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Methodological Proposal for the Identification of Incremental Innovations in SMEs

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Abstract:

Purpose: To propose a methodology for identifying incremental innovations to find sustainable competitive advantages of organizations, especially in SMEs, through the use of Money Makers.

Design/Methodology/Approach: A study was carried out by means of the inductive-deductive method while a theoretical framework that guides the analysis of the phenomenon is approached. During the development of the study, the use of techniques such as technological surveillance, technological mapping, and technological scanning were used.

Findings: The proposed Money Makers identification model has been executed in 4 stages, where the search for technological Money Makers and the process improvements that impact the business model of companies are oriented. In the first stage, the baseline is constructed by evaluating the current state of the company's technologies. Subsequently, trends at the level of Money Makers are identified and detected, and the procedure for their selection depending on the area of the value chain where it is considered that it can be implemented.

Practical Implications: Although there were several studies in the same issue our model can be used for practical implications because of its simplicity.

Originality/Value: The study proposes a fairly easy methodological proposal for the identification of incremental innovations in SMEs.

Keywords: Incremental innovations, Money Makers, methodological proposal, SMEs.

JEL Codes: D24, L23, M11.

Article Type: Research study.

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1. Introduction

According to Porter, the field of strategic management has been focused on the identification and compression of competitive advantages for companies. Thus, the competitive advantage of a company arises from the alignment of the skills, motives, and attitudes of human resources with the systems, processes, and practices of the organization (Teece, 2014). Several authors believe that the impact of technologies that enhance these advantages is relevant (Mata, Fuerst & Barney, 1995), by becoming pillars of the development of their business model. However, the advantages associated with the technological factor must be analyzed with special care, since these advantages must also be related to the ability to respond quickly to changes in an uncertain and changing environment (Olsson, Bosch, & Alahyari, 2013; Suomalainen & Xu, 2016). The creation of business models is a continuous dynamic process based on experimentation and learning of customer needs (McGrath, 2010), so innovation is a fundamental tool during its process of growth and adaptation in the market.

Innovation in business models and value chains is often related to the introduction of equipment, technologies or operating models that allow the company to differentiate its services or competitive products. These developments or low-value, technological, easy operation and high differentiation models are known as Money Makers. The identification of Money Makers plays a transcendental role in the sustainability and competitiveness of organizations since their potential to make the business profitable will allow them to operate smoothly. Thus, a methodology that guides the processes of strengthening continuous innovation as a sustainable competitive advantage will be proposed.

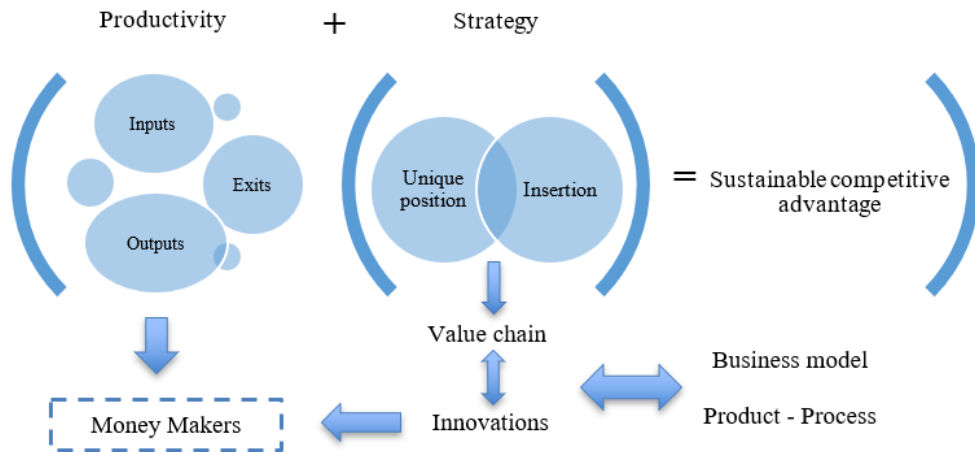
2. Theoretical Framework

Currently, technology has become increasingly relevant for the development of strategic operations. Tracey, Vonderembse and Lim (1999) suggest that organizations must formulate strategic plans that contemplate the use of technology to achieve success in a competitive environment and of fast changes. This technological change is one of the main competition factors and plays a major role both in the structural changes of any industry and in the creation of new industries (Porter, 1985), so it can be said that technology affects the competitive advantage of a company when it has a significant impact on production costs or product differentiation.

