

INNOVATION WITHIN THE FIRM: A COMPLICATED PICTURE

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ABSTRACT

Nowadays, innovation has a particular relevance to all countries and firms, regardless of the level of development, dimension or performance achieved. Innovation defines the stages of development and success, especially in the creation and diffusion of technologies and workforce commitment; it ensures economic growth and the well-being of the individual, firms or economy. Understanding how companies integrate innovation into current actions and processes to ensure performance, but also the obstacles and lack of motivation for innovation are essential in managerial decisions, regardless of the size of the firm, the sector of activity or the technological endowment. The findings have shown that companies are struggling to adjust innovation efforts to business strategies, adopt technology as the benchmark for decisions, and market-mind new ideas, while also recognizing that technology is just as good as the people who use it, from employees to clients and partners. On the other hand, our research finds, on a significant panel of European countries, that the innovative process is often stuck in various obstacles or abandoned in a lack of motivation and interest, a fact that is difficult to explain and understand in a European Union concerned about the relaunch of innovation and, implicitly, the competitiveness of the economies of the Member States.

KEYWORDS: *innovation, firm's performance, models, EU.*

1. INTRODUCTION

By definition, all innovations must contain a certain degree of novelty. There are three concepts on the novelty of innovations: new for the firm, new on the market, and new in the world (OECD and Eurostat, 2005). The minimum entry level for an innovation is that it must be new to the firm. A product, process, marketing method, or organizational method may have already been implemented by other companies, but if they are new to the firm, then it could be considered as an innovation for that firm. The concept of new on the market, or new in the world, refers to whether innovation was or was not implemented on the market by another company, or whether the company is the first (from the market, industry or the world) that introduces this innovation.

The companies introducing first innovations could be considered drivers of the innovation process. However, even if many new ideas and knowledge come from these companies, the economic impact of innovation will also depend on the adoption of innovations by other firms (OECD and Eurostat, 2005). A related concept is radical or disruptive innovation, with a significant impact on the market and on the economic activity of companies in this market. This concept focuses mainly on the impact of innovations and less on their novelty (Christensen, 1997).

Another typology refers to radical (*breakthrough*) innovations and incremental innovations, differentiated according to the degree of change needed to implement innovation or the level of

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technological intensity. Breakthrough innovation generates completely new solutions for systems, processes, products or services that grow into a new business, can cause major changes in an entire industry or create the foundation for a new industry, coupled with the creation of new markets. Meanwhile, incremental innovations are, typically, minor improvements to existing products and processes; they relate to an existing product / service, whose performance has been enhanced or improved in the life cycle, from one version to the next, through partial changes to one of its subsystems (Piana, 2003). The Oslo Manual defines four main types of innovation that include a wide range of changes in business activity: product innovation, process innovation, organizational innovation and marketing innovation (OECD and Eurostat, 2005).

The present paper is structured as follows. After the introductory part we will address innovation in the company seen through actions and processes that are essentially related to the performance of the company, the lessons of innovation performance and then, the obstacles and lack of motivation for innovation as perceived by companies in several European countries. In the final part we will conclude on the importance and understanding of innovation in contemporary firms.

2. INNOVATION WITHIN THE FIRM: AN OVERVIEW

Innovation within the firm is positively related to the company's performance and profitability; it contributes to stimulating economic growth and developing the knowledge-based economy. An innovative firm is a company that has implemented at least one innovation (Oslo Manual, 2005). In European statistical methodologies and various researches, successful innovators are defined as enterprises that have introduced or implemented at least one new, or significantly improved, product, process, method of organization or marketing method, while innovative enterprises are enterprises that have launched new or significantly improved products or services on the market, or new organizational or marketing methods (Dumitriu & Nunu, 2016; OECD & Eurostat, 2005).

The company's performance and its connection to innovation are a complex and multidimensional concept (Murphy et al., 1996), often more intuited rather than rigorously demonstrated. Performance can refer to the components of the company's structure (output, marketing, investment), to the output(s), or to overall indicators such as sales volume, profit, profitability (Sohn et al., 2007; Wolff & Pett, 2006; Cadar & Badulescu, 2017).

