TIME OF INNOVATION PROCESS

A critical issue in the innovation process is the time, i.e., how long innovation process must take?

Even being essential and with high impact in the innovation, in fact, there is no a corrected and an exact answer to the question. Generally, the answer is: as soon as possible.

Even so, some inputs could help in this question.

As described in this book, innovation can be done from the product, process, organisation, marketing and strategy. Depending on each one and the complexity of the innovation, one variable can support in to know how long the innovation process must take: the market.

The step 2 of the innovation process involves market research in order to get information about the market where the new idea will be commercialised. Information about the market is its characterisation. As mentioned before, the market characterisation can be done from 5 Porter's Forces (MP, 2008). These forces will provide data about market behaviour and, most important, the level of competition.

Porter's Five Forces

Maximiano (2006) states that "understanding the competitive forces of a business is critical to the development of the strategy."

Thus, Serra, Torres and Torres (2004) affirm that the analysis of the external environment can be realised through the model of five forces of competitiveness, developed by Michael Porter in the 70's.

The model makes it possible to analyse the degree of attractiveness of a sector of the economy. This model identifies a set of five forces that affect competitiveness, among which one of the forces is within the sector itself, and the others are external forces.

Alternatively, as Aaker (2007) argues, "the attractiveness of a segment or market, measured by the long-term return on investment of an average company, depends to a large extent on the five factors that influence profitability."

Porter's five forces are part of a competitive human-made model that takes its name, Michael Porter, professor of strategy and competitiveness at Harvard Business School.

Many companies have used this methodology, which consists of considering 5 "forces" that, according to Porter, can determine the position of any company in their respective market.

The idea behind choosing these forces was that they never change, unlike more volatile factors such as industry growth rates, government interventions, and even technological changes.

However, after all, what are Porter's five forces? Follow the list:

- Rivalry between competitors
- Bargaining power of suppliers
- Clients' bargaining power
- Threat of new competitors
- Threat of new products or services

Rivalry Between Competitors

The first force is the rivalry that exists between competitors, that is, the degree of competition that exists.

Some markets are uncompetitive, but this may indicate that demand is not so high or that the product is becoming obsolete (which will be determined by analysing the fourth force).

On the other hand, some markets are incredibly saturated, with many competitors competing for a limited number of customers. In that case, power will be much lower.

Some questions that will help to analyse this point are:

- How many competitors are there in the industry?
- What is the situation of competitors, do they compete for price or other differentials?

Bargaining Power of Suppliers

The bargaining power of suppliers is intended to determine how much their market position lies in the hands of those who supply raw materials.

The idea here is simple: if the number of available suppliers is low, the control will be less, since others will be in a comfortable position to raise prices, terms and other terms of the agreement.

When the number of options is significant, in turn, the situation reverses, and the entrepreneur gets to have control. Hence the entrepreneur can buy cheaper and make demands, such as faster delivery and facilitated payment terms.

The questions that serve to discover the bargaining power of suppliers are:

- How many suppliers are there in the industry?
- Is there much difference between them?
- What is the cost of switching from one supplier to another?
- Who holds power: me or my supplier?

Clients' Bargaining Power

The bargaining power of customers follows the same fundamental principle as mentioned above, so that the higher the level of competition in the market, the higher will be their control over the selling process.

Of course, if clients find themselves in a situation of scarcity, in which few companies offer the solution they need, control goes back to business.

However, in some cases, the average ticket is high, which makes each customer an essential part of the company's revenue. This makes the bargaining power more balanced, since one depends almost equally on the other.

It can conclude on the bargaining power of customers by considering:

- What is the proportion of buyers to suppliers of the product?
- What is their power to dictate business terms?
- How does my customers' average ticket influence the buying process?
- Clients are active in social media, to affect the opinion of others?

Threat of New Competitors

Depending on the market segment in which the business is located, the level of difficulty for new players to start their own operations changes considerably.

For example, consider the markets that have gained space with Digital Transformation, such as info-products and e-commerce.

It is straightforward and quick to enter these markets, as the technical difficulty and operating costs are getting smaller and smaller.

On the other hand, in order to compete in the internet market for Things or Artificial Intelligence, the situation is already changing, given the high investments required.

How to determine this in the industry? For answering the following:

- What is the initial cost of opening a business in the segment?
- Are there laws, regulations, and accreditations that are needed?
- Are there any investment funds or tax incentives available to anyone who wants to enter the industry?
- Are there other entry barriers that strengthen the position?

Threat of New Products or Services

Not always the worst threat comes from a known competitor or new market players, but from new products or services that make the solution outdated.

So it is worth pondering this threat, which represents Porter's fifth and final force.

Again talking about Digital Transformation, it is undeniable that this movement has brought radical (and permanent) changes in the way people consume products and services.

