

Organizational Innovation: A Comparative Analysis Between Brazil and Portugal

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ABSTRACT

Although less prominent in the studies related to the national indicators of innovation and innovative activities, organizational innovation began to receive attention from researchers due to its contribution to the development of other types of innovations. Significant changes in philosophy and management principles, organizational structures and policies, practices, processes and techniques management have been implemented by organizations seeking a new competitive level. Considering the importance of such innovations for competitiveness and the new challenges in organizations, this article aims (1) to discuss the main theoretical and conceptual approaches on organizational innovation, and (2) to analyze the evolution of indicators from Brazil (PINTEC) and Portugal (CIS) in national surveys regarding this type of innovation. The conclusions point out the differences in the results of both surveys, which reflect the realities of Brazilian and Portuguese organizations, and the possibilities for future research to understanding the new challenges to management.

Keywords: Organizational innovation, management innovation, technological innovation.

Innovation has been considered essential for sustained economic development in the capitalist system, including the transformation of living standards and new technology creation. As a complex and diverse phenomenon, innovation has been often difficultly organized (and consented) by researchers. In this sense, the information that helps to understand the process of generation, diffusion and incorporation of innovations into the productive apparatus is fundamental for the design, implementation and evaluation of policies for the promotion and definition of business strategies (IBGE, 2010).

Baumol (2004) emphasizes that while innovation is important for the development of organizations and sectors, the scientific literature on the subject has found it difficult to follow the development of a theoretical point of view, especially when dealing with organizational innovations.

Although less prominent in the studies that seek to raise the indicators of technological innovation activities in the national domain, organizational innovations began to receive attention from researchers because of its contribution to the development of other types of innovation, such as product, service or process innovations (Hamel, 2007, Lam, 2005). However, despite this interrelationship, Lam (2005) notes that the literature is diverse and not integrated into a consistent theoretical framework. Nevertheless, the focus of this type of innovation is essentially linked to the creation or adoption of new forms of management and organization, which may or may not be supported by technology, once it comes to fundamental aspects of social organization.

The Oslo Manual (OCDE, 2005), which is the main conceptual and methodological framework for collecting and interpreting innovation data, justifies the need to expand the concept of innovation including non-technological innovations, such as organizational and marketing innovation. According to the Oslo Manual, the innovation perspectives has changed over time, and there is a need for indicators that capture these changes, and that provide policy makers with appropriate tools of analysis.

Considering the importance of organizational innovations for competitiveness and its implications on human resource management inside the organizations, this article aims (1) to discuss the main theoretical and conceptual approaches on this type of innovation, and (2) to analyze the indicators of organizational innovation, according to the Technological Innovation Survey – PINTEC 2008 and the Community Innovation Survey – CIS 2008.

Both surveys approaches data collected between 2006 and 2008, and were carried out the national governments from Brazil and Portugal. While presenting their results in different ways, especially by the peculiarities of classification of economic activities (CAE or CNAE) in each country, it will be possible to establish a sector comparison with regard to organizational innovation. Also, it will be possible to observe the evolution of those surveys' approaches to organizational innovation in previous editions, taking into account the methodological limitations.

The analysis was guided by the following questions: *What are the sectors of these countries with higher rates of organizational innovation? This type of innovation frequently occurs in organizations of which size? What developments can be observed in the indicators from the earlier editions of PINTEC and CIS? What implications do the evidences of these surveys bring to human resource management?*

In order to achieve the proposed objectives and find some answers to these questions, first, the contexts of innovation in Brazil and Portugal are described in terms of these countries'

institutions and regional peculiarities. Then, the main concepts and definitions from the literature on organizational innovation are reviewed and discussed. Later, the data concerning organizational innovations are analyzed, according to size and sector criteria, in both PINTEC 2008 and CIS 2008 surveys. The conclusions point out the differences in the results of both surveys, which reflect the realities of Brazilian and Portuguese organizations, based on the discussion presented in this article, and the possibilities for future research to understand the new challenges that are posed for management.