The positive relationship between firm innovation and its performance seems obvious: a new, innovative product has few competitors on the market, and as a result, for a while, the company will be able to get higher profits. Over time, the product's obsolescence, competition from other products and imitation will diminish these benefits, but the firm has already the experience and trained behaviour to introduce new innovative products, thus preserving its position and performance (commercial, financial) for a certain period of time (Varis and Littunen, 2010).

However, the companies could have innovation activities without actually implementing an innovation. All activities involved in the development or implementation of innovations, including those planned for future implementation, are innovation activities. According to Drucker (1985) there are a number of sources of innovation - internal (an unexpected event, inconsistencies between expectations and results, or between prospects and realities, processes needs, changes in industry and the market) and external to the firm or industry (demographic changes, customer perceptions, new knowledge, inventions, patents, know-how).

A company that intends to change its products, capacities or production, marketing and organization systems has several main open options. This company can invest in creative activities to develop in-house innovations, either alone or with its external partners, can adopt innovations developed by other firms or institutions as part of a broadcasting process, or can use a combination of these options. Other than the traditional concept of research and development (R&D), there are also new product concepts, processes or methods, design changes or technical functions, as well as other

innovative and non-R&D activities, that can be considered be part of an innovation (OECD and Eurostat, 2005).

3. HOW TO FOSTER INNOVATION WITHIN FIRM? LESSONS FROM THE PERFORMERS

In the era of digital business and constantly changing technology, it is estimated that virtually no company can ignore the imperative of innovation, risking the loss of business, customers and market position. In understanding this, PwC published in 2017 a global survey of more than 1,200 managers in 44 countries on managing innovation in leading companies (Staack & Cole, 2017). These performers were selected from companies of various sizes, whether independent or part of large corporations, many of them being among the top 1000 largest publicly listed corporate R&D spenders, from various fields, such as transport, IT, energy, automotive, publicity, hotel chains, business consultancy (e.g. General Electric, Microsoft, Nisan, Marriott etc).

The purpose of this study was to understand how these leaders see innovation and what they do to make the most of the innovation outcomes, analysing a range of dimensions such as: innovation strategy, operating models, company culture, performance measurement and others, to understand how companies are trying to create commercial value and financial profits in their efforts to stimulate and fund innovation.

The first lesson resulting from this study is that the innovation strategy is more important than the size of the innovation budget and, ultimately, what really matters is the improvement of the financial profitability of both the firm and the effective financing of innovation. Approximately half of the companies participating in the PwC Innovation Benchmark believe that their innovation efforts have had a "big" impact on revenue growth, "important" on cost management, and a "positive overall" on all company structures. Especially in terms of financial performance, respondents from sectors affected by rapid digitalization (communications, technology, automotive, entertainment and the media) appreciate that innovation has led to improved revenue over previous periods. Moreover, the vast majority of respondents accept as true that keeping a good place on the market will require increasing investment in research and innovation.

The second lesson is that innovation leaders are also leaders of growth. However, identifying a clear relationship between the level of innovation costs of a company and economic success is difficult. In other words, companies that focus on innovation seem to be, in fact, more productive than firms that focus on careful cost management, although there is no evidence that adopting one of these two options will generate significant differences in profitability (Su & Tang, 2016, p.4). In the past decades, several studies on innovation such as Global Innovation 1000 (PwC, 2017), Staack & Moebius (2015) or Ritter & Gemunden (2004) have found no statistical relationship between the amounts spent on R&D and financial performance, suggesting that the way in which money is spent on innovation is more important than the volume of these costs. Many surveyed companies claim to be trying, beyond R&D, to focus more on inclusive operating models that bring together a variety of stakeholders to innovation clusters, because it would help companies achieve their two growth goals: - revenue consolidation and cost containment, along with other metrics such as brand vitality, product performance, and customer satisfaction. To respond in an innovative way to customers' demands and expectations, companies continually realign and integrate their internal and external resources, for a more flexible, transparent and adaptable organizational structure (Tont & Tont, 2016, p. 64). It is not surprising that over two thirds (69%) of companies see sales growth as the most important indicator of innovation outcomes, the others being considered of secondary importance: customer satisfaction (43%), the number of new ideas under implementation (40 %), increase of market share (36%), number of products to be launched (31%), net value of innovation

portfolio (28%) or (decrease) time required to bring the product to market (24%) (Staack and Cole, 2017).

