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FINAL PROJECT

A KEY ELEMENT

Why business needs innovation and innovation needs a strategy

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ABSTRACT The lack of consensus on the definition of *innovation* could lead to different interpretations affecting the understanding and relevance of innovation in business. Business strategy needs innovation because innovation is a key element that that clearly improves performance when applied. Up to three-quarters of productivity development in European industry can be attributed to innovation, and companies that apply innovation in their strategies show better performance. Innovation is a fundamental pillar of business strategy; it is not just a technological project, it is a culture, a mindset, a tool that provides competitive value to the company and added value to customers.

Business innovation needs its own strategy in order to be ready for firm sustainability and competitiveness. Innovation strategy is a set of actions that drive all procedures and guidelines in an organization to generate and manage innovations toward achieving the business objectives. It involves planning, prioritizing, and developing the right types of innovation (technological or not) ensuring the appropriate resources, knowledge, capabilities, and organizational structure, among others. It is important not to manage an innovation strategy in isolation or independently of the rest of the company's functions. Innovation strategy should be based on corporate strategy and understood as an integral component of long-term strategic business management. With innovation strategy, a company can control and manage the generation of innovation, even though few companies have a clear innovation strategy.

It is positive to incorporate innovation strategy into business strategy to be better placed to compete in terms of differentiation, productivity and economic growth, and to achieve better financial results. This Final Work for the **Master in Innovation and Digital Transformation**, analyses different innovation strategies and their possible influential factors.

KEYWORDS innovation; business; strategy; factors; companies; competitiveness; management

UN ELEMENT CLAU

Per què les empreses necessiten innovació i la innovació necessita una estratègia

RESUM *La falta de consens sobre la definició de* innovació *podria donar lloc a diferents interpretacions que afecten la comprensió i la rellevància de la innovació en l'empresa. L'estratègia empresarial necessita innovació perquè la innovació és un element clau que clarament millora el rendiment quan s'aplica. Fins a tres quartes parts del desenvolupament de la productivitat en la indústria europea poden atribuir-se a la innovació, i les empreses que apliquen la innovació en les seves estratègies mostren millors resultats. La innovació és un pilar fonamental de l'estratègia empresarial; no és només un projecte tecnològic, és una cultura, una mentalitat, una eina que aporta valor competitiu a l'empresa i valor afegit als clients.*

La innovació empresarial necessita la seva pròpia estratègia per estar preparada per a la sostenibilitat i la competitivitat de l'empresa. L'estratègia d'innovació és un conjunt d'accions que impulsen tots els procediments i directrius d'una organització per generar i gestionar innovacions que permetin aconseguir els objectius empresarials. Implica planificar, prioritzar i desenvolupar els tipus adequats d'innovació (tecnològica o no), garantint els recursos, coneixements, capacitats i estructura organitzativa apropiats, entre altres. És important no gestionar l'estratègia d'innovació de manera aïllada o independent de la resta de les funcions de l'empresa. L'estratègia d'innovació ha de basar-se en l'estratègia corporativa i entendre's com una component integral de la gestió empresarial estratègica a llarg termini. Amb l'estratègia d'innovació, una empresa pot controlar i gestionar la generació d'innovació, encara que poques empreses tenen una estratègia d'innovació clara.

És positiu incorporar l'estratègia d'innovació a l'estratègia empresarial per estar més ben posicionat per competir en termes de diferenciació, productivitat i creixement econòmic, i per obtenir millors resultats financers. Aquest Treball Final del **Màster Universitari en Innovació i Transformació Digital***, analitza diferents estratègies d'innovació i els seus possibles factors influents.*

PARAULES CLAU *innovació; negoci; estratègia; factors; empreses; competitivitat; gestió*

1. Business innovation strategies

1.1. Introduction

The Working Group on Statistics on Science, Technology, and Innovation from the European Commission, based on a survey across 22 countries (Community Innovation Survey – CIS –, 2018), states that 51.2% of European SME companies declare themselves to be "non-innovators": companies that did not introduce any innovation in the three-year reference period. A more recent study in the region of Catalonia by IDESCAT (Institute of Statistics of Catalonia, 2020) concludes that only 25.1% of companies in Catalonia produced any kind of product or business process innovation. Both figures are coherent and show that the gross of our industry lacks any innovation strategy for increasing its competitiveness.

