

INNOVATION: A STRATEGY THAT LEADS TO COMPETITIVENESS IN SMES

Ana Sílvia Cordeiro*

Filipa Dionísio Vieira**

ABSTRACT: This study took place in Portugal and focuses on the importance of the innovative attitude towards the sustainability of companies. The aim is to define how Research, Development & Innovation (RDI) must to be followed by companies to attain competitiveness, which will allow them to remain and survive in the market. Once confirmed this belief it becomes interesting to acknowledge why innovation does not occur and what kind of barriers to innovation face the Small and Medium Enterprises (SMEs) studied. Additionally is analysed the existence of similarities in the barriers observed in Portugal with studies carried out in other countries.

Keywords: Competitiveness. EU strategy. Innovation. Barriers to innovation. SMEs.

1 INTRODUCTION

The urgency and relevance to companies, whatever the market in which they operate, to drive processes of improvement or change, promoting their future sustainability is a current theme. The question faced by every firm is how, using which tools, taking what attitudes and actions can they promote this claim.

Companies should endeavor processes towards sustainable innovation. This path is long and difficult as the available resources, including financial ones, are scarce. The scarcity of resources swells the need to develop investments with huge returns, to promote cuts in cost structures and trigger market innovative products and services. Despite the development of these efforts there is no guarantee that it by itself is sufficient to achieve the coveted competitiveness.

According to Porter (1998), the generic strategies leading to the competitiveness of a company are based on cost leadership, differentiation or focus. In the first case, the underlying

* Master in Industrial Engineering, Ph.D. Student in Production and Systems Engineering. University of Minho, Production and Systems Department, Campus de Azurém, 4800-058, Guimarães, Portugal. Phone: +351 253 510 344; Fax: +351 253 510343, Guimarães. Portugal. acordeiro@dps.uminho.pt.

** Ph.D. in Production and Systems Engineering. University of Minho, Production and Systems Department. Campus de Azurém, 4800-058 Guimarães, Portugal. Phone: +351 253 510 769; Fax: +351 253 51034, Guimarães, Portugal. filipadv@dps.uminho.pt.

logic is that by producing cheaper products than competitors, a company can offer its products to consumers at lower prices and increase its participation in the industry. In other words, the firm sells its products either at average industry prices to earn a higher profit than that of rivals, or below the average price to gain market share.

However, the invasion of European economies with products of the East or of South America decreased the possibility of winning by compressing costs and lowering prices. Differentiation consists on offering a different product to customers, being it unique in quality, in design, in after-sales service, or at any of its many features. The latest strategies concern to industry wide. If at a narrow level, for example a market segment, focusing is the way, either by differentiating, or lowering costs.

Due to the actual environment it remains to companies, almost exclusively, the pursuit of differentiation resulting from the practice of innovation. More broadly, the conduction of proceedings on Research, Development and Innovation (RDI). This broad need for innovation that companies feel is a cause and an effect of the narrowing of the product life cycle (PLC).

Given this shortening, firms need to avoid short stages of maturity, avoiding the saturation and decline stage, overcoming the call for the product removal from the market in such circumstances. Undoubtedly, companies must align innovation with its guidelines and its strategic objectives.

According to OECD (2005), “an innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations”. To be considered an innovation the minimum requirement is that the product, process, marketing method or organisational method is new or significantly improved to the firm. Furthermore, it refers to being developed by the firm and/or adopted from others firms or organisations.

2 MOTIVATION AND RELEVANCE OF THE STUDY

Companies need to engage in creative economies, rooted in knowledge and innovation that ensure real benefits for everyone. This is a path that should be mapped not at the firm’s level, but on a joint strategy of each region, each sector of activity, each country, and international economic, commercial or other organisations. Since Portugal is a piece of this

puzzle that is the European Union (EU), Portuguese companies must look at their businesses in all its dimensions.