Money Makers can be defined as equipment, technologies or operating models present not only in the value chain but also in the service and business model that allow the company to differentiate its services or competitive products. These developments or technological models have three essential characteristics: its low acquisition value, its easy operation, and its high differentiation. The ultimate goal of the introduction of Money Makers is to create a holistic model that integrates

manufacturing strategy and business leadership with technology levels, to finally better understand the competition and identify and develop sustainable competitive advantages (Liu, 2013).

Figure 1. Sustainable Competitive Advantage and Money Makers



Source: Own elaboration based on Porter (2005).

The sustainable competitive advantage (SCA) is the only purpose pursued by introducing Money Makers to businesses with prior market validation. As shown in Figure 1, the SCA is based on productivity and strategy. The strategy corresponds to two basic elements: a unique position achieved by differentiating through the capture and creation of value, through an improved business model, value chain, or products and services offered by a company; and insertion through strategies that specifically address the critical links of the business. At this stage, Money Makers are configured as an intermediate link between strategy and productivity, having an impact on the business and the generation of sustainable competitive advantages for small businesses. Next, each of the constituent elements of the conceptual model is expanded.

2.1 Sustainable Competitive Advantage

According to Porter, the competitive advantage is the margin of maneuver that is achieved on the strategies of the competitors, based not only on the existence of basic factors for production (inputs and outputs) but on the design of strategies for their use and the creation of new factors. It is developed through change and innovation regardless of its typology. It has to do with the integral chain of product value and is strengthened with continuous improvement. Competitive advantage is identified with the ability to respond to demand and increase profitability levels, therefore, competitive global business strategies would be based on differentiation

by unique specialization in terms of quality, product, service or leadership technology in costs (Porter, 1985).

Companies generate strategies that seek superior performance or results that are sustainable through the analysis of their competitive environment (Apodaca del Ángel, Maldonado-Radillo, & Máñez-Guaderrama, 2015). Strategy scholars have underestimated the role of choosing the business model in the search for a link between technological innovation and competitive advantage, under the typical assumption that a radical improvement in the supply of products or service will automatically lead to higher profits for innovative companies, ignoring the enormous problems that companies face in developing the interdependencies between the choice of business model and the effectiveness of technology (Baden-Fuller & Haefliger, 2013). A successful conception and construction of these models play a transcendental role in linking Money Makers in a business.

2.2 Incremental Innovation

In general, there is a deep-rooted belief that innovation is one of the main reasons for economic growth, business development and the growth of a country, which remains in line with the conception of the knowledge-based economy, in which innovation has become the key factor in the success or failure of the organization, as well as the main source of competitive advantage (Lu & Chen, 2010).

The Schumpeterian concept of innovation includes the introduction of a new product or service, a new mode of production, the opening of a new market, or the change of suppliers and business models that are perceived as new by the organization (Schumpeter, 1934). However, other authors define innovation in terms of technology and customer perception (Hoonsoon & Ruenrom, 2012). In the theory of organizational innovation developed by Utterback & Abernathy (1975), innovations were divided into the improvement of existing products -"incremental innovation"- and the development of new products -"radical innovation".

Incremental innovation is minor but clear regarding the progress of a good or service. It supposes an important improvement, but not a great advance. For example, a new feature added to an established product that improves but does not change its basic utility would be an incremental innovation (Swamidass, 2000). Companies that possess such capabilities produce products that are seen by customers as those that improve the consumer experience without significantly affecting or deviating from previous customer knowledge, nor requiring new learning (Menguc, Auh, & Yannopoulos, 2014). Compared to radical innovation, incremental innovation implies less uncertainty in the market and requires less organizational learning. Also, it allows the customer to create greater synergy with the resources and capabilities that the company has. Incremental innovation also implies less financial risks, while the learning necessary to adopt incremental innovations may be less arduous than the effort with radical innovations (Sethi,

2000). The success of incremental innovation depends on factors such as brand characteristics, advertising and promotional support, time of entry, company size and other marketing skills (Chang, Franke, Butler, Musgrove & Ellinger, 2014).