Literature is full of research into whether a high percentage of companies have difficulties or inhibitors for innovation, such as being too orientated towards short-term results or experiencing economic restrictions, a lack of innovation culture, talent limitations, and so on. (Grego-Planer & Kus, 2020), (Pisano, 2019a), (Bayo & Camps, 2015), (Ashkenas, 2012), (Balsano *et al*., 2008), (Assink, 2006). Among the various hypotheses relating to this low level of innovation in the industry is the notion that innovation is a field without a commonly agreed definition to clearly delimit its scope. This lack of a common definition is one of the reasons for misunderstandings around innovation, making it difficult to measure, decide, plan, and deploy.

If we examine the literature related to innovation, we find a collection of 208 different definitions of innovation merged into a new one that summarizes all the sets (Singh & Aggarwal, 2021). Here, the authors conclude that "innovation is the operationalization of creative potential with a commercial and/or social motive by implementing new adaptive solutions that create value, harness new technology or invention, contribute to competitive advantage and economic growth".

Specifically, the term *innovation* in business ecosystems and in jargon is also called *business innovation*. In this case, one of the most accepted definitions comes from the Oslo Manual (OECD & Eurostat, 2018), which states: "A business innovation is a new or improved product or business process (or a combination thereof) that differs significantly from the firm's previous products or business processes and that has been introduced on the market or brought into use by the firm". However, the level of novelty of every improvement is subjective and presents an additional obstacle to defining *innovation* (Baskaran & Muchie, 2010), (Hagelaar, 2018). For example, each new version of the iPhone which includes new capabilities, such as 5G, would be considered an innovation in some contexts but not in others. Therefore, the culture and innovation experience of each company as well as their expectations and technological capabilities may affect their view on how innovative a product is.

The definition of *innovation* assumed by an organization influences the role of innovation in the company, and the hierarchical structure influences the generation and selection of ideas (Sarna, 2020), (Keum & See, 2017), (Sahay & Gupta, 2011).

If managers want to develop an effective strategy amid a constantly changing market, they need to use innovation cleverly in order to boost their organization's competitiveness (Hunsaker & Knowles, 2021). This strategy is a general framework made up of an integrated set of options for the achievement of business objectives and an action guide that receives feedback from the action-result binomial (Nickols, 2016). Hence, innovation should take on a fundamental role in the company's business strategy because it is one of the key factors of success and an essential strategic component for surviving in an increasingly competitive market environment (Wolf *et al*., 2021b), (Wolf *et al*., 2021a), (Gaubinger *et al*., 2015), (Ferreira *et al*., 2015). Today, due to the disruption of digital technologies and the complexity of leading dynamic markets in a sustainable way, the average age of the companies in the S&P 500 has been reduced to less than 20 years, versus 60 years in the 1960s (Hunsaker & Knowles, 2020). So, ensuring that innovation is embedded into business strategy moves organizations to innovate in the long term, helping them survive beyond the next financial year (Taleghani & Taleghani, 2021).

But what kind of innovation is needed? How is the strategy defined? What actions need to be taken by companies toward innovation? Business innovation needs an strategy that drives companies to decide on the innovation plan that best suits corporate objectives, regulate their processes and explain how to use the resources to generate value and competitive advantage through innovation (Katz *et al*., 2010), (Afuah, 2003). Aligning the innovation strategy with the business strategy is a key element in innovating sustainably over time and achieving better financial results (Jaruzelski *et al*., 2011). However, there are no blueprints for innovation strategy (Dodgson *et al*., 2008) and few companies have a clear one (Katz *et al*., 2010). PricewaterhouseCoopers (PwC) reveals that nearly 20% of companies do not have a well-defined innovation strategy at all (from a survey of almost 600 innovation leaders in companies of different sectors and sizes around the world), and almost half do not have cultural support or strategic alignment between innovation and business (Jaruzelski *et al*., 2011). In fact, only 7.53% of Catalan companies have a specific innovation strategy (Institute of Statistics of Catalonia, 2020).