The Context of Innovation in Brazil and Portugal

The proximity between Brazil and Portugal, which is evident in the historical relationship between the two countries, is also perceived in the field of innovation. Indeed, studies conducted by independent institutes, consulting firms, government agencies, among others, in trying to understand innovation, show the contributions of innovations in products, services and business models to the competitive environment (McKinsey, 2006).

In Brazil, the Institute of Applied Economic Research (IPEA, 2005) found that companies and nations develop themselves as they produce, understand and use scientific knowledge and technological innovations, especially when fueled by a national system of innovation and learning. In institutional terms, an important step in encouraging innovation in the Brazilian context was the regulation, in October 2005, of the Innovation Law (Brasil, 2004), which established rules for public and private investments, among other issues.

The reflections of these and other stimuli can be identified in the incidence of innovation in organizations of different sectors of industry, telecommunications, information technology and research and development (R&D). Data from the Technological Innovation Survey (PINTEC 2008), conducted between 2006 and 2008 by the Brazilian Institute of Geography and Statistics, show that from 107,605 of the organizations surveyed, 38.3% had some kind of technological innovation (IBGE, 2010). In PINTEC 2005, the rate was 34.4% (IBGE, 2007). Even with a positive evolution, there are many important challenges to be overcome, as evidenced by the barriers to innovation identified by the surveyed firms: high costs of innovation, economic risks, lack of funding, and lack of qualified personnel.

The Union Innovation Scoreboard 2010 (UNU-MERIT, 2011), in turn, shows that Portugal is still behind the European leaders in terms of innovation. This publication evaluates the performance of indicators of innovation in the countries of the European Union (EU), Croatia, Iceland, the Former Republic Yugoslav Macedonia, Norway, Serbia, Switzerland and Turkey. Based on the average performance of 24 innovation indicators, member states were divided into four performance groups (innovative leaders, followers, moderate and modest). Standing next to the Czech Republic, Greece, Hungary, Italy, Malta, Poland, Slovakia and Spain, Portugal belongs to the group of Moderate innovators in that scoreboard. Despite this position, it is possible to assume that Portugal is one of the leaders in terms of growth rate performance in innovation, with a yearly average growth of 5%.

Consolidated data for Community Innovation Survey - CIS 2008 provided by the Office of Planning, Strategy, and International Relations (GPEARI, 2010) indicate that 50% of the surveyed

companies have innovated in technology between 2006 and 2008. However, it should be noted that innovation is concentrated in the region of Lisbon and the Center. In addition, the study identified a great disparity between the percentage of innovative companies in various sectors. The service sector, for example, had the highest rates. Also, there are weaknesses relating to the performance of innovation indicators: firm investments, intellectual assets and outputs (UNU-MERIT, 2011).

In global terms, Brazil and Portugal have a lot to do in terms of innovation. Portugal is ahead of Brazil in terms of the positive evolution of the indicators. Such evidence demonstrates superior performance regarding the fostering of innovation in product and process in Portugal, despite having a below-average performance in comparison to other countries in Europe (UNU-MERIT, 2011). In Brazil, between the 41,300 firms that innovates in product and process during the period of 2006-2008, 69.0% presented at least one organizational innovation (IBGE, 2010). In Portugal, this rate raises 62% (GPEARI, 2010). Therefore, it can be said that Brazil and Portugal are close countries also in terms of innovation, as innovative organizations in both countries innovates both in product/process and in the organization.

It is worth mentioning that there is much controversy and "potential problems" with respect to any type of classification or ranking based on indicators, i.e., in summary measures that assess the generality of a phenomenon. Often these approaches are not able to capture the full complexity of innovation, indicating possible "methodological weaknesses of these indicators" (Godinho, 2007: 256).

Even so, assuming that these potential problems are overcome, what can these indicators say about the phenomenon of organizational innovation, as greater emphasis is placed on technological innovation (products and processes) and other variables, such as those aimed at understanding innovation systems mechanisms and research and development activities?

Although there is a greater attention to the variables of organizational innovation, compared to previous versions of those innovation surveys, there is little room for the study of organizational innovations in Brazilian and Portuguese contexts. Particularly, in reading the Brazilian context, private and public institutions are mainly concerned with technological innovation in products and processes.