In addition to the financial aspects between these types of innovation, other differential factors are the times required for the development of the innovation and the times for the return of the investment, because for incremental innovations it can range from 1 to 2 years, while the time for the development of radical innovations can take up to 5 years, as they are based on much slower research and development processes. Therefore, to obtain the highest economic returns, management has to decide on which projects to invest their limited resources of time, money and people. This situation creates a problem for radical innovation that has longer development cycle times and higher levels of uncertainty (Holahan, Sullivan & Markham, 2014). Even some authors suggest that the greater economic benefits for companies come from incremental innovations (Fagerberg, 2005).

2.3 Innovation in Business Model

A business model can be defined as a way to create value, capture value and monetize it for a company. Very often innovation in business models is directly linked to technological innovation (Baden-Fuller & Haefliger, 2013). The development of technology can facilitate new business models. The most obvious historical example was how the invention and the development of steam energy facilitated the business model of mass production. However, a business model and innovation can also occur without the development of technology, as happened in 1980 when the Japanese pioneered the “just in time” production model (Baden-Fuller & Haefliger, 2013).

The business model has become one of the fastest-growing concepts in the last decade (Bahari, Maniak & Fernández, 2015). There are a large number of concepts about what a business model is, defining it as a structure, an architecture or a business framework (George & Bock, 2011; Mason & Palo, 2012; Teece, 2010), or in other cases as a representation of the relevant interactions and activities of a company (Wirtz, Pistoia, Ullrich & Göttel, 2016). Although academics are still debating a unified definition of the concept, the common opinion is that business models act as a means to meet unmet needs, profitability and service promise (Wirtz *et al.*, 2016), that is, that they can be seen as representations of the logic of value creation and capture (Shafer, Smith & Linder, 2005; Teece, 2010). In summary, Zott & Amit (2010) see the business model as the exploitation of a business opportunity.

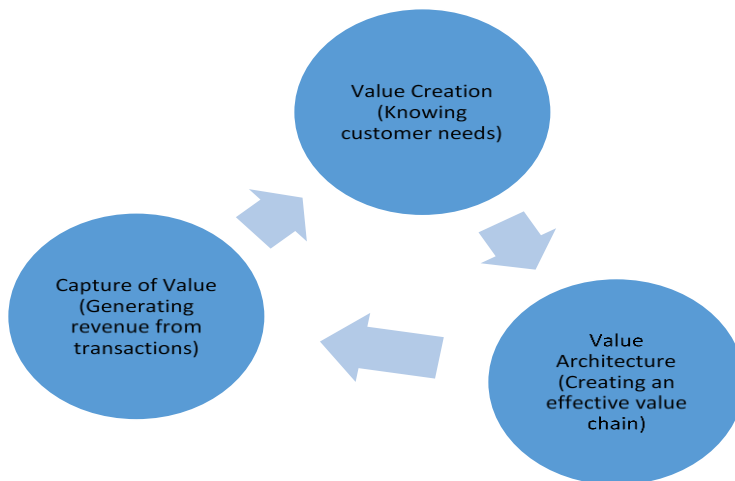
Authors such as Osterwalder have deeply linked innovation and the business model with technology because it can each improve the building blocks of the business model and raise the profit in that block. Likewise, technology provides a frame of reference to take potential "inputs" and convert them through customers and the market into potential "outputs" (Chesbrough & Ahern, 2006). Innovation in the

business model is seen by other authors such as Teece (2010) as a direct tool that fits the strategy, but for this study, both visions are valid because, as shown in Figure 1, productivity and strategy are linked through Money Makers that generate a systemic impact on both. Those who assume a simple relationship between technological development and the results of the performance of a company or companies ignore the moderating influence of the choice of the business model. The choice of the business model determines the nature of the complementarity between business models, technology, and monetization paths. A bad choice can lead to low profits, while a good option can improve your profit (Baden-Fuller & Haefliger, 2013).