The potential level of the innovation strategy depends on the quality of its individual components (Lendel & Varmus, 2011): factors that will influence or determine which strategy best fits the company. Consequently, it is not as simple as applying the best practices in the sector or hiring the best innovation leader; copying what others are doing will not necessarily lead to success, as the matter is more complex than this (Pisano, 2015).

1.2. Understanding innovation and strategy

Without a globally accepted definition of *innovation*, it is difficult to establish a common understanding of the term. Although there are great efforts from the research business community to achieve a global consensus on the definition of *innovation*, the analysis of 208 definitions and the proposal made by Singh and Aggarwal (2021) seems too recent for companies to have assumed the global conception of what innovation is.

Sometimes, the word innovation is associated with creativity or invention (Formánek & Krajčík, 2017), (Stenberg, 2017); while some companies expect disruptive innovation (Christensen *et al*., 2015), others can only consider incremental innovation due to its operational and short-term results (Dodgson *et al*., 2008), (Damanpour & Daniel Wischnevsky, 2006). Some policy-makers and researchers explain that R&D is in the linear model of innovation (Gulbrandsen, 2009) and some companies tend towards a default association between technology and innovation, forgetting that there is innovation beyond technology (Lechevalier, 2019). This association with only technological projects without being embedded in business strategy could minimize the impact of innovation on the company's development and survival.

A better understanding of innovation can contribute to its adoption in the company's culture and its becoming a fundamental pillar of competitiveness and business performance. For example, up to three-quarters of productivity development in European industry can be attributed to innovation (Swedish Ministry of Enterprise, Energy and Communications, 2020), and companies that apply innovation in their strategies perform better (Ryu *et al*., 2015). Moreover, innovation is positive for customers in that it enables them to enjoy better products and services, for businesses because innovation provides sustainable growth and development, and for employees because innovation is a challenge associated with higher intellectual knowledge and salaries. In summary, for the whole economy, innovation represents higher productivity for all of society (Shqipe *et al*., 2013).

The literature shows that strategy and innovation have historically been studied as separate fields (Schlegelmilch *et al*., 2003), (Englund & Graham, 1999), (Krinsky, 1997), (Adler *et al*., 1992). Strategy has focused primarily on the corporate and business unit levels and innovation literature has focused primarily on the product level. It was around 2000 that the combination of innovation literature and corporate strategy began (Schlegelmilch *et al*., 2003).

Due to its relevance to business, innovation needs a strategy because it involves planning, prioritizing, and developing the right types of innovation (technological or not) ensuring that the appropriate resources, knowledge, capabilities, organizational structure, and processes are used in the most effective way (Katz *et al*., 2010), (Varadarajan, 2018), (Afuah, 2003). An innovation strategy is a set of actions that drive all procedures and guidelines in an organization to generate and manage innovation with a view to achieving business objectives (Wolf *et al*., 2021b), driving at least the value chain, customer value, or potential users (Govindarajan & Trimble, 2004). The innovation strategy should be based on the corporate strategy and needs to be understood as an integral component of long-term strategic business management (Gaubinger *et al*., 2015). In fact, it is positive to incorporate the innovation strategy into the business strategy in order to compete in a better position in terms of differentiation, productivity, and economic growth (Mahmood *et al*., 2013), and achieve better financial results (Jaruzelski *et al*., 2011).

1.3. Innovation strategies

As a business strategy, innovation strategy can also be framed in a multidimensional way, addressing what a company innovates and how it innovates (Krishnan & Jha, 2011). Here, the authors use binomials of dimensions for the strategies:

exploration vs. exploitation, internal vs. external sources, technology-push vs. market-pull, and product *vs*. process innovation. The axes should be composed of the key elements of the companies that offer, or want to offer, a value proposition, generating dimensions that allow the goals to be achieved within the framework of the defined competitive space.

The literature shows a range of options and other studies use matrices with different axes: while one indicates two critical dimensions, the capacity to leverage new business models with the technical competencies (Pisano, 2019b), others propose an innovation strategy classification in five dimensions (Wolf *et al*., 2021a), naming strategies orientated towards technology, time, market, competition, and cooperation. In another research, the dimensions were deduced from the study of 100 innovative companies framing them, in this case, in customer excitement, competitive leadership, and portfolio enrichment (Bowonder *et al*., 2010). Also, we find 12 dimensions of business innovation for offerings, platforms, solutions, customers, customer experience, value capture, processes, organization, supply chain, presence, networking, and brand (Mohanbir, 2006).