A third lesson refers to the fact that businesses need to shift from risky innovation bets to viable business models. As a rule, random and non-systematic innovations are rarely rewarded and encouraged. For an initiative to generate real value, the effort must be clearly aligned with a company's business strategy, even if it is not easy for even the best companies. According to Ritter & Gemunden "business strategy is not directly related to innovation success [...] it is not enough to just claim technological leadership" (Ritter & Gemunden, 2004, p.553). So to the question about the organization's biggest strategic challenge for successful innovation, over 54% of innovative companies identified it as the gap between innovation strategy and business strategy.

More inclusive operating models such as open innovation, stimulation of free thinking in design, and co-creation work together with partners, customers and suppliers are now all preferred as a complement or even a substitute for traditional research and development (see Figure 1). It is estimated that nearly twice as many companies favour these modern models compared to traditional R & D models.

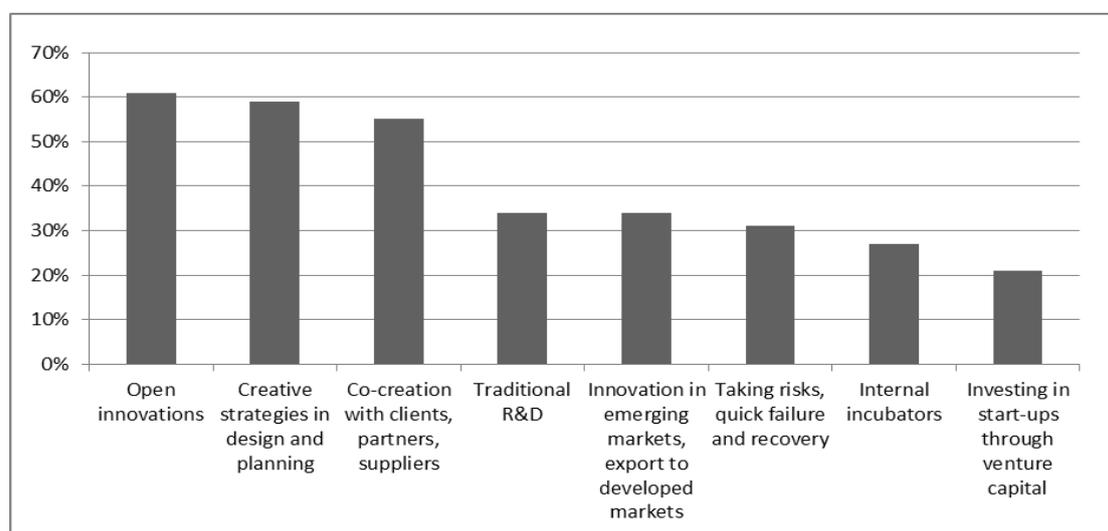


Figure 1. Which operating models are currently using your organization to drive innovation?

Note. Percentage of companies using at least one of these models (%)

Source: adapted from Staack and Cole (2017)

Regarding these new and comprehensive operating models, customers are the most important (external) innovation partners (about 60% of the options) followed by technology (50%) and distribution (44%) partners, and then by other models based on the collection of market data, focus groups, collaborations with universities and research institutes, and contact with the entrepreneurial world and dynamic start-ups (ranging from 33% to 15%) (Staack and Cole, 2017).

The fourth lesson focuses on the importance of collaboration between large companies and SMEs. The PwC's Innovation Benchmark study shows that companies that invest more in innovation are more likely to focus on progress / revolutionary innovations, than on incremental improvements. Of those who reinvest more than 15% of revenue, most are involved in breakthrough innovation, of which over 40% focus exclusively on it. Larger companies have a higher tendency (compared to smaller companies) to focus on truly revolutionary innovations.

On the other hand, for the small companies who want to maintain on the market, to resist competition, to expand and develop their business, creativity and innovation are mandatory (Cadaru & Badulescu, 2015, p.663), (Sava & Badulescu, 2017). Smaller firms are likely to work with technology partners, to adopt design thinking, and encourage open approaches to innovation, but

often tend to innovate by avoiding collaboration with large corporations. However, these smaller, more dynamic firms do not have the power of large corporations, which have more resources (financial, time and human) to support the design and implementation of innovations, to devote to the iterative process of design thinking to reaching the right solution.