Even tasks that seemed almost impossible to scan a few years ago, such as signing documents or buying clothes and shoes, are common today.

So, think about the following questions:

1. Is there any design or prototype that could replace the product?
2. Is there any part of the work that could be automated, replaced or outsourced?
3. Is it easy to find alternatives to the solution I offer?

Porter's Sixth Force

Another force, usually called Porter's sixth force (although not used by him in the original article) can also be a great help in explaining strategic alliances between companies.

After all, these alliances are formed all the time, whether by large companies or small businesses - and it is encouraged by this practice.

This force is called complementarity when one product or service can significantly benefit from being marketed to another.

Examples of this involve the partnership of fast food chains with brands of soda or chocolate for the production of desserts, or of travel agencies with airlines for the sale of trips.

The best way to use this force is to think about who can be the companies that would serve as your complement, and develop strategies together.

The information will get from Porter's Forces can be combined with market research. Remember that market research will provide:

- Market information (prices, supply and demand situation and the understanding of social, technical a legal aspects).
- Market segmentation, which consists of dividing the market or targets into clusters with similar characteristics. The segmentation could be done base on some variables such as: geographic, personality, demographic, technographic (consumer behaviour), psychographic and gender. Also for B2B firmographics (organisational behaviour) is also used.
- Market competition: who are our competitors and what they are doing. Learn from our competitors is very important in order to drive our idea and to increase the probability of success. Furthermore, blogs, magazines, news, among media means must be followed over the time in order to assure that we know the current situation of the market and so to be easier improve our solution and define the business goals.
- Market trends, which are the upward or downward movement of the market in a particular time must be evaluated since trends will have an impact on our solution and business goals.
- Market size (current customers and potential customers).
- Market Value (the available market and the future market).

Both methodologies will help in understanding how the market is and if there are space and time for innovation.

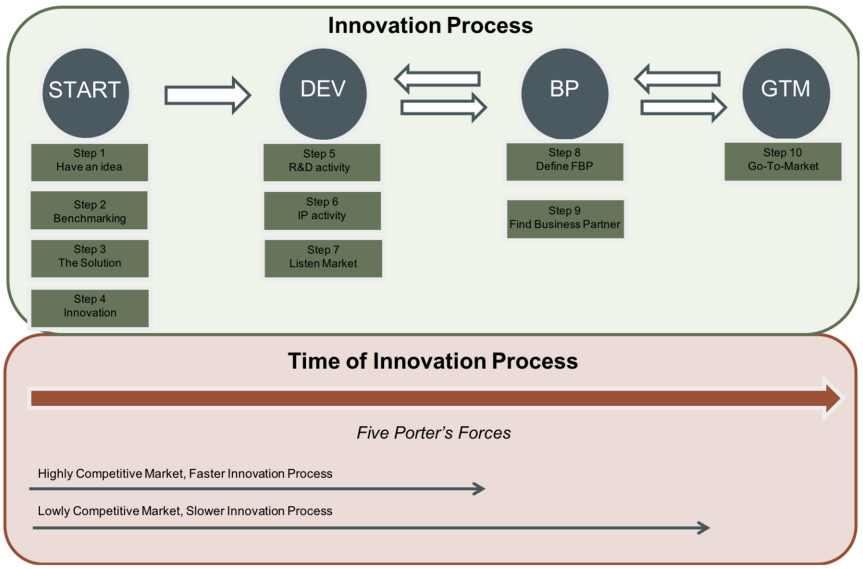
Innovation Time

In the case of a market with high competition, the innovation is a mean for an organisation gets differentiation from competitors. On the other hand, markets with high competition reveal to be faster and so the time to put novel products/services is short. Thus, for these types of markets, the innovation process must take lesser time than other markets.

This way, for this proposed method, to make proper market research is vital in order to know the market and the customers' needs. Furthermore, this is just one variable to provide a qualitative measurement for the time of innovation process; however, the complexity of novel solutions and the development activities are variables that will have an impact in the time of the innovation process.

This way, Figure 1 represents the innovation process as well as its innovation time.

Figure 1. Innovation process and time



CONCLUSION

Shooting all over does not work. If having a company and therefore the goal of selling something, setting the target is key to success in the long run. Whenever a business starts or a new product is created, one needs to understand for whom this product will be useful and what will be the strategy to reach people or companies willing to pay for it.

Go-to-market (GTM) is the final step in the innovation process. It is the time of making money.

This step must start when the other steps are concluded and must follow the defined business plan (step 8).

The first part of the Go-to-Market plan (what is the target?) needs to be defined in your company's value proposition. Who will buy what the company sell? Why is the product or service better than the competition? The second part (how to hit the target?) Can be built with a go-to-market plan. This plan is a roadmap for deciding how the entrepreneur will enter the market. What will be the price of the product, how many people the sales team will need, through which channels it will be sold?