A business model can be simplified through 3 constituent elements, which represent the three key moments that must be taken into account by a company for the technological link to its business model, as shown in Figure 2. The creation of value responds directly to what you want and how the customer or consumer wants it so that their need is covered, based on knowledge, study and piloting of products or services. This value creation can be impacted by technology at different levels as appropriate. The value architecture represents the strength between the different process and organizational links and is the point where technology plays an important value in organizations as it is where efficiency, effectiveness, and productivity can be improved.

Finally, there is the capture of value that is the sole purpose of the organization in which the income represents the continuity of the business, and works from the technological point of view for the direct linking of new or improved communication, sales or customer interaction.

Figure 2. Simplified representation of a business model



Source: Kimble and Bourdon (2013).

2.4 Innovation in the Value Chain

The basic tool to understand the role of technology in competitive advantage is the value chain. A company can be seen as a collection of activities, interconnected and interdependent and, in turn, as a collection of technologies. Technology is incorporated into every valuable activity in a company, and technological change can affect competition through its impact on virtually any activity (Porter, 1985).

This set of interconnected activities can benefit from the introduction of incremental or disruptive improvements that impact the efficiency, productivity and operating income of a company. The term disruptive technology describes a technological innovation that disrupts the normal development of a market or introduces unknown characteristics to the product or process, which sometimes not even customers know (Kimble & Bourdon, 2013). Information and telecommunications technologies offer unprecedented opportunities to realign value creation activities in new ways, which is why companies consider business model innovation as a new way to create a sustainable competitive advantage (Teece, 2010).

2.5 Innovation in Services

The innovation of services is intrinsically different from that of “product” since, in general, it lacks the tangible nature of product innovations. Services can be highly adapted according to customer needs and include many different factors, especially in sectors of intensive use of knowledge, where service innovation plays an important role and provides an effective way to create sustainable competitive advantage (Durst, Mention & Poutanen, 2014). Innovation in services takes place in various service contexts, including the introduction of new services or incremental improvements to existing services (Durst et al., 2014). In general, this type of innovations are more related to the communication between the organization and the clients, that is, with their access to the products, so that technology has a wide potential to improve this type of innovation, since the mass use of the internet and smartphones bring the organization closer to the client.

2.6 Innovation in Product and Processes

Innovation in product and processes is undoubtedly one of the mechanisms most used by small and medium entrepreneurs to impact the productivity of their organization. These are directly related to investments in R&D, human capital, and especially in their knowledge, which in turn are responsible for managing, developing and implementing organizations. These totally new or significantly improved processes generate products that are not conventionally in the market and that present a differentiation compared to the products of the same segment that leads to the market competition.

Next, the elements related to this type of innovation are expanded.

2.6.1 Process improvement

2.6.1.1 Increase in productivity

The increase in the company's productivity can be attributed to different factors related to Money Makers. In general, productivity is expected to be defined by the formula: $\text{Productivity} = (\text{Products or Services Produced}) / (\text{Resources Used})$.

Based on the type of resources used and their possible optimization, there are the elements that allow an increase in productivity. For the evaluation of Money Makers, the time resource, the technological resource, and the financial resource are essentially taken into account.

2.6.1.2 Time reduction

In this regard, it should be considered if the incorporation of Money Makers allows a reduction in the times of service provision or manufacturing of the product without affecting the quality or improving it. The expectation of this reduction in time may come from the knowledge of those interested in the process, from the manuals of the product (technical specifications) or from external sources such as articles from specialized magazines.

At this point, the impact of the technology or processes incorporated and their adjustment to the expectations of the interested parties must be evaluated. Likewise, the costs associated with its incorporation must be considered in relation to the investment to be made with respect to the expected profit.

2.6.1.3 Operations reduction

In general, the incorporation of a new technology or a modification in the processes is expected to generate an increase in productivity. One of the factors that can influence the increase in productivity, in addition to the reduction of time, is the reduction in the number of operations or their simplification. The ability of Money Makers to contribute to the optimization of operations and their influence on the cost of processes must be established.

2.6.1.4 Reduction of costs in operation

The inclusion of Money Makers can reduce operating costs through a reduction in the quantities of raw materials or a change in their types. It can also lead to a reduction in energy consumption or labor costs or even in after-sales service costs.