Indeed, if we analyse EU data in the last decade, large firms (with more than 250 employees) are central leaders in all types of innovations, general and specific - product, process, market, or organizational innovations (see Figure 2).

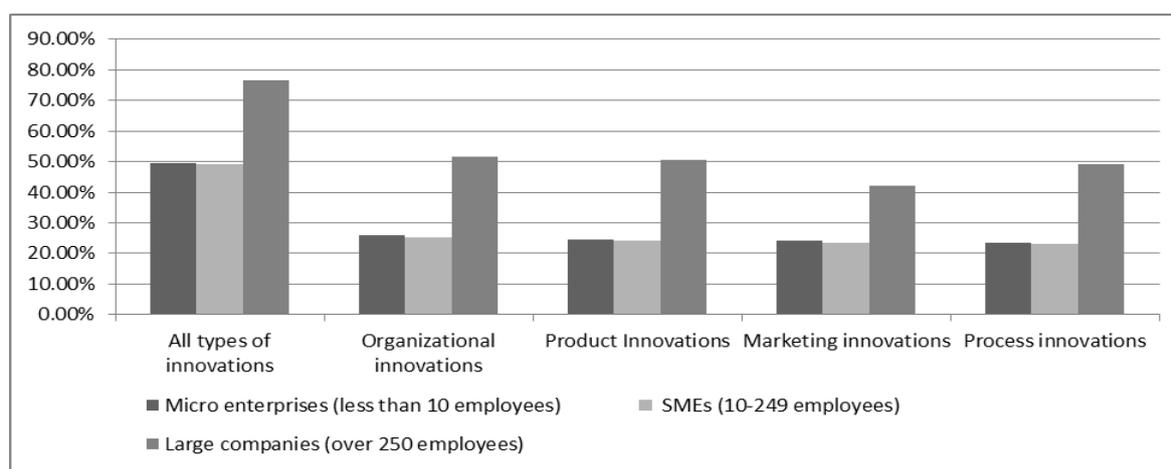


Figure 2. Share of innovative enterprises in EU 28 by size in 2012-2014 (%)

Source: Eurostat, [inn_cis9_type and_inn_cis9_bas]

A significant number of large companies are pushed by the expectations of shareholders (predominantly on short-term) and therefore they need to be concerned about the speed at which ideas turn into innovations and then into cost-effective products on the market. In this case, a large company could consider accelerating open innovations by working with small innovative firms, avoiding on the one hand, the consequences of innovative but resource-free start-ups and, on the other hand, allowing large companies to draw valuable lessons from mistakes but without paying too much for such mistakes.

Entrepreneurs and small firms can innovate (and even fail) without the pressure of the requirements of profitability or expectations of shareholders. Supported by large companies, they can start over, accelerate the innovation and the precise introduction of the mix of talents - business experience - design experience - technology and know-how.

The next lesson (fifth) tells us that the determining factor of innovation is the human resource. Thus, successful innovation requires more than technological skills. Human experience and diverse perspectives help shape and deliver new ideas, solutions, products and services that ultimately bring value to markets and businesses. Inspired by the analysis of unconvincing results of innovation among developing economies, the "high technology issue" can also be adapted for businesses. More specifically, the rather limited understanding of innovation mainly as "high-tech", and focusing on technological outcomes – the "high-tech myopia" (OECD, 2012) can be costly and dangerous by lacking resources and concern in areas within with remarkable innovation potential. Innovations teams are today multidisciplinary, and do not disproportionately rely on the skills and predictions of technology. The use of human judgment and correct intuition on information is essential for obtaining useful data on innovation. According to Eurostat, the countries considered to have the highest percentage of innovative enterprises in a total number of enterprises, such as Switzerland (75%), Germany (67%), Luxembourg (65%), Belgium (64%) or the United Kingdom 60% also have the highest percentage (total) of highly educated employees in the total number of employees

in innovative enterprises, compared to countries such as Bulgaria (26%), Lithuania (25%) or Romania (13%) (Eurostat, 2017).

However, in the case of countries with a strong sector of innovative enterprises, as well as for the least representative countries in terms of innovation, it cannot be claimed that the segment of innovative firms has a staff dominated by highly qualified employees. For example, in the whole of Europe (EU and non-EU), the segment of innovative companies where the proportion of employees with higher education is between 10% and 24% is the largest (almost a quarter of all innovative firms), followed by the segment of companies where this percentage is between 25-49% (Table 1).