So, once the company has clearly defined the framework of competitive space in innovation, it is time to decide what strategies to adopt according to those dimensions. We found two big groups of strategies including exploitative (focus on efficiency and incremental improvements) and exploratory (discovering new ideas, and new business models), a categorization used in some studies (Müller *et al*., 2021), (Ali, 2021), (Jia, 2019), (Chen *et al*., 2018), (Gao *et al*., 2017). Other strategies are orientated towards the level of risk that the company wants to assume and the level of leadership that represents being a first-mover or a fast-follower, such as proactive, active, reactive, and passive (Dodgson *et al*., 2008), while others speak about the innovation strategies related to process innovation (for cost leadership, making efficiencies to attain superior performance and cost advantage), and service innovation (for differentiation, creating unique and different features) (Kaliappen & Hilman, 2017).

Also, there are interdependencies between the four components of innovation strategy: **1)** technology strategy due to the relevance of tech in innovations; **2)** product strategy to produce what customers want; **3)** process strategy due to the chosen technology and product strategy; and **4)** timing strategy, which due the time-to-market can be very relevant (Gaubinger *et al*., 2015).

In previously cited research for which 100 innovative companies were analysed, 12 predominant strategies were identified according to their dimensions. Here, the authors state that for customer excitement there are the strategies of platform offering (covering a variety of needs), co-creation (working with the client to generate insights), cycle time reduction (delivering the product early), and brand value enhancement (delivering customer aspirations). For competitive leadership, there are the strategies of technology leveraging (using tech to be better than competitors), futureproofing (reducing uncertainty with multiple options), lean development (optimizing production), and partnering (collaboration with others). And for portfolio enrichment, there are strategies of innovation mutation (creating new products through technology evolutions), creative destruction (ending an offering for a new replacement), market segmentation (creating new opportunities thanks to segments), and acquisition (procuring technology, brand, or market) (Bowonder *et al*., 2010).

Large companies also publish their own studies, such as one by PwC based on their survey called *Innovation Strategy Profiler*, where they divide the strategies into three: need seekers (companies are looking for new products through customers' needs), market readers (those who focused on incremental innovations being fast-followers), and technology drivers (those who use their technological capabilities and try to apply new technologies) (Jaruzelski *et al*., 2011).

At the same time, we observe three generic strategies in the literature: open innovation, imitation, and innovation leadership.

1) Open innovation (a situation where an organization is not dependent on its own internal knowledge and resources, as it uses outside help to create innovation) is one of the innovation strategies discussed in the literature associated with the innovation performance in companies (Valmaseda-Andia & Albizu-Gallastegi, 2017). However, the strategy could not be considered as a standalone option; internal R&D and open innovation should be seen as complements, working as one to be successful (Bogers *et al*., 2019). In the same line, other researchers have published cooperation action as an innovation strategy, or rather, as an open innovation option focused on collaboration with startups and spin-offs (Wolf *et al*., 2021b).

2) A very common option that companies choose is **imitation**. Not all investment in research and development is profitable, so being innovative does not guarantee fast results. For this reason, some companies prefer imitation, discussed here as a possible strategy, because depending on the conditions, copying what others are successfully producing is more effective than research with the risks that this entails (Wanasika & Conner, 2011). However, an imitation strategy has more presence in hierarchical cultures (Naranjo-Valencia *et al*., 2011) and appears to boost short-term performance, being more effective in sustained growth in low-tech industries and in non-OECD countries (Peng *et al*., 2021), although the effect of sustained competitive advantage is stronger on innovation than on imitation (Ali, 2021).

3) Innovation leadership, which could be precisely the opposite of imitation (one more reactive, the other more proactive), allows companies to adapt and change the external environment, which would improve their performance (Adjei, 2013), (Carmeli *et al*., 2010).