According to Innovation Union Competitiveness Report (IUCR), the EU launched in 2010, the Europe 2020 Strategy in order to drive the European economy into a more competitive, sustainable and wider economy. According to the report, the research conducted in Portugal by the European Commission portrays a strong growth of the R&D from 2000 to 2009, at an average annual rate of 10.2%, reaching 1.66% in 2009 (weight of Expenditure in Gross Domestic Product (GDP)). At governmental level, the spending on R&D grew in 2009, reaching two hundred and five million Euros.

According to IUCR: "In order to increase their economic competitiveness through increased productivity and change the structure of exporting firms, Portugal will have to maintain its efforts in the growth of spending on R&D". This is the engine of the self-imposed ambitious goal, for 2020, to enlarge the intensity in R&D attaining 2.7% to 3.3%. As described in IUCR, Europeans, when asked about the top three priorities with regard to innovation, massively responded: redirect research to new challenges such as climate change, efficient management of resources and energy (indicated by 66% of responders, of which in 38% of cases, as the main priority), foster cooperation between researchers (as evidenced in 51% of cases, and in 25% as the first option) and also higher allocation of financial grants for research (in 60% of cases, and as the primary, in 29%).

According to the Cotec's Manual on the Identification and Classification of RDI Activities (2010), the growth of RDI activities is an unquestionable value to businesses and to the economy. The value of knowledge and globalization demand a deep competitiveness that bail permanence and survival of businesses. "The need for each company is to be able to recognize, report and measure its effort in RDI, is essential for the establishment of strategies for a correct evaluation of the results, the search for incentives and support, and generally, for repositioning the Country in the international context".

In this manual, is still evident that Portugal is guided by a low participation in corporate R&D effort and, moreover, by a negative international image with regard to the effort of RDI. It is urgent to intensify this effort, in order to portray it reliably. By doing so, Portugal will avoid the country image to be worst than the real situation, as announced in IUCR.

3 THEORETICAL FRAMEWORK

The OECD has been developing and providing theoretical support within the RDI activities, a set of documents known as “Frascati Family”, compounded by Frascati Manual (OECD, 2002) and Oslo Manual (OECD, 2005), amongst others. The first is a compilation of statistics on R&D and the second is a compilation of guidelines on collecting and interpreting information on innovation, in order to make it internationally comparable.

The OECD Frascati Manual focuses on R&D. In the latest, R&D comprises creative work undertaken in a systematic basis with the purpose to enlarge the stock of knowledge, knowledge of man, culture and society, and its use to develop new applications. The Oslo Manual integrates and coordinates R&D with the innovation processes. But what is such a disseminated word? Innovation is a concept that has underlying the value creation based on seizing opportunities for change, as defined earlier.

Also according to the Oslo Manual (OECD, 2005, p. 46-148):

The minimum requirement to be so considered is that the innovation of the product, process, marketing or organisational method is new or significantly improved from the standpoint of the company. This includes products, processes and methods first implemented or adopted from other firms.

A new or significantly improved product will be implemented only when it is introduced. A new process, a new marketing method or organisational process will be implemented when placed in use by the company (OECD, 2005, p. 47-150).

Innovation may be evident in four distinct types: (1) product innovations; (2) process innovations; (3) organisational innovations and (4) marketing innovations. Product innovation refers to "the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses.

This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics (OECD, 2005, p. 48-156). Design is an integral part of the development and implementation of new products. However, the design shifts that do not promote new or significant changes in product features cannot be considered a product innovation and may be considered a marketing innovation (OECD, 2005).

The development of new uses for the product, with only minor changes in technical specifications, is considered innovation (OECD, 2005). The product innovation on services

can include significant improvements in the way of his performance, for example, speed, efficiency, among others, and may include new features in the service, or the introduction of new services.

Process innovation occurs with the implementation of new or significantly improved production processes and logistics of goods or services. It includes significant changes in techniques, equipment or software. Production processes involves techniques, equipment and software used to produce goods or services.