Table 1. Percentage of enterprises self-declared as innovative (by % of employees with higher education) in several EU member states (2014)

Country	Percentage of employees with higher education						
	0%	1% - 4%	5% - 9%	10% - 24%	25% - 49%	50% - 74%	over75%
Belgium	0.9	7.9	14.4	25.9	19.5	11.2	20.2
Bulgaria	6.0	21.3	12.6	20.9	13.9	8.7	16.5
Germany	16.0	12.1	16.1	28.7	13.2	7.4	6.7
Estonia	6.7	5.5	8.7	17.3	24.7	16.0	21.1
Greece	11.8	14.0	12.8	22.9	18.0	11.3	9.2
Spain	18.8	4.1	13.1	28.3	17.2	8.6	9.9
Croatia	18.1	13.8	23.9	13.1	9.0	10.0	12.1
Italy	38.5	17.6	11.8	14.7	9.2	4.6	3.7
Cyprus	4.5	2.3	6.1	27.6	24.9	14.9	19.7
Latvia	3.1	14.6	15.3	27.5	14.1	10.8	14.6
Luxembourg	12.9	9.6	9.9	10.5	14.7	13.6	28.2
Hungary	5.2	18.2	12.3	26.1	16.8	9.4	12.0
Malta	21.5	10.6	18.5	20.4	12.3	9.0	7.6
Netherlands	7.0	8.7	13.0	30.4	15.2	11.0	14.7
Austria	2.5	10.8	12.6	24.6	16.8	11.6	21.0
Poland	4.6	2.6	8.0	34.4	22.2	12.2	16.0
Portugal	15.0	27.9	13.1	20.7	10.1	6.3	6.8
Romania	N/A	15.1	18.7	26.2	10.8	9.0	19.8
Slovenia	5.8	1.8	8.9	32.7	25.7	12.9	12.3
Slovakia	7.3	14.9	12.2	28.5	18.3	10.2	8.6

Source: Eurostat (2017) [inn_cis9_bas]

First of all an innovation starts with the employees. The skills and experience in generating new, "fresh" ideas are particularly appreciated by surveyed managers who say their employees are the most important innovation partners, ranking them just ahead of technology partners. Employees often see problems and solutions more clearly than their managers, primarily concerned about cost and cost-effectiveness. Employees could make a valuable contribution to innovation efforts since the beginnings, they are, in the same time, consumers, who can reproduce end users' reactions to innovation and many of them have considerable technology experience.

But not all companies are sure their employees have the right experience and skills for innovation efforts. Almost one third of the firms surveyed by the PwC study state that finding employees with the right skills is the greatest challenge to innovation in terms of human resources. This challenge is overcome only by the need to establish a culture of leadership leading to innovation.

Finally, the last lesson in the PwC study refers to the fact that companies in the technology sectors set the pace of innovation. Even if technology is not everything, neither the reason nor the goal of innovation, its importance is indisputable, especially for the innovations that bring about essential changes in the economic game. Most companies in a variety of industries rely on technology as a source of innovation, they are looking for technology to help create markets for new products and services that do not yet exist and to meet the needs that customers do not yet know. Almost one third of the large companies say their innovation is technology driven, and another third say they use a combination of technology and market-based innovation. Nearly half of technology-led companies focus entirely or mostly on revolutionary innovations, and a quarter of them focus on a combination of revolutionary and incremental innovations.

Since technology is essential for innovation, it is not surprising that technology companies are driving revolutionary innovation, followed by pharmaceuticals and medical, healthcare, communications and automotive companies (see Figure 3).