However, organizational innovations become increasingly important, as shown by Salazar and Holbrook (2003). From a theoretical-conceptual point of view, a discussion about this type of innovation is more rewardable, as it can be seen its importance. In the field of Management, this subject can be articulated and verified in the literature on "management innovation" and "organizational innovation".

Organizational Innovation: a Brief Systematization

There is an extensive and diverse literature on innovations that occur within organizations, as highlighted by Wolfe (1994), Damanpour (1991), Hage (1999), Birkinshaw, Hamel and Mol (2008), Hamel (2007), Lam (2005), among others. Many studies seek to understand this phenomenon in a linear way, as evidenced by Damanpour (1991), Wolfe (1994) and Clayton (1997), ignoring temporal and procedural aspects, which avoids the reach of solid conclusions. Wolfe (1994) further asserts the lack of consensus among scholars regarding the fact that there is no single theory of

innovation. However, according to the author, many of the theories developed are adequate, if applied according to the conditions in which they have been developed.

Often it is necessary to make an analytical cut to distinguish the phenomenon, although this paper does not intend to make a thorough discussion on all theories of innovation, or even about their epistemological or theoretical basis. Wolfe (1994), as an example, says studies on innovation have four main lines: those dealing with the stages of the innovation process, attributes of innovation, organizational contexts and the underlying theoretical perspectives. Despite this conceptual diversity, it is possible to see that the idea of innovation is always linked to the idea of change, novelty.

Hamel (2007) points out that the dependence on patent protection and the evolution of technology do not guarantee, in the long run, competitive advantages for organizations that innovate in products or services. According to this author, operational or process innovations also cannot guarantee the elements of sustainable competitive advantage in the long run: this type of innovation rely heavily on the quality of IT infrastructure, on the proprietary benefits derived from outsourcing providers and on the transfer of best practices by consultants.

Unlike innovations in products, services, marketing, processes, operations or strategy, management and organizational innovations should be examined separately, to cover the economic and organizational aspects of the phenomenon.

Thus, this paper brings more comprehensive conceptual perspectives on innovation that may increase the understanding of its fundamentals, and that will help to clearly investigate management and organizational innovation. Unlike the focus of Wolfe (1994) – which reviewed innovation in accordance with its attributes of adaptability, architectural impact, centrality, compatibility, complexity, cost, divisibility, duration, magnitude, visibility, scope, physical properties, degree of novelty, relative advantage, risk, status, and uncertainty – the innovation will be highlighted in terms of its process and of its types.

On the one hand, from the point of view of the process, we call attention to the way organizations innovate. The process of innovation can be defined as one that “involves the creation, development, use and dissemination of a new product or idea” (Utterback, 1983). For McDaniel (2000), this process includes research (basic or applied), development (exploration of the real potential of the technology), demonstration (test prototypes in real situations) and the commercialization of technology (replication of the prototype and its sale on the market).

In the same vein, Tidd et al. (2008) suggest that the innovation process includes: identifying the needs of the market, strategy formulation as a reference for innovation, developing or acquiring solutions, prototyping, testing, production and availability of products and new or improved services to the market. An important point is that these authors highlight the fact that the market, consuming these products and services, generate new information and feeds the whole process.

It is felt that the definition of innovation as a process, or the process of innovation, presents some convergence in the literature: innovation involves a process that involves manageable from conception of an idea to its commercialization and market acceptance or deployment. Thus, the process of innovation activities not only includes “creative” product development or discovery of new technologies but also management activities.

On the other hand, the types of innovation, it is clear that the authors focus on innovative products and services, processes and operations, marketing, strategy, organizational innovation and innovation management (Tidd et al., 2008; Miles, 2005; Tigre, 2006; Hamel, 2007; Birkinshaw, Hamel and Mol, 2008). Damanpour and Schneider (1996: 216), for example, define innovation as the adoption or creation of “new product, service, process, technology, politics, structure or administrative system.”

Studies such as those of Cerqueira and Carvalho (2002), Andreassi and Bernardes(2007) and the report of the European Commission (2006) defend the particularities of innovation in services, which are gaining ground because of the very growth of the sector’s importance for economic development compared to the industrial sector, whose innovations emphasize changes in assets and processes.