1.4. Decisive or influential factors for innovation strategies

Before deciding on a strategy to implement, a company should know what key factors determine or influence an innovation strategy to choose the one that suits them best. So, when designing an innovation strategy companies should consider many factors before deciding. For example, some studies analyze the impact of talent on innovation, which represents positive business results (Briganti & Samson, 2019); the cost reduction because of many innovations (Elia *et al*., 2021); the relevant role of user necessities for a product (Lluch, 2021); or the importance of learning about best practices within and beyond a firm's industry sector (Leavengood & Anderson, 2011). All these publications have not been treated as determinants of strategy because they have been studied individually with other intentions, but due to their impact, they could be considered as candidates to form part of the strategy elements.

On the other hand, factors to be considered include the mission and culture of companies (Naranjo-Valencia *et al*., 2011), (Jaruzelski *et al*., 2011) and key factors of influence on business development, such as globalization and technology (Haro Carrillo *et al*., 2017). There is innovation beyond technology; we can innovate without the mandatory use of new technologies (Lechevalier, 2019), but there is no doubt that in recent decades it has taken on an important role in business offerings (products and services). Now, data processing and communications are light years away from a few decades ago, so the possibilities they bring us are incredible and could be a determining factor in strategy.

At the same time, there are other considerations that affect companies when establishing and operating in innovation, such as financial status, company size, management skills, and competitive advantage, to name but a few (Bayarçelik *et al*., 2014). Other influencing factors include, for example, the industry, the economic conditions, and the internal capabilities of the company (Katz *et al*., 2010). In the same direction, we have detected five factors that influence innovation strategy: accumulated technological competencies, external orientation, organizational specialisms, internal strategic cohesion, and management skills (Dodgson *et al*., 2008).

Empirical work was orientated towards identifying factors that determine firms' decision to innovate (Braga & Braga, 2013). Here, the authors identified five areas grouped in obstacles (economic risk, costs too high, organization structure not flexible, etc.), sources (suppliers, competitors, customers, etc.), cooperation (governmental labs, competitors, R&D firms, etc.), finance and decision-making process in innovation (profit increase, compliance regulations, turnover, etc.).

The company's sector could also be a possible determinant to consider. For example, public companies mainly use current knowledge instead of generating new knowledge (Gao *et al*., 2017).

Companies that prefer to go a step further could choose leadership by incorporating R&D, seeking exclusive added value for their purposes in an internal, external, or mixed-managed way, for example with basic research, applied research, or experimental development. Hence, R&D is presented as a possible factor that could influence the type of strategy to choose (Wolf *et al*., 2021a), (Malhotra, 2017), (van de Poel *et al*., 2017), (Gaubinger *et al*., 2015).

One step that every company should take when choosing a strategy is SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats): another candidate for determining factor, because SWOT is intended to deliver strategic insights (Valentin, 2001), being part of the innovation process (Geschka, 2015). It is the tool *par excellence* for business strategy, but it is also applicable to innovation strategy (Štěrbová *et al*., 2016) and indeed is used to identify the good and bad in innovation system models (Al-Mubaraki *et al*., 2012).

2. Conclusions, limitations and future work

2.1. Conclusions

After a careful analysis of the literature, the following results can be inferred in the form of statements:

a) There is no global consensus on innovation, and it is certain there will not be in the short nor medium term. The lack of consensus on the definition of innovation could lead to different interpretations, affecting the understanding and relevance of innovation in business. The experience, culture, and environment of companies affect the conception of innovation so that, while in some scenarios a new functionality is enough to be considered an innovation, for others it does not correspond to the expectations.

In terms of relevance, the definition of innovation assumed by every organization influences the role of innovation in the company, and its hierarchical structure influences idea generation and selection (Sarna, 2020), (Keum & See, 2017), (Sahay & Gupta, 2011).

b) Business strategy needs innovation because innovation is a key element that represents performance improvement when applied. Up to three-quarters of productivity development in European industry can be attributed to innovation (Swedish Ministry of Enterprise, Energy and Communications, 2020), and companies that apply innovation in their strategies enjoy better performance (Ryu *et al*., 2015).