The organisational innovation consists in the implementation of a new organisational method of a new organisational method in the firm's business practices, workplace organisation or external relations.

The marketing innovation occurs with the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing (OECD, 2005, p. 49-169).

According to the Oslo Manual, this type of innovation aims to get closer to customers' needs, opening new markets, positioning a product or a firm in the market, and ultimately increasing sales. It also emphasizes that marketing innovations are different from current practice of marketing. They are innovative in face of these common practices and embody the goals set by the strategic framework of activities of RDI: increasing customer satisfaction, repositioning the company and/or opening new markets. It seems obvious the permeability of different types of innovation in growth models regarding the strategic positioning of organisations.

According to Grant (2005), strategy is an overall theme that gives coherence and direction to actions and decisions of an individual or an organisation. The success of the strategy is based on four key ideas: (1) the set goals must be simple and consistent in long-term; (2) there must be a deep understanding of the competitive environment; (3) an objective evaluation of resources is driven and (4) the effective implementation must be materialized.

A sense of purpose in this course requires the definition of the values of the organisation, its vision and mission. Setting these will only be fruitful if it is lived and advocated by everyone in the firm.

The values held by a company must promote cemented relationships with its stakeholders, foster commitment and loyalty of human resources and will probably represent the establishment of differentiation. The vision articulates a realistic look, a credible and

attractive future for the organisation. It allows the leadership to signal the desired arrival point on the future of the organisation.

It is the bridge that links present to future. The mission states the intent of the organisation and business area in which it operates. However, companies do not live in isolation and despite the knowledge of themselves, it is necessary to fit in and meet permanently its surroundings. The model of five competitive forces of Porter reveals the level of competitiveness and profitability of the industry by observing the bargaining power of suppliers, threat of new entrants, threat of substitute products, bargaining power of costumers and the competitive rivalry within the industry. If firms are attentive the urgency of innovation is acknowledged.

Regarding the threat of entry, where the importance of cost advantages and product differentiation is recognised, high lightens the importance of innovation. Innovation and organisation processes can lead to improvements in cost structure. Process, marketing or product innovation, can boost product differentiation, whose relevance is avowed. If on the other hand, the threat of substitutes is considered, the four types of innovation are a way to cancel or redeem this threat.

Other tools available to the companies help to position them towards its internal and external environment. It must also be noted in this context the Swot analysis, Aida model, BCG matrix, and environmental matrix or Ansoff matrix, among others. The latter, positions the present line of product within the strategic path that the company aims to adopt.

When looking at the Ansoff matrix (relating product and its market, new or current), its four quadrants, allude the following choices: market penetration, market development, product development and diversification. These lines conductive to growth in the case of the penetration point to the enlargement of the market share with the current product. This may arise from the market share gain supported by better processes or organisational improvements.

Additionally, the product development may be the result of product innovation, and market development from process, organisational or marketing innovation. Finally, the diversification arises from the use of innovation, since its turnout displays a new product or new market. All elements enhance the usefulness of innovation in evolution, growth, sustainability and competitiveness of firms.

Firms in less developed countries lived through times under some protectionism, but have now to face the forces of global competition (HADJIMANOLIS, 1999). The globalization of markets and the creation of spaces of free trade and movement has forced companies to adapt its position to ensure their survival. This need forces them to pursue the introduction of new products, promoting higher standards of quality and technological advances, in general, to trail innovation. This is not an easy or straight way.

Although this requirement resemble something instinctive, it is not understood or even perceived by some companies, that this call is a key for their business survival. Even for those who perceive it, it is not always easy to choose a route, because they face several inhibiting factors on the innovative process, whith which they can not cope. The concern on the competitive positioning resizes as the space for the permanence of all companies starts to narrow. Thus, if being innovative was a concern in times of economic growth, it is now a much greater concern. The relevance of this growing concern for companies, regardless the size, is a strong motivator for this study.