First, understanding the phenomenon of innovation in management is related to the notion of the manager’s own work. In its classical conception, management refers to the work of planning, organization, command, coordination and control what happens in organizations, although there are different types of organizations, such as those reflected in the metaphors of Morgan (1996). Chandler (1997: 43) states that the administrator’s job is related to “executive action and orders, as well as decision-making related to coordination, evaluation and planning of the company’s work and the allocation of its resources.”

This complexity is reflected in managerial work, as highlighted by Hamel (2007: 20), in actions such as: establishing and program objectives; motivate and align efforts, coordinate and control activities, develop and use talents, build and apply knowledge; collect and allocate resources, build and nurture relationships and balance and meet the demands of stakeholders. Daft (1978: 195) states that the administrative core of the organization, not the technical core, should resolve administrative problems, developing specific solutions for them. The author further argues that top managers are the “experts” when it comes to administrative innovations.

Management and organizational innovation, as a general phenomenon, is mainly related to the creation or adoption of new ways of managing and organizing. According to Hamel (2007: 19), “management innovation “means” anything that substantially alters the way in which the work of management is carried out [principles and practices], or that significantly modifies customary organizational forms [structures and functions]”, in order to improve organization performance. In the same vein, Birkinshaw, Hamel and Mol (2008: 825) defines management innovation as “the invention and implementation of a management practice, process, structure or technique that is new to the state of the art and is intended to further organizational goals”. Chandler (1997: 48) states that these innovations are related to the development of “new methods and means of coordinating, evaluating and planning the effective use of a wide variety of human, financial and material resources.”

Kossek (1987: 72), in turn, argues that management innovation is related to “programs, policies or practices [perceived as new by organization members] designed to influence attitudes and behaviors of employees”. In a similar perspective, Daft (1978: 197) defines “administrative innovation” as those related to changes in “recruitment policies, resource allocation, task structuring, authority and rewards.” In addition, Stata (1997) relates this type of innovation with the development of new technologies for management: new knowledge, tools and methods that may change, or even revolutionize, the way people manage the business.

Management and organizational innovation can mean many things, as stated by Mikl-Horke (2004: 106): “new principles, practices, organizational designs, theories of leadership, or even *quasi-philosophical* concepts such as the recent six-sigma principle”. In his study on the diffusion of such innovation in Central and Eastern Europe, the author states that “a new management philosophy” diffuses quite differently, compared to the diffusion of a new practice or organizational design.

Nickell, Nicolitsas and Patterson (2001: 10) point out that management innovation comprises, for example, the reduction of restrictive practices for employees, introduction of a new management technologies, changes in organizational structure towards a more lean one, increased decentralization, new means of managing HR, changes in industrial relations, and the initiation of new practices, such as *Just in Time*.

Anyway, it is observed that in practice, this innovation includes the typical processes of management, among which may be cited: strategic planning, capital budgeting, project management, hiring and promotion, training and development, internal communications, knowledge management, periodical business reviews, and compensation of employees (Hamel, 2007:21).

In the Oslo Manual (OCDE, 2005: 61), “*the implementation of a new organizational method in business practices of the company [routines and procedures], in the organization of the workplace [distribution of responsibilities and decision-making] or in its external relations [with other firms and institutions]*” corresponds to the concept of “*organizational innovation*”. According to the document, such innovation should be considered only when it represents something that has never been used before by the company and when it has been the result of strategic decisions taken by management.

In the line suggested by the Oslo Manual, Tigre (2006: 73) defines this type of innovation as “changes that occur in the management structure of the company, in the relation between its different areas, in the expertise of employees, in the relationship with suppliers and customers, and in the multiple techniques of organizing business processes “- which the author names” organizational innovation”. According to the author, is this kind of innovation that allows an organization to fit the context, to take advantage of technological innovations.

Pettigrew (2003: 334) notes that “more flexible cultures of learning are needed as organizations seek to become more innovative in its forms and processes.” In his view, innovation involves changes in processes, structures and boundaries of the firm. Examples of process changes include increased vertical and horizontal interaction, new human resources practices, and integration of information technology. Changes in the structure include the reduction and decentralization of hierarchy levels. Changes in the boundaries of the firm embrace *outsourcing* and strategic alliances.