Here's the first lesson on a go-to-market strategy: for creating a market, the company needs to have its value proposition well defined.

In the ideal world, the value proposition is defined as soon as the company leaves the role. Gradually, it needs to be tested in the market and improved in accordance with.

Therefore, it is fundamental to test the product to know better the customers (Step 7 – "Listen the Market"), adjusting the value proposition. The more mature, tested and proven it is, the more confident the go-to-market plan will be.

With product and market more aligned, there is a better basis to structure the plan of how to win customers and achieve goals.

The central market must be well worked and then, the other markets. It is also crucial to continue to listen to the market feedback and adjust the strategy. This is the harder phase but the funniest. Don't lose the north is the essential thing and follow the feelings as well.

One crucial issue in the innovation process is the time, i.e., how long innovation process must take?

The innovation time also plays a significant role.

Innovation management faces a paradox. The paradox of innovation is that when the company needs it, it cannot, and when it does not seem to need it, it is when it is in a position to innovate.

Investing in innovation is the best way to ensure future results. Innovative betting is the best alternative to generate future cash flow from new opportunities. The challenge is to create the right context, structure, and processes to induce investment of time, management attention, and financial resources into innovative opportunities while the company is doing well and presenting financial health.

Thus, the time of innovation is critical, and it should be monitored. When we are trying to innovate, we need to know if we have the time or not.

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In the case of a market with high competition, the innovation is a mean for an organisation to gets differentiation from competitors. On the other hand, markets with high competition reveal to be faster and so the time to put novel products/services is short. Thus, for these types of markets, the innovation process must take lesser time than other markets.

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Chapter 6
In the Future

ABSTRACT

Innovation consists of a complex process. We need to create new ideas, but these ideas need to be exploited in the market, need to have an impact, and need to bring a new opportunity of changing. The innovation corresponds to the implementation of a new solution for the market or company. There are five types of innovation: 1) product, 2) process, 3) organisation, 4) marketing, and 5) business model. Another point that must be studied profoundly is how long the innovation process must take. The book presents a method; however, other variables must be taken into account. Thus, it is also essential to design a strategy for measuring the time of process innovation in order to help the innovative entrepreneur.

INTRODUCTION

Innovation, according to the Oslo Manual (Eurostat, OECD, 2005), concerns the introduction of a new or significantly improved product (service or service) or process, a new marketing method or a new organisational method in business practice, in the organisation of work or the external relations of the company. By contrast, small changes in production capacity similar to existing processes in the company are not considered innovation; replacement investments or resulting from the closure of a production process; process innovation investments resulting from price changes, customization and cyclical or seasonal changes; investments for the marketing of new or significantly improved products; and process innovation investments associated with strategic management changes or acquisitions and mergers.

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R&D activities are all creative work carried out systematically, with the aim of increasing knowledge, including knowledge of man, culture and society, as well as the use of this knowledge in new applications. (Frascati Manual, 2002). Basic research consists of experimental or theoretical works, developed with the primary purpose of obtaining new knowledge about the fundamentals of phenomena and observable facts, without any specific objective of practical application. Applied research consists of original research works developed with the aim of creating new knowledge, directed towards a predetermined application or objective. The experimental development consists in the systematic use of existing knowledge obtained through research and/or practical experience, in order to manufacture new materials, products or devices; the installation of new processes, systems or services; or substantial improvement of existing ones.

The research and innovation system can be characterised as being the set of components, relationships and attributes that contribute to the production, diffusion and exploitation of knowledge in new products, processes and services for the benefit of society.

It involves a concerted action of several actors in the process of circulation of scientific and technological knowledge, from producers to explorers, in an interaction that also involves the intermediation of entities whose primary function is to promote the economic valuation of knowledge. It covers all phases of the research and innovation chain, from fundamental research to productive innovation, promoted by companies through the introduction of new products, new processes or new organizational and marketing forms (including research, technological development, demonstration and innovation) and privileges a logic of interaction between all actors of this system, with a particular focus between the research and knowledge production entities (composed of universities, state laboratories, public R&D centers and interface entities such as centers (ie non-business entities of the R&R system) and enterprises (as innovation).

SOLUTIONS AND RECOMMENDATIONS

The biggest problem of innovation is to translate science into innovation.

Some drivers are aiming at overcoming this problem: books explaining the types of innovation and how to measure it and some guidelines about the maturity levels of technology. Even having information about innovation, in

fact, there is a lack of a proposed approach concerning the innovation process, namely for an innovative entrepreneur. So this is the point of innovation.

Nowadays, people think that having a new idea is enough to consider innovation; however, making innovation is not straightforward. From the idea to go-to-market, several steps must be taken, namely the market research, the intellectual property research and registration, the market feedback during the development activities and the design of a good business plan. These things seem to be common sense, but people jump most of them. In most of the times, the focus of the innovative entrepreneur is to develop the idea, forgetting the market, but it is the market that will dictate the success of the innovation.