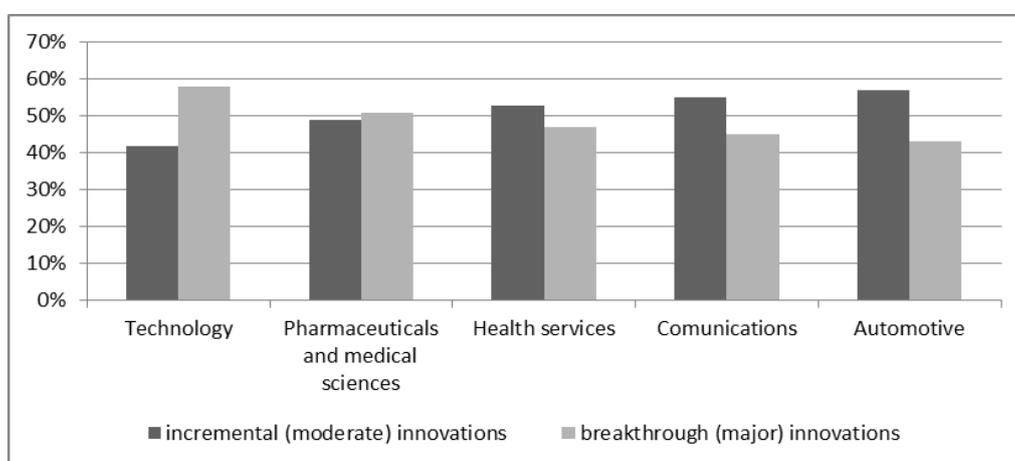


Figure 3. Is your organization focused on incremental (moderate) innovation or on breakthrough (major) innovations?

Source: adapted from Staack and Cole (2017)

With so much importance to technology, it is understandable that half of companies appreciate technological partners as second in the importance of contributing to innovation immediately after employees. Obviously, the right combination of technology and talent, from strategy to execution, is essential to improving a company's innovation chances.

4. INNOVATION IS NOT YET THE UNIVERSAL MODEL OF EUROPEAN COMPANIES

Although innovation plays a key role in a company's survival and development, there are a several reasons why non-innovative EU businesses do not consider the possibility of innovation (Figure 4).

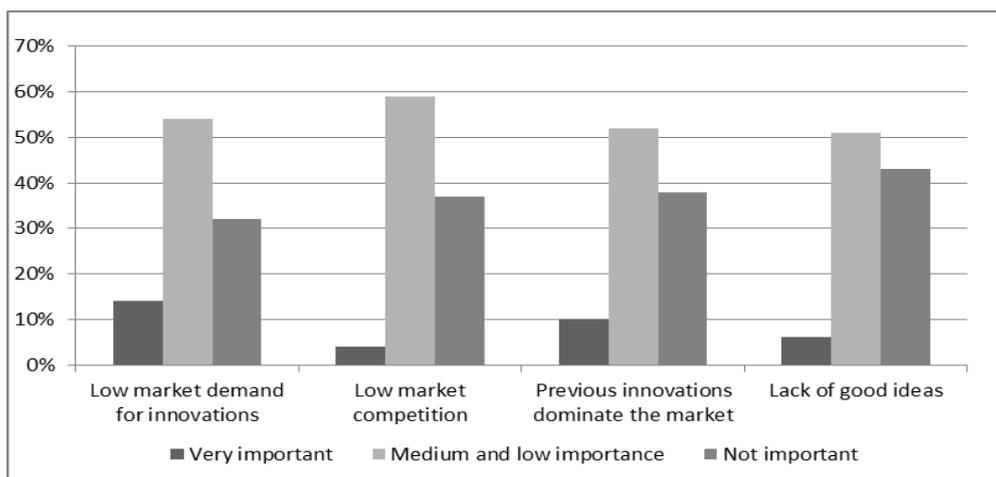


Figure 4. The reasons why non-innovative EU enterprises do not consider the possibility of innovation (2012-2014) (% of non-innovative enterprises)

Note: missing Belgium, Denmark, Germany, Ireland, Spain, Slovenia, Finland and United Kingdom
 Source: Eurostat [inn_cis9_noin]

Table 2. The importance of the reasons to not innovate and of the barriers to innovation, in the enterprises from several EU member states in 20104 (%)