In Europe, Japan and the United States between the years 1992 and 1997, the most prevalent changes in processes, rather than changes in the structures. These changes increase the “probability” of improvement in the organization (Pettigrew, 2003: 344), provided that no partial changes. Examples of process changes include increased vertical and horizontal interaction, new human resource practices, integration of information technology. Changes in the structure refer to the flattening trends, fluidity, and decentralization.

According to the results of studies from Daft (1978), low level of professionalism, high level of formalization and centralization facilitate administrative innovation. Damanpour (1991: 580) identifies that the high degree of specialization, functional differentiation, centralization, and

vertical differentiation are crucial for this type of innovation. For Hage (1999), three variables are critical to the study of organizational innovation: organizational structure, strategy and organizational complexity of the division of labor. Mikl-Horke (2004) identifies the following determinants of the diffusion of management innovations: informal networks among managers, informal networks between managers and other actors in the political and social power and motivation of investors, structure and strategies of multinational companies, policies state and tacit knowledge and attitude of managers, workers and consumers.

In Brazil, Wood Jr. (2001) studied the “new organizational configurations” in six Brazilian organizations from different sectors. He found that the understanding of organizational formats is related to improvisation – the configuration can be understood as an ongoing activity, difficult to control. It is subject to multiple readings and interpretations. Organizations investigated by the author produced deep changes in inter-organizational, organizational and intra-organizational levels.

Recovering the discussion about the innovation process, Chandler (1997) proposes that this process is related to the understanding of economic circumstances, knowledge of the administrative history of the company, the understanding of the strategy (since the structure must be determined by the strategy in the author’s view), the understanding of the methods of growing the business and the actual stage of development of management science.

As Hamel (2007) points out the innovation process management is not something that occurs in a short period of time. However, the major focus of the literature on organizational innovation is related more to diffusion than the generation of this type of innovation. An example is the research Mikl-Horke (2004), who examined the diffusion of management innovations in Central and Eastern Europe. Moreover, the phenomenon should be investigated in a more procedural, as argued by Clark (2003). A proposed process of innovation in management with a view of the generation or creation (not broadcast), is made by Birkinshaw and Mol (2006). These authors describe the existence of four stages.

The first stage, called “dissatisfaction with the status quo,” is related to finding and facing a future threat of a problem or crisis, can occur at the operational level to strategic level. Nickell et al. (2001) states, based on a dynamic model of analysis, that management innovation are usually consequences of “bad times”.

In the second stage, called “inspiration from other sources,” the emphasis is on the search for questions that have worked in different settings, for analogies of different social systems or ideas, seductive, but not proven. Birkinshaw and Mol (2006) argue that these sources tend to be located outside the sector in which the organization operates, and not in the adoption of best practices (benchmarking) or imitation by competitors, a process that generates convergent practices. The authors cite that the most appropriate at this stage are the ideas of thinkers and “gurus” of management, organizational systems and other social and personal experiences by managers who innovate in other functional areas or countries. The third stage, “invention”, combines the elements of dissatisfaction with the status quo and inspiration from other sources in a process of discovery (“eureka”) interactive and gradual (not sudden). However, the work of Birkinshaw and Mol (2006) suggests that moments of discovery are rare when it comes to innovation management.

Finally, the last stage, “internal and external validation,” resembles the development of other types of innovations, “involves risks and uncertain returns, and find strength as a result of people who do not understand the potential benefits” or feel harmed by innovation (Birkinshaw and Mol,

2006: 85). Thus, the stage of validation is critical and must seek acceptance of innovation internally and then externally, which is obtained by an independent observer (academic, consultant, by the media or industry associations).

The diversity of innovations and companies that create or adopt, including variations in size, segment, nationality, target markets (national or international), among other things is very considerable. It is possible to understand the theoretical and conceptual approaches discussed above offer interesting possibilities for interpretation of the phenomenon of organizational innovation.

However, what are the evidences of the results of the CIS 2008 and PINTEC 2008? To better understand this evidence, the following section will address some methodological issues of both surveys and the procedures adopted in this paper for better understanding of the results that are shown.