This situation happens because there are no guidelines on how to make innovation. Making innovation is not an exact science, and there is no a correct answer; however, guide the innovative entrepreneur must be done in this process.

This book proposes guidelines for making innovation, specially dedicated to start-ups, where the resources are low and, consequently, to make errors is low. Thus, the chapter presents an approach of the innovation process for start-ups. This approach aims not only to guide the innovative entrepreneur, presenting the several steps of the innovation process but also explain them and sometimes to provide some tools that can help in the innovation process.

Furthermore, the last issue discussed in this book is how long the innovation process must take. The literature answer as soon as possible; however, this time is significant since if we are dealing with competitive markets, the innovation process must be faster because the business opportunities for that are also faster. This way, this chapter tries to present a method to evaluate that from the Five Porter's Forces (MP, 2008). This issue and the presented method for evaluating the time of innovation process are new in the innovation community and could be a high starting point to formulate other methodologies or to improve the presented in this chapter.

The expectation of the presented approach in the preceding section is to help the innovative entrepreneur in evaluating the idea concerning innovation, but also in trying to provide support for driving the science to innovation, using the proper science to make the difference in market and so in our lives.

FUTURE RESEARCH DIRECTIONS

The book proposes an approach for innovation process in start-ups. This approach is designed based on information available about innovation, compiling them and providing guidelines for the innovative entrepreneur for making innovation. This way, the chapter presents a new model for making the innovation that must be studied intensely. This study consists of taking a cluster of start-ups and implementing this model, studying the impact of it, i.e., how this approach can increase the success of innovation in start-ups.

The expected results are the proposed process can help in increasing the success of innovation; however other results can arise. For example, implementing this process and following the start-ups closely, the model can be adjusted according to the results of the study and so to provide an update not only for this model but also an excellent contribution for innovation communities.

This way, the presented approach for innovation process in start-ups can be considered the basis to make more and better and to help more and more to make real and sound innovation.

Another point the must be studied profoundly is how long the innovation process must take. The book presents a method; however other variables must be taken into account. Thus, it is also essential to design a strategy for measuring the time of process innovation in order to help the innovative entrepreneur.

CONCLUSION

Nowadays, we are witnessing an increase in innovation both on start-up and SME. The implementation of innovation has a substantial impact on the knowledge of the economy. The ability of human being in creating new knowledge can be defined as a necessary skill in a global economy, which involves learning as an essential dynamism of the competition. On the other hand, the research and development activities are significant not only for universities and companies but also for the global economy.

The innovation consists of a complex process. We need to create new ideas, but these ideas need to be exploited in the market, need to have an impact, bring a new opportunity of changing. The innovation corresponds to the implementation of a new solution for the market or company. There are

five types of innovation: a) product, b) process, c) organisation, d) marketing and e) Business model.

Currently, many people (scientists, industries, policy makers, potential entrepreneurs) fight for doing innovation, but in most of the cases there is no strategy about it and, consequently, they are not able to translate science in market applications.

This situation happens because there are no guidelines on how to make innovation in start-ups. Making innovation is not an exact science, and there is no a correct answer; however, guide the innovative entrepreneur must be done in this process.

This book proposes guidelines for making innovation, specially dedicated to start-ups, where the resources are low and, consequently, to make errors is low. Thus, the book presents an approach of the innovation process for start-ups, which are divided into four phases, corresponding to seven interactive steps.

Thus, the chapter proposed that the innovation process may be divided into:

Phase 1: The Start.
Phase 2: Develop.
Phase 3: Flexible Business Plan.
Phase 4: Go-to-market.

The Phase 1 – The start corresponds to the step 1 – To have an idea, step 2 – Benchmarking, step 3 – the solution and step 4 – Innovation Type.

The Phase 2 – Develop consists of step 5 – R&D activity, step 6 - IP registrations and step 7 – market feedback.

The Phase 3 – Flexible Business Plan involves the step 8 – define a business plan according to the market research made in step 1, and market feedback in phase 2, and step 9 – find a business partner in order to help in testing the solution but also to promote it.

Finally, Phase 4 – Go-to-market presents some insights into the commercialisation of the solution.

At the end of the book, the time of the innovation process is discussed, presenting a potential method for measuring qualitatively how long the innovation process must take.

From this approach, the expectation is to increase not only the success of innovation but also to guide the innovative entrepreneur in the process of innovation, making good innovation and changing the market and our lives.

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Related Readings

To continue IGI Global's long-standing tradition of advancing innovation through emerging research, please find below a compiled list of recommended IGI Global book chapters and journal articles in the areas of social enterprises, business models, and organizational development. These related readings will provide additional information and guidance to further enrich your knowledge and assist you with your own research.

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