2.6.2 Product improvement

The incorporation of Money Makers allows the product to be subject to improvements in its different aspects. Its relevance must be evaluated to the extent of the interests of the organization.

2.6.2.1 Quality improvements

The way in which the income of the Money Maker can help improve the quality of a product or service should be evaluated. The competitive advantages that may arise from the improvements in quality and variations in the product that may affect its price or the market sphere to which it is aimed should be analyzed.

2.6.2.2. Presentation improvements

The packaging of a product can also be improved from the finding of Money Makers. In this case, the improvements in relation to the company's marketing data regarding the perceptions of customers and distributors should be evaluated. Likewise, the aspects on which Money Makers influence and how these can affect financial variables must be established.

3. Methodology

The methodology is presented in three subsections: the first describes the method and type of research; the second section describes the techniques used; and the third section offers the information analysis.

3.1 Research Method and Type

A study was carried out by means of the inductive-deductive method while a theoretical framework that guides the analysis of the phenomenon is approached. However, the phenomenon allows lessons to be extracted that simultaneously redefine the proposal and interpretation of the phenomenon (Hernández, Fernández & Baptista, 2010). Similarly, the study is framed under the descriptive exploratory type since the proposal, to a large extent, is constructed from the recreation of an empirical process that is developed in some organizations.

3.2 Information Gathering Techniques

During the development of the study, the use of techniques such as technological surveillance, technological mapping, and technological scanning was used.

3.2.1 Technological surveillance

Technological surveillance (TS) can be defined as the systematic and organized process of search, capture and analysis of information of a technological, commercial, competitive and regulatory nature at national and international level, which allows to anticipate to clarify the actions through decisions, before passing through appropriation and reaching collective or organizational learning (Andrade Navia, Ramírez Plazas & Orjuela Garzón, 2018; Cinertya Consulting, 2010; Du Toit, 2013; Strategic and Competitive Intelligence Professionals - SCIP, 2014).

Technological surveillance allows the identification of trends in technologies and the preparation of production systems to anticipate changes that occur in this area in the short term. In this country, some application studies have been carried out that have enabled the generation of knowledge at the business, sector and national level (Andrade Navia *et al.*, 2018; Vargas, 2004; Castellanos *et al.*, 2005).

3.2.2 Technological mapping

It is a qualitative and quantitative panoramic view through patent indicators in relation to a specific technology, a technological sector, country or region in a given time through the analysis of patents published worldwide. In other words, technological mapping is a technique that is based on the information contained in the patents and their analysis in order to obtain maps through which it is possible to identify proximities or distances in particular areas of knowledge of the industry under study, giving an overview of the structure of existing relationships. The distance on the map between two words (referring to technologies, products, authors, companies) will indicate the greater or lesser relationship between them (Castellanos *et al.*, 2005).

3.3.3 Technology scan

The technological scan corresponds to a process of collecting information from external sources to submit it for analysis and make a forecast of the technological trends that were suggested in the analysis stage.

3.3 Data Analysis

In general terms, the previous techniques were used to determine a logical and coherent structure of the methodological proposal for the study of Money Makers in the process of building a sustainable competitive advantage in organizations. The results of the application of the mentioned techniques were supported in order to establish the links of the innovation process based on the proposed model under the criteria of efficiency and effectiveness