Comparing PINTEC 2008 and CIS 2008 Methods and Findings

As noted in the introduction, the research presented in this paper is based on a comparison of two surveys on innovation carried out by government institutions in Brazil and Portugal. The methodological procedures of each survey can be checked in detail in IBGE (2010) and GPEARI (2010).

It should be noted that the Community Innovation Survey – CIS 2008 represents the seventh edition of such research. The first time Portugal entered this survey was in the edition that surveyed the period between 1988 and 1990. The Technology Innovation Survey – PINTEC 2008 represents the fourth edition of the survey. The first edition surveyed Brazilian companies between 1998 and 2000. Through the several editions of each survey, it is possible to observe the implementation of improvements and adaptations in order to track changes and progress not only on the way each research addressed the phenomenon of innovation, but also on how to group the productive sectors of each country.

For example, CIS 2008 introduced a new classification of economic activities (in Portugal reflected in the introduction of CAE Revision 3) (GPEARI, 2010). In turn, the results of PINTEC 2008 are presented in two forms: as a CNAE 2.0 (latest version) and another as CNAE 1.0, allowing comparisons with previous editions (IBGE, 2010). However, these changes in classifications of economic activities, as well as other changes, imply methodological limitations that preclude further analysis with respect to temporal comparison of the evolution of both countries.

On the other side, methodologically speaking, the use of the survey method allows, to some extent, the verification of the phenomenon of innovation. The use of surveys – briefly, research examining patterns of relationships between variables – allows, according Babbie (1999), that the findings can be replicated across various subsets of the sample, and the replication of findings in different subgroups strengthens the certainty which corresponds to a general phenomenon.

The analysis of organizational innovations presented in this article can be made based on some common criteria for research, enabling comparisons from PINTEC 2008 and CIS 2008 related to companies with technological innovation activities. The analysis will help to answering the following questions: among the companies that have implemented innovations in products and processes, which are the sectors of these countries with higher rates of organizational innovation?

These innovations occur more frequently in organizations of which size? What significant changes are observed?

Sectorial analysis is possible due to the patterns of the classification adopted: Classification of Economic Activities (CAE) for Portugal, and the National Classification of Economic Activities – CNAE 1.0 for Brazil. It is important to note, however, that the CIS 2008 covers more sectors than the PINTEC, although this article presents data aggregated in sectors up to two digits, which are common to both surveys. Also, a thoroughly comparison could be made if both classifications were exactly the same.

Another possibility to analyze the data is to stratify according to size. This possibility is given from an aggregation of data regarding the size PINTEC 2008. In this research, companies from 10 to 29 and 30 to 49 people will be aggregated into a single category to allow comparison with the CIS 2008. The same procedure is performed for the ranges 50 to 99 and 100 to 249, as well as bands from 250 to 499 and 500 or more, which will form two bands common to both surveys.

Therefore, the comparison according to size will allow direct comparability from the Brazilian and Portuguese surveys, although it may be recognized that the aggregation effort can put in the same category organizations with different characteristics, leading to misunderstandings. For example, a company of 50 employees differs widely from one company with 249 employees; a company of 250 employees is quite different from a company of 20,000 employees.

In addition to these considerations about the stratification criteria of each survey, the analysis presented in this paper must take into account the conceptual and operational aspects regarding the organizational innovation variables in PINTEC 2008 and CIS 2008. It is important to note that the sets of variables in both surveys do not cover all the conceptual perspectives of organizational innovation, as it can be seen in Table 1.

TABLE 1

Variables related to organizational innovations - PINTEC 2008 and CIS 2008

Source	Category	Variables
PINTEC 2008	Organizational and marketing innovations	<ul style="list-style-type: none"> • 188 - New management techniques to improve work practices and routines, as well as use and exchange of information, knowledge and skills in the company • 189 - New techniques for environmental management, effluent treatment, waste reduction, etc. • 190 - New methods of work organization to better distribute responsibilities and decision-making • 190.1 - Significant changes in relationships with other companies or public and nonprofit institutions
CIS 2008	Organizational innovation	<ul style="list-style-type: none"> • Oorgbup - New business practices in the organization of procedures • Oorgwkp - New methods of organization of responsibilities and decision-making • Oorgexr - New methods of organization of external relations with other companies or public institutions

Source: compiled from IBGE (2010) and GPEARI (2010).