According to Smith (2005), innovation is something new. It is creating something new through processes of learning or knowledge. Madrid-Guijarro, Garcia and Auken (2009) found that innovation is widely recognized as a key factor in the competitiveness of nations and companies. Small businesses that do not embrace innovation in its business strategy are at risk of becoming less or none competitive due to their obsolete products and processes. Innovative companies are a prerequisite for a dynamic and competitive economy. For these authors, the importance of innovation is increasing as a result of growing global competitiveness, reduced product life cycle, technological development on companies capacity and rapidly changing consumer tastes.

The study of innovation and innovative attitude is relevant as it is a basal factor for the sustainability and survival of businesses. It becomes even more prominent to disclosure the facts that prevent companies, even after recognizing this need, to be innovative.

According to Hadjimanolis (2003), there are factors or constraints that inhibit innovation: barriers to innovation. The study of the barriers to innovation focuses on the problems that can occur throughout the complex and delicate process of innovation. These factors, which place any obstruction or inertia in innovation, called barriers to innovation can arise for various reasons.

Their identification and categorization is fundamental since it will allow the creation of mechanisms to reduce, minimize, delete or even convert them in facilitators of innovation. For most authors its categorization distinguishes between internal and external barriers (HADJIMANOLIS, 2003; MADRID-GUIJARRO; GARCIA; AUKEN, 2009; STANISLAWSKY and OLCZAK, 2010). Internal barriers are those that arise in the company and external barriers those born outside the company. This classification is also assumed in the course of this study.

According to Madrid-Guijarro, Garcia and Auken (2009), the barriers to innovation that Spanish SMEs face are essentially the external environment, the human resources, the risk and financial position. The same authors also concluded that innovation costs affect more small and medium-sized and that different barriers have different impacts on different types of innovation.

The UK companies face three main barriers to innovation, namely the time of development of innovation, the risk aversion and the poor market knowledge (TOVSTIGA; BIRSCHALL, 2007).

The German reality shows that the more frequent barriers are the low budget, the difficulty in recruiting adequate human resources, the high bureaucracy and the poor cooperation between enterprises (BUSE; TIWARI, 2007).

A reflection made on SMEs in Cyprus brought about the following conclusions: the most significant internal barriers are the lack of time, the inadequacy of the activities of R&D, the design and testing within the company and the inadequate financial resources (HADJIMANOLIS, 1999). The author also identified the external barriers to innovation more expressive as follows: the easiness on copying innovation, the government bureaucracy, the lack of government support, the lack of qualified human resources policies and scarce bank lending.

In Brazil, Mussi and Spuldaro (2008) studied the following barriers to innovation: the risk associated with excessive specialization of human resources, the overvaluation of production processes or services by its practitioners, the limitation in the allocation of financial resources and human beings and the limitation on market access (for example concessions).

The observation of the Portuguese business community in order to understand the longevity of companies allowed to establish the following barriers to innovation: the high

economic cost and risk associated with innovation, the lack of funding, the organisational rigidity, the lack of skilled human resources, the lack of market information and technology, government regulation and the weak capacity to approach the client (SILVA et al., 2007), as well as the lack of cooperation with centers of learning (VIEIRA, 2007).

According to Nabo (2008), innovation plays probably the most relevant play, in the context of economic and social development. Portuguese companies need above all, a culture of sustained innovation. While this does not happen, they should not be surprised to find that the majority of managers believe in the importance of innovation, but only 40% of them practice it (Business Innovation Survey, 2008). The same study conducted by Strategos Iberica also revealed that 46.7% of enterprises recognize the future importance of innovation. For 40%, it is a survival condition, to 12.6% of the companies it is important and only 0.7% refer to it as not being a priority investment.

In summary, this study demonstrated the need to work to systematize innovation, namely to meet the challenge of innovation with a structured approach that allows innovation to happen. The barriers to innovation, of greater expression, identified in the above study were the focus in the short term, the lack of a systematic approach, the lack of national culture of innovation, the lack of resources, the lack of metrics on the impact of innovation, the competition for resources within the organisation, the management that is not innovation-driven, the country and market size, the innovation as a consequence of R&D activities, the lack of incentives and the fear of failure.