Country	Enterprises for which was/were a highly important barrier not to innovate				Enterprises for which was/were a highly important reason not to innovate		
	the lack of internal finance	lack of skilled employees within the enterprise	no compelling reason	too large barriers	the low market demand	previous innovations	the little market competition
Bulgaria	6.4	3.0	84.7	15.3	11.8	5.0	4.4
Czech Republic	8.9	2.1	84.1	15.9	10.0	8.1	4.7
Estonia	5.9	2.8	76.5	14.6	9.2	8.3	6.1
Greece	17.4	3.5	74.6	25.4	25.5	9.3	10.5
France	5.4	3.0	90.3	9.7	18.6	8.3	5.9
Croatia	8.6	3.6	81.6	18.4	11.6	9.0	6.8
Italy	12.3	3.4	79.6	20.4	26.3	17.1	6.3
Cyprus	11.9	2.7	71.4	28.6	26.3	20.9	3.8
Latvia	4.6	2.4	89.8	7.3	12.9	13.4	9.0
Lithuania	5.9	1.4	87.9	12.1	12.1	6.8	5.9
Luxembourg	4.1	2.4	91.9	7.6	15.9	9.2	3.5
Hungary	5.0	2.0	91.1	8.9	11.8	5.0	3.9
Malta	1.5	1.9	94.5	5.5	7.5	4.2	2.1
Netherlands	2.8	1.4	93.0	7.0	12.5	7.7	2.7
Austria	5.4	1.7	89.7	10.3	14.1	12.1	5.0
Poland	24.8	9.8	75.8	24.2	6.9	6.4	4.2
Portugal	10.1	2.9	83.0	17.0	13.1	11.5	4.0
Romania	5.4	2.0	87.7	12.2	9.0	5.7	3.1
Slovakia	28.3	10.4	71.8	19.5	20.6	11.7	6.9
Sweden	N/A	N/A	94.6	N/A	11.8	9.1	N/A

Source: Eurostat, (2017) [inn_cis9_noin]

Therefore, reduced demand for innovation, low competition and past innovations that dominate the market, as well as the lack of good ideas, cause businesses to ignore the possibility of innovation. Table 2 shows a general overview of the barriers and reasons for innovation in selected EU countries, nevertheless EUROSTAT data allow us to investigate more deeply, depending on the size of the firm or field of activity.

We find that *the lack of internal finance* is a barrier of only moderate importance; in most countries it not exceeds 10-12%. The only notable exceptions are the companies in Poland where it exceeds 25% of total firms, of which over 26% for small businesses (10-59 employees) and about 16% for large firms, and Slovakia for more than 28 % of total companies, of which over 30% for small firms and about 11% for large firms.

Interestingly, and somewhat surprisingly, given the previous explanations of the importance of human resources in innovative firms, *the lack of skilled workers within the enterprise* has even lower scores than the *lack of internal financial resources*. It can be stated that this factor is somewhat more important for small firms. Generally, it could be said that European firms do not innovate for reasons other than the lack of qualified employees (!).

The existence of barriers to innovation, of all kinds, seems to cumulate somewhat higher percentages than previous ones, perceived to be more significant in small firms than large ones. Finally, surprisingly, given the financial and organizational efforts made at the level of EU bodies and member states' governments', and the pressure of international competition, it is the scores (percentages) of barriers / motives obtain by the category *Enterprises for which no compelling reason to innovate*. Percentages are extremely high, ranging from 95% in Sweden, 93% in Malta or the Netherlands, 90-92% in Hungary, Luxembourg or France, to moderate ones, around 70%, in Slovakia and Cyprus.

We cannot appreciate a certain trend associated with the size of firms, yet they are quite inquiring percentages of over 95% (and even 100%) for large firms in many developed countries, given that the realities of digital business, communications and rapid changes in technology, generate sufficient reasons not to disregard the role of innovation.

5. CONCLUSION

The contemporary era, characterized by the dominance of technology and rapid market changes, requires to large or small companies in almost all industries and regions of the world to increase their ability to innovate, to find the best ways to develop, manage and measure innovation so as to achieve better financial results. For most companies, this means opening up the innovation process for customers, employees and partners.

Innovation, as a functional activity that exists only within isolated research and development centres, has long been overcome. Organizations focus on creating winning innovation cultures within their companies and bringing new ideas and innovation initiatives both from inside or outside of the company. But as companies invest more in innovation, they need to align their innovation efforts with their business strategy. Expenditure on innovation must ultimately lead to an increase in business value and financial performance, as the future business models can support the innovations it creates, and companies can achieve tangible results from innovation. Although these coordinates seem to be obvious, the data collected at the level of European economies show (with small differences unrelated to the level of economic development, size of the economy or degree of internationalization) that innovation is a secondary objective in the strategies of these firms, blocked by various obstacles (financial, managerial, organizational, human resources) but especially of by the lack of real motivations for innovation.

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