Although a first intention with the preparation of this article was a comparison of the evolution of the indicators for both countries in accordance with earlier versions of such surveys, significant changes were observed in the approach to organizational innovation, especially in PINTEC 2008.

TABLE 2

Variables related to organizational innovations in PINTEC 2005

Source	Category	Variables
PINTEC 2005	Other important strategic and organizational changes	<ul style="list-style-type: none"> • 189 - Implementation of advanced management techniques: <ul style="list-style-type: none"> • 194 - New devices and tools for managing production • 195 - New devices and tools for managing information • 196 - Environmental management • 190 -Implementation of significant changes in organizational structure • 193 - Implementation of new methods of control and management aiming to meet the certification standards (ISO9000, ISO14000, QS, TS, OHSAS18001, SA800, etc.)

Source: compiled from IBGE (2007).

In PINTEC 2005, the category covering organizational innovations was treated as "Other important strategic organizational change" and involved different variables than in PINTEC 2008, as noted in Table 2. In CIS 2008 there were no such significant changes in the selection of variables, thus expanding the possibilities for comparison.

Recognized these differences in the variables addressed in PINTEC 2005, PINTEC 2008 and CIS 2008, it is possible to enter data analysis companies with organizational innovations. The data in Table 1.1.25 PINTEC 2008 were aggregated according to the procedures described above, and combined with the data in Table18 of the CIS in 2008 and are presented in Table 3.

TABLE 3

Innovative companies with at least one management / organization innovation - by sector

Sector	Companies with innovation activities in product and process				
	CIS 2008	PINTEC 2008			
	with organizational innovation	Inovações organizacionais			
Management techniques		Environmental management techniques	Organization of work	External relations	
Extractive Industries	38%	57%	54%	47%	15%
Food, beverages and tobacco industries	53%	47%	33%	40%	15%
Textiles, clothing and leather	47%	38%	18%	40%	15%
Wood, paper and printing	49%	50%	39%	46%	18%
Oil, chemical and pharmaceutical	62%	56%	51%	56%	20%
Non-metallic mineral products	66%	36%	26%	33%	16%
Metals and metal products	58%	54%	31%	48%	20%

Computer, electrical equipment, motor vehicles	63%	55%	25%	47%	26%
Furniture, other manufacturing industries	54%	48%	37%	58%	22%
Telecommunications, computer consulting	85%	62%	7%	55%	25%
Architecture, engineering, R & D and advertising	75%	79%	51%	72%	56%

Source: IBGE (2010) and GPEARI (2010), with data adjustments and percentage calculations.

It is observed that the sectors of architecture, engineering, research and development and advertising (although PINTEC cover only the third sector of the group described), telecommunications, computer consulting, computer, electrical equipment, motor vehicles, oil, chemical and pharmaceutical industries stand out as sectors with high levels of organizational innovation in at least four of the five variables. In Brazil stand out even the extractive industries sector. While in Portugal it also highlights the non-metallic mineral products sector.

In Table 3, the data show that organizational innovations continue to occur in most innovative companies from Portugal: it suffices to note the high percentage rate "organizational innovation" (national total: 62% of enterprises with innovation activities). Among the sectors common in both surveys, telecommunications, computer consulting (85%), architecture, engineering, research and development and advertising (75%), non-metallic minerals products (66%), computer, electrical equipment, motor vehicles (63%), oil, chemical and pharmaceutical industries (62%) stand out in Portugal. Note that in the CIS 4, the rates were slightly higher. Although the classification of economic activities has been changed, it is noteworthy that the telecommunications maintained its leadership with respect to this type of innovation.

In Brazil, the rate analysis of organizational innovation must be made by means of the four variables presented as the aggregate indicator also includes marketing innovations. In the result of each variable, different industries stand out.