Despite the barriers to innovation observed, it persists and tends to be a regular and systematic practice. Innovation has become a common practice in Portugal. According to the Sixth Community Innovation Survey, Eurostat, 57.8% of Portuguese companies innovate. The European Innovation Scoreboard 2008 reveals that Portugal is in 21th place in the 33 countries analyzed, classified as a country with moderate innovation, since it presents an annual growth rate of the innovation performance of 4.9%.

Overall, it was found an improvement in the performance of the Portuguese business-level innovation. However, one can not ignore the availability of resources, which it is not accompanied by the results in international comparison.

According to the Barometer of Innovation (COTEC, 2010), an analysis of the relative positioning of Portugal reveals that Portugal has an overall performance very close to the average of the 52 countries surveyed.

It also displays that, in terms of the aggregate Southern Europe, Portugal is the best positioned. In four dimensions analyzed (conditions, resources, processes and results) we observe a marked decrease when we move up from conditions to results. According to this barometer "Portugal, possessing the necessary conditions for promoting RDI, has not embodied these conditions in the most effective and efficient, in visible outputs.

4 METHODOLOGY

The first step undertaken in this study was to define the goals underlying the proposed work and the delineation of the sequence of activities to be conducted. The aim is to understand clearly the potential and the affinity of the innovative attitude on the competitiveness and sustainability of businesses, and to identify the barriers to innovation among companies.

Thus, a literature review was conducted on the following topics: innovation - concept, types and relevance; cooperation and strategic positioning, and also barriers to innovation.

After this theoretical framework, the study is carried out, mainly, on SMEs. The survey identified SMEs from a database of Portuguese firms.

The sectioning of the sample has established according to the following criteria: company size, geographic area of the headquarters, the economic activity in accordance with the revision 3.0 of the national classification of economic activities, the number of employees, the turnover and balance sheet total according to EU recommendation 361/2003. This allowed the knowledge of which barriers to innovation as well as its classification do the responders face.

After conducting this questionnaire, the relationship between the available resources, the development of RDI activities, the lack of resources and the conduction of innovative processes were perceived.

The data for this study was gathered from a survey on a sample of 35 firms. The questionnaires were sent by email to managers and answered the same way. In this questionnaire, firstly firms were asked to present their perception about their own innovative attitude.

The following questions aimed at recognizing what prevents firms from innovating, if mainly internal or external factors. Subsequently the managers should point out what are the main refrains of innovation identified in the internal and external environment of the firm. In

other words, disclose their barriers to innovation. Then, the studied firms were also asked to reveal their conviction and sensibility on what is easier to overcome, if the internal or the external innovation barriers.

In the questionnaire a main concern was to not influence the firms on their answers and to let them present their own convictions. The first group of questions intended to characterize the firms on dimension, geographic headquarters and activity. The company dimension classification follows the EU recommendation 361/2003 making it possible to compare the results with those obtained in others studies in other countries.

After collecting the 35 answers the data was compiled and the results are presented in the following section.

5 ACHIEVEMENTS

It is important the continuous development of innovative activities as a mean of promoting competitiveness and sustainability of companies. The rapid changing market conditions and the continuing need to update the business environment drives companies to develop innovative mechanisms.

Thus, in addition to the use of strategic planning, it is important that this process is dynamic and interacts with the innovation. In the following scheme is shown on the dashed line the impact of the existence of continuous innovation, which will be reflected at every moment throughout this planning process and strategic positioning and improving it. The dotted line evidences the various types of innovation: organisational, process, product and marketing, not from the point of view of the continuous effect but of the possibility of inducing a permanent repositioning.

These processes should not be discontinuous but a permanent and systematic concern, as depicted in Figure 1.