4. Findings and Discussions

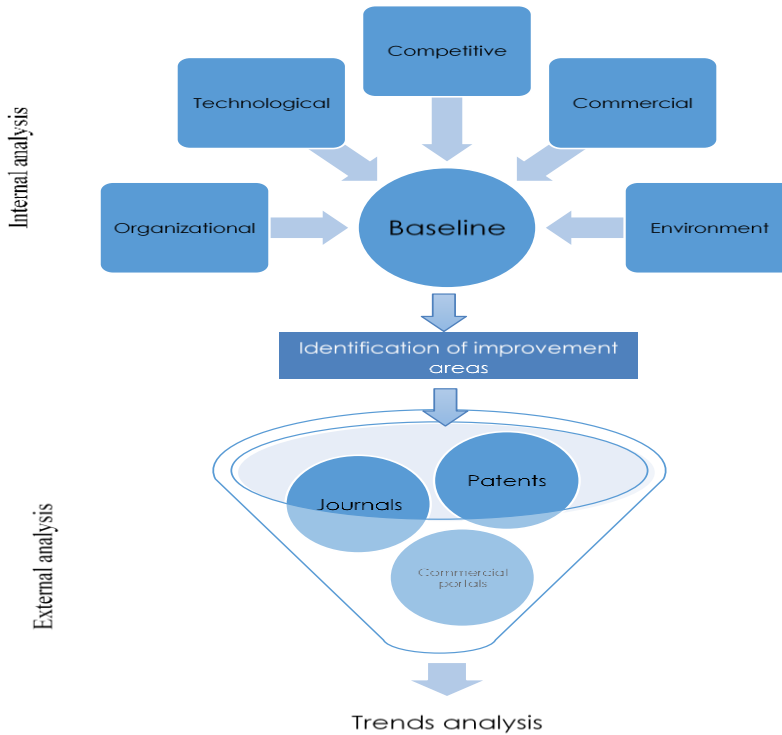
Next, the methodological model for the identification of incremental innovations is presented.

4.1 Methodological Model

The identification of Money Makers has been executed in 4 stages, where the search for technological Money Makers and process improvements that impact the business model of companies (see Figure 3) are oriented. This methodological model has been

proposed based on methodologies such as technological surveillance, technological mapping and technological scanning.

Figure 3. Proposed methodological model



4.1.1 Baseline: Evaluation of the current state of business technologies

To understand the current state of technology in a company, it will be based on the theorization made by Porter regarding the forces that surround the development of an organization during all its evolutionary stages. These forces lead us to the critical aspects of the organization as follows.

Figure 4. Baseline evaluation areas for the identification of Money Makers

Organizational	Technological	Competitive	Commercial	Environment
<ul style="list-style-type: none"> • Background • Strategies • Resource / Human capital 	<ul style="list-style-type: none"> • Products and services offered • Processes • Supplies • TICs • Used technology 	<ul style="list-style-type: none"> • Competitor Analysis 	<ul style="list-style-type: none"> • Markets customers 	<ul style="list-style-type: none"> • Legislation • Culture • Social changes

The information delivered through this form, together with the qualifications obtained in each field, in addition to building a baseline, allow to determine the fields of the company that are subject to improvement. These spaces are the first point of contact with potential Money Makers, understood as innovative elements that increase the added value of a product throughout its entire production and value chain, and as the improvements that can be made within it, increasing the productivity and quality of the products and/or services offered at the time by companies.

4.1.1.1 Patents

Patents are the main sources of cutting-edge technical and scientific information worldwide since the granting of a patent in any country goes through the exhaustive evaluation of specialized peers that recognize the innovative nature of an invention. In that sense, the information contained in the worldwide patent databases corresponds to the research and advances made by inventors in specific areas of knowledge. When the review of patent databases is carried out, key elements can be found for the identification of inventions related to the business to be evaluated, and that can be transferred as improvements in process or in business models, as the homogeneous decoding of the Databases recover fields such as leading countries in technological production, leading inventors, leading applicants and the most prominent International Patent Classification (CIP).

The database source to consult can be the World Intellectual Property Organization (WIPO) through structured search equations with a high level of specificity for the accurate identification of Money Makers.

WIPO: It is dedicated to promoting the use and protection of the works of the human intellect. It manages a tool called PatentScope, which consists of a search system that provides access to patent applications filed under the Patent Cooperation Treaty (PCT), of which 146 countries are part of worldwide.

4.1.1.2 Specialized journals

The review of specialized journals is appreciated as an indirect contact with experts in specific areas, who publish notes or research and allow to keep updated on a specific topic. The periodicity of these publications according to the area is annual, biweekly or monthly. They are documents that professionals, researchers, and specialists consult permanently, as they serve as knowledge and support in their profession. In the case of this study, they will be reviewed according to the specific area or sector by business in order to identify news, reports, or research with innovations in product, process or business model.