Innovation is a fundamental pillar in business strategy; it is not just a technological project, it is a culture, a mindset, a tool that provides competitive value to the company and added value to customers. For the economy, innovation denotes greater productivity for all: it is positive for customers because they can enjoy better products and services, for businesses because innovation provides sustainable growth and development, and for employees because innovation is a challenging job associated with higher intellectual knowledge and salaries (Shqipe *et al*., 2013).

c) Business innovation needs its own strategy in order to be ready for firm sustainability and competitiveness. An innovation strategy is a set of actions that drive all procedures and guidelines in an organization to generate and manage innovations to achieve business objectives (Wolf *et al*., 2021b). It involves planning, prioritizing, and developing the right types of innovation (technological or not) ensuring the appropriate resources, knowledge, capabilities, and organizational structure, among others (Katz *et al*., 2010), (Varadarajan, 2018), (Afuah, 2003). It is important not to manage innovation strategy as an isolated strategy independently of the rest of the company's functions. The innovation strategy should be based on the corporate strategy and needs to be understood as an integral component of long-term strategic business management (Gaubinger *et al*., 2015). With innovation strategy, the company can control and manage the generation of innovation, even though few companies have a clear innovation strategy (Katz *et al*., 2010).

d) It is positive to incorporate the innovation strategy into the business strategy in order to compete in a better position in terms of differentiation, productivity, economic growth and to achieve better financial results (Jaruzelski *et al*., 2011).

e) Innovation strategy is framed in a multidimensional way, addressing the scope and limits of the company's innovation through its key components (Krishnan & Jha, 2011). We have different approaches to declaring the sections of the business value proposition, and the dimensions will define the framework of the competitive space using innovation. The literature reviewed shows dimensions that can be grouped into four frameworks:

- Dimensions orientated towards "**innovation sources**": those that define and treat the sources of innovation, from internal to external resources, in a competition or cooperation.
- Dimensions orientated towards the "**innovation category**": areas that define where the firm works innovatively: in the form of improvement (exploitation) or disruptive vision (exploration).
- Dimensions orientated towards "**innovation types**": associated with where the innovation is applied, in product or in process.
- Dimensions orientated towards "**innovation needs**": related to what drives the business: the technology that the company creates or dominates, or the market needs, including the time-to-market and competitive leadership. Customers' needs include dimensions such as portfolio enrichment and client excitement.

Companies have different strategies to adopt, and the defined dimensions are decisive in this. The literature reviewed shows strategies that can be grouped into three types of orientation:

- Strategies orientated towards the "**offering**": those related to the making method, such as strategies of co-creation, collaboration, and open innovation. Also, those pertaining to provision, strategies like those orientated towards service, process, and product.
- Strategies orientated towards "**efficiency**": here, we find strategies associated with delivery, time-to-market, or exploitation.
- Strategies orientated towards the "**business plan**": strategies related to brand value, diversification, market segmentation, reducing uncertainty, acquisitions, the level of risk assumed, the level of leadership adopted and imitation.

All three groups apply technology, commented as a cross strategy due to its capacities and influence impact.

f) Innovation strategy is composed of and affected by factors. We have seen that there are many aspects to consider when a company decides on its strategy. We can organize these into three groups:

- "**Approach**" factors: firm factors such as mission, vision, culture, organizational structure, value chain, firm values, team talent, company size, internal strategic cohesion, economic risk, management skills, resources, investment, business knowledge, and SWOT; environmental factors such as market, sector, industry, alliances, pandemics, wars, ecological, legal, politics, and world economy.
- "**Thought**" factors: such as innovation maturity and types, R&D (internal, external, mixed mode), technology capabilities, and intuition.
- "**Observation**" factors: such as competitors, good practices, state of knowledge and technology, government and EC innovation strategy, customers' needs, learned lessons, and previous innovation outcomes.

2.2. Limitations and future work

This article is based on the limited literature reviewed, thus drawing on previous research but without the intervention of users ("innovators") with direct feedback through interviews or surveys for an accurate understanding of innovation strategies.

Business strategy and innovation strategy are two broad fields that are closely related but are not applied harmoniously with the same intensity in all organizations. The lack of global consensus on the definitions in the innovation ecosystem could hinder their adoption and thus affect business, so it would be very useful for companies if future research could delve into the environment of innovation strategies by establishing a base framework. After that, the ideal would be to obtain a unified list with the three identified interrelated and relevant components of the innovation strategy:

- List of possible strategic dimensions, where innovation strategy will be framed.
- List of possible innovation strategies that companies could apply.
- List of possible factors that determine or influence the innovation strategy.

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