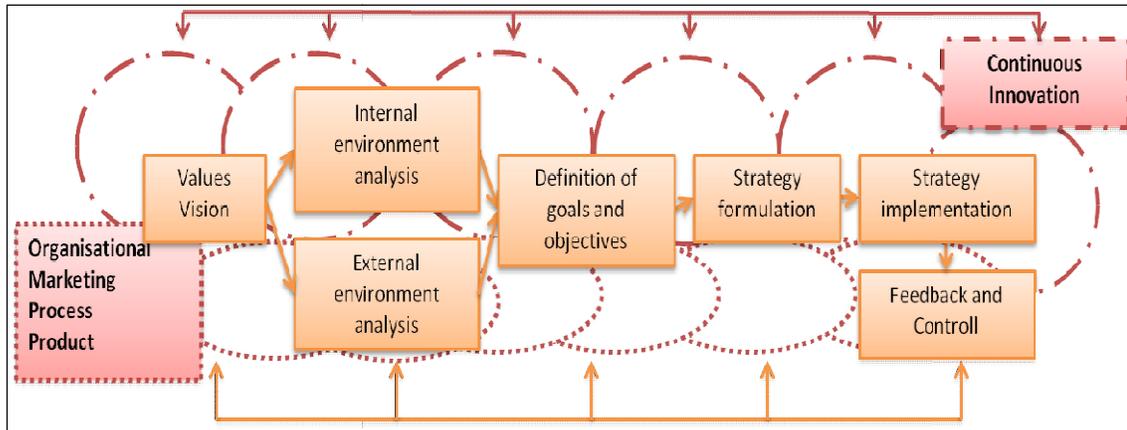


Figure 1 – Process of strategic planning and innovation.
Source: Authors, adapted from Kotler (1992)

The diagram above shows the need for permanent relocation of businesses. However, it is essential not only repositioning in the market, but also in demand or on scope of innovation in all its stages and steps, which is an engine of all the strategic gear.

Innovation processes are, according to the survey, perceived as essential by companies. They are retracted by the existence of different types of barriers that companies are unable or unwilling to eliminate or mitigate. This is true for all sizes of companies, geographic location, or sector of activity, which confirms the universality of this issue.

Throughout this study there have been some evidence supporting the importance and recognition of the need to innovate by the national entrepreneurial. After the literature review, given the multiplicity of both external and internal barriers observed by several authors, it becomes interesting to allow companies to submit their convictions on this matter. This process has always been behind the idea that no one should influence the companies showing them the barriers that are more generally accepted by several companies, but rather, let them identify their barriers.

In order to answer this need, the survey was created favouring the classification between internal and external barriers as suggested by most authors. The first part of the survey, descriptive of the company, allows to characterize it on its dimension, geographical location and the sector of activity in which it operates. To scale enterprises the criteria used is the one present in the Community recommendation referred before, namely the number of employees, turnover and balance-sheet total.

Once collected these features of the company, they were asked to indicate whether they consider that the company has an innovative approach or not, and what factors (internal, external or both) they feel as the main responsible for the absence of further innovation. They were also asked to indicate which factors internal and external to the company hinder innovation and, ultimately, which of these two groups they consider to be more easily surmountable.

Notice that this study aims to know the characteristics, behaviours, attitudes and barriers faced by the companies. According to the Commission Recommendation 2003/361/EC of 6 May 2003, in article 1, an enterprise is any entity, regardless of their legal form, that has an economic activity. It also considers those carrying out an activity, craft or other activities on an individual or familiar way, partnerships or associations regularly engaged in an economic activity.

Companies that have joined this challenge have diverse attributes. With respect to district of origin companies come from Braga, Bragança, Lisbon, Porto and Viana do Castelo. As for the economic activity that they develop, ranging from the culture of fruits, wastewater treatment, manufacturing, building construction, wholesale trade, retail trade, catering, rental of goods, consulting, associate, life insurance and education.