4.1.1.3 Commercial portals

Commercial portals such as Alibaba, Amazon and JD offer and market innovative products in different areas such as technology, fashion, cosmetics, sports, and machinery, among others. These platforms receive millions of visits worldwide and

are another source for the identification of Money Makers. These platforms also allow suppliers to contact B2B (business-to-business) businesses directly, obtaining retail prices and the advantage of online payment.

4.1.2 Trend analysis and prospecting of Money Makers application

Trends can be defined as phenomena or behavior patterns that are happening and will continue to happen. Many trends can be of a global nature, so their denomination would be megatrends. The prospective identifies and evaluates the trends around the area, sector or company that is being worked on, in order to define key or strategic variables to consider in the medium and long term. The identification of trends at the level of Money Makers corresponds to an exercise of visualization and evaluation of their impact and how this can be adjusted to current trends in consumption, income, population growth, among others.

4.1.3 Money Makers Selection

As soon as the tools available for the detection of Money Makers have been used, it is necessary to determine a procedure to select them. This selection depends on the area of the value chain where it is considered that they can be implemented and a series of constraints present within organizations.

4.1.4 Limitations and possible actions

The limitations to be taken into account during the Money Makers selection process are:

4.1.4.1 Financial

It is possible that the found Money Makers exceeds the economic capacity of the company that wishes to incorporate it into its processes. In this case, alternatives taken from the study to determine Money Makers should be considered. While it is true that not taking the limitation from the start of the study can be a possible waste of time, it is clear that this is outweighed by the benefits of considering the necessary paths to be able to make the technology or process that have been found. Additionally, during the search for Money Makers it is possible that related findings may be made that may serve as a more economical alternative to the objective technology or process. Another possible strategy is to ask the potential strategic ally to modify the design of its process or product in order to make it affordable for the company that intends to implement it in a manner consistent with its financial capabilities.

4.1.4.2 Technical

It is possible that the company may not incorporate a new process or modify an existing one, or may not introduce a new technology due to technical constraints. When the technology or process found is not compatible with that established by the

company, it is faced with a technical limitation. To overcome this type of limitations, actions of the technical and engineering area must be considered as possible adaptations, changes in technical and technological perspective, etc. Likewise, the existence of equivalent technologies or the possibility that product manufacturers or process designers can develop a model adjusted to the needs of the company should be consulted.

4.1.4.3 Cultural

Money Makers can be related to a process that works properly, present in the company for quite some time and that, in the opinion of some interested parties, does not need to change. It is then necessary to compile a series of arguments in favor of Money Makers that can be taken from the Money Makers selection and evaluation process such as simulations, product difference calculations in process, difference calculations in internal or external customer satisfaction, relationship of the new process with the image in the market, consideration of opening new markets, reduction of production costs, reduction of consumption of raw materials, increase in operating and profit margins, etc.

4.1.4.4 Evaluation

Once the possible Money Makers that are feasible for application have been selected, a series of evaluative considerations that allow to know the more favorable options to corporate interests must be taken. Even a combination of these can be considered in order to achieve the acquisition of a tangible competitive advantage.

4.1.4.5 Cost-benefit relation

It is necessary to carry out a judicious financial analysis regarding the incorporation of new technology or variation of processes in a company. In general, the question to answer would be: does the incorporation of Money Makers justify the costs associated with such action? An expensive technology or a variation of a process that does not generate an increase in the value of a product [not necessarily refers to the value associated with the price, but to the added values] is generally not accepted in organizations.

5. Conclusion

In general, sustainable competitive advantage could be defined as a state of ideal advantage in which companies are in the market in relation to their immediate competitors, a situation that generates great benefits, especially in the economic sphere. Thus, the proposed methodology aims to contribute, through the identification and implementation of Money Makers to the productive chain of the business, to the establishment of sustainable competitive advantages. The methodology is understood from a dynamic approach that allows a constant evolution of the organization, which allows a constant balance between its internal capabilities and external requirements, through the constant adjustment of its business model.

Finally, the proposed process is aimed at contributing to the management capabilities of the organization, so it must be integrated as an attached business management mechanism, based on the search for constant incremental innovations of high flow.

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