As for size, companies are distributed between micros (49%), small (29%), medium (14%) and large (9%) companies. The turnover and balance sheet total is very diverse. From the responses already received, in eighteen cases (48.5%) think that the company does not have an innovative attitude, while seventeen (51.5%) take an innovative approach. When confronted with the factors that prevent them from being more innovative, 40% believe that is due to internal factors, external and 14.3% to 45.7% resulting from the combination of internal and external factors. Faced with the question of which of these factors (internal or external) they find the more easily clearable / surmountable 71.43% indicates the internal barriers, 20% the external barriers and the remaining 8.57% cannot define.

Regarding the internal barriers, several are identified, namely the youth of firms, the small size of the company, the lack of notoriety inhibiting innovation in the market, the familiar structure, lack of dynamism, reduced culture of risk taking, bureaucratic and conservative organization, the age level of management and employees and the difficulty in mobilizing the top management to the need for investment in innovation.

It is also evidenced, as barrier, the lack of time of management due to other activities, the incompatibility or difference between long-term goals for capital holders and the belief that the position the company holds in the market is so comfortable that the need for innovation does not break out.

Besides these, the cemented procedures, the accommodation to routine tasks, the leadership fear in investing in new technologies, the poor ability to command or lead, the profile of the entrepreneur, the rigidity of the structure of decision, the risk of innovative projects as well as the difficulty in creating an internal environment conducive to innovation (e.g. through training of human resources) or the lack of dissemination of innovation culture. Respecting to human capital the following critical factors are singled out acting singly or jointly: the low-skill workforce, their poor motivation and their reduced propensity to innovate, conducting in certain situations to the lack of monetary incentives or other gender.

In addition to these were also mentioned the high share of the cost of innovation in business turnover, the business area activity, the lack of resources such as time and money, the poor infrastructures, the limited physical space, equipment and existing technological processes, the time of production and of assembly, the discontinuation of development and production processes, to test new products. The mainstreaming of cash constraints is indicated in almost every case.

The external barriers are pointed: the conservatism and market instability; the market size, the huge concentration of business activity; the external image of the business sector; the global crisis; the containment and cost reduction; the difficulty of implementing new products, the tax burden; the difficulty of developing new products and of expansion into new markets; the waiting time of supply; the high volatility of the purchase price of raw materials; the lack of financial support; the lack of institutional support and the inadequate disclosure and access to information from them; the policies for granting credit; the inadequacy of the legislation; the high bureaucracy; the slowness and ineffectiveness of the justice; the huge dependence of the company on technological and product innovation from its supplier; the inertia firms and the inadequacy of the human capital; cultural standards of the national population and reduced interaction between universities and companies.

6 CONCLUSIONS

After conducting this study the barriers to innovation that the participants deal with are known. Essentially, the current economic climate, the limitation of monetary resources, the reduced risk-taking culture, the mechanical performances, the routine and cemented processes, the organisational and human resources resistance to change, the lack of incentives and compensation for innovation, the high cost of new tools, the processes and the small size of companies.

Furthermore, it enabled the awareness of the high significance attributed to external barriers by companies. Innovations reflect a critical way in which organisations react to the challenges they face. Knowing their perceptions of the innovation barriers is an undeniable advantage.

In addition, this study revealed the huge need for innovation in order to achieve sustainability and competitiveness. Although firms recognize this need they are not always able to carry out innovative processes as they face several internal and external innovation barriers.

However, the fact of acknowledging these facts enables them, partially or globally, to face, reduce or eliminate the perceived barriers and conduct systematic innovation, and consequently improve their performance and market share, enlarging their sustainability and competitiveness.

REFERENCES

COMISSÃO EUROPEIA. **Recomendação da Comissão Europeia 2003/361/CE de 6 de maio de 2003**. Jornal Oficial da União Europeia. Bruxelas, 2003.

COTEC. **Innovation Digest dezembro 2010**: barómetro de inovação. Dezembro de 2010.

COTEC. **Manual de Identificação e Classificação de Atividades de IDI**. Maio de 2010.

EUROPEAN COMMISSION. **Innovation Union Competitiveness Report**. Electronic Report. Publications Office of The European Union, Chicago, ISBN 978-92-79-14541-4, 2011.

EUROSTAT. **Sixth community innovation survey**. Acedido a 4 de dezembro de 2011 em: <http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/9-10112010-AP/EN/9-10112010-AP-EN.PDF>. 2010.

GABINETE DE ESTRATÉGIAS E DE EMPREGO – GEE. **European Innovation Scoreboard 2008**: Performances de Inovação. Série Competitividade. Acedido a 10 de janeiro de 2011 em: <<http://www.gee.min->

economia.pt/aaaDefault.aspx?f=1&js=0&codigono=64456496AAAAAAAAAAAAAAAAAAAAAA> .
2009.

GRANT, R. **Contemporary strategy analysis**. 5th ed. Blackwell Publishing, USA, 2005.

HADJIMANOLIS, A. Barriers to innovation for smes in a small less developed country (Cyprus). **Technovation**, v. 19, p. 561-570. 1999.

HADJIMANOLIS, A. **The barriers approach to innovation**. Em Larisa V. Shavinina (Ed.). The International Handbook in Innovation (p. 559-573). Oxford, UK: Elsevier Science. 2003.

KOTLER, P. **Administração de marketing**. Prentice Hall. 1992.

MADRID-GUIJARRO, A.; GARCIA, D.; AUKEN, H. V. Barriers to innovation among Spanish manufacturing SMEs. *Journal of Small Business Management*, v. 47, n. 4, p. 465-488. 2009.

MUSSI, F.; SPULDARO, J. Barreiras à inovação e a contribuição da perspectiva institucional: um estudo de múltiplos casos. **Revista de Administração e Inovação**, v. 5, n. 1, p. 36-52. 2008.

NABO, M. **Inovação**: passar das palavras à prática. Carta Informativa da Ordem dos Economistas, v. 10, n. 2. 2008.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT. OCDE. **Manual de Oslo**: Diretrizes para a Recolha e Interpretação de Dados sobre a Inovação (3ª Ed.). Paris: OCDE. 2005.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT. OCDE. **Frascati Manual**: Proposed Standard Practice for Surveys on Research and Experimental Development. Paris: OCDE. 2002.

PORTER, M. **Competitive advantage**: creating and sustaining superior performance. p. 62-198, Free Press, New York. 1998.

SILVA, M.; LEITÃO, J.; RAPOSO, M. **Barriers to Innovation faced by manufacturing firms in Portugal**: how to overcome it? Munich Personal RePEc Archive. Acedido a 20 de dezembro em: <http://mpa.ub.uni-muenchen.de/5408/>. 2007.

SMITH, K. **Measuring innovation**. Em Fagerberg, J.; Mowery, D.; Richard R. Nelson (Eds), The Oxford Handbook of Innovation (p. 149-177). Oxford, UK: Oxford University Press. 2005.

STANISLAWSKI, R.; OLCZAK, A. **Innovative activity in the small business setor of the textile and clothing industry**. *Fibres & Textiles in Eastern Europe*, v. 10, n. 1, p. 13-16. 2010.

TIWARI, R.; BUSE, S. Barriers to innovation in SMEs: can the internationalization of r&d mitigate their effects? **In**: Proceedings of the First European Conference on Knowledge for Growth: Role and Dynamics of Corporate R&D (CONCORD 2007). Seville, Spain, 2007.

TOVSTIGA, G.; BIRSCHALL, D. Henley SME Innovation Study 2007. **In:** Proceedings of PICMET 2008, 27-31 July, Cape Town, South Africa. 2008.

VIEIRA, F. **Distritos industriais e inovação:** o setor dos moldes em Portugal. (Tese de Doutoramento). 2007.

Originais recebidos em: 28/05/2012

Aceito para publicação em: 15/11/2012