In the implementation of new management techniques, all sectors considered out with rates of 36% or more – above the average observed in all other variables addressed in the organizational innovation PINTEC 2005. The sectors of architecture, engineering, research and development and advertising (79%), telecommunications, computer consulting (62%), extractive industries (57%), oil, chemical and pharmaceutical industries (56%), computer, electrical equipment, motor vehicles (55%) stand out as sectors with high levels of organizational innovation in management techniques.

In the implementation of environmental management techniques include the sectors: extractive Industries, oil, chemical and pharmaceutical industries, architecture, engineering, research and development and advertising, wood, paper and printing. These sectors have a rate of 49% to 54% of companies that innovate in products processes also innovating in the form of environmental management, effluent treatment, waste reduction, etc. It is worth noting that in PINTEC 2005 the sectors that stood out in the variable implementation of advanced environmental management were the extractive industries, research and development, oil, chemical and pharmaceutical industries, non-metallic mineral products and metals and metal products (20% to 32%).

The rate of firms that innovate in products and/or processes at the same time changed their organizational structures remained high. Noteworthy are the sectors architecture, engineering, research and development and advertising (72%), furniture, other manufacturing industries (58%), oil, chemical and pharmaceutical industries (56%), and telecommunications, computer consulting (55%).

Finally, implementing significant changes in relationships with other companies or public institutions and nonprofit organizations (external relations) had moderate rates, especially the sector of architecture, engineering, research and development and advertising (56%), computer, electrical equipment, motor vehicles (26%), and telecommunications, computer consulting (25%).

In turn, the cut that highlights organizational innovations in Brazil and Portugal can be done in accordance with other criteria of stratification: the size of the company. Evidences for both countries are presented in Table 4.

TABLE 4
Percentage of companies with at least one management / organization innovation by number of employees

Number of employees	CIS 2008	PINTEC 2008			
	with organizational innovation	Organizational innovations			
		Management techniques	Environmental management techniques	Organization of work	External relations
10 a 49	60%	45%	24%	44%	17%
50 a 249	65%	56%	35%	51%	24%
250 or +	75%	71%	55%	58%	28%

Source: calculated from IBGE (2010) and GPEARI (2010).

The data presented in Table 4 show that rates of organizational innovations are higher in larger companies. It is observed that in Portugal 75% of companies with 250 employees or more and that had some kind of product and process innovation also carry out some organizational innovation (in 2005 this percentage was 85%). In Brazil, the rates vary widely covered by the four variables PINTEC 2008. Note that the highest rates are observed, especially for larger companies (250 or more employees) (71% to 28%). Compared with the scenario shown by previous versions of the surveys in question, it is clear that organizational innovations continue to be more present in larger companies. However, companies with fewer employees have a slight tendency for greater representation with respect to organizational innovation among the companies that innovate in products and processes. And yet, such a distribution in Portugal reveals less discrepancy between the different companies of all sizes.

Concluding Remarks and Implications for Management

Based on the findings presented in this paper, some concluding remarks are to be made. The first one relates to the different definitions of innovation, especially when it comes to organizational innovations. Note that this conceptual diversity is typical of themes that are still relevant and

capable of generating debate in academia. Researchers should adhere to these definitions in order to define the dimension of innovation to be investigated.

Considering the wealth of concepts and classifications, it is necessary to delineate the perspective from which the organizational innovation can be investigated. A first step is to distinguish the concept of "organizational innovation". According to the literature discussed in this paper, it is clear that the definition of organizational innovation is related to the creation or adoption of an idea or behavior that is new to organizations.

In fact, this is an aspect that deserves attention because it directly affects innovation: the innovation systems are important for the innovative capacity of organizations in both countries. Could the national innovation systems include some structures and incentives for organizational innovation? Should these countries target the generation or the diffusion of novelties in the field of management and organization?

Another important discussion is related to the differences between technological and non-technological innovations. For example, the innovation process has generated a new technology or has created new principles of management or organization of work? Perhaps this difference is not as relevant because, after all, innovations in management can many times be seen as "new technologies of management".

Moreover, unlike its previous editions, PINTEC 2008, following the very model of CIS 2008 (IBGE, 2010), reveals interesting data on the impacts of these innovations and call attention to the growing interest in better understanding the phenomenon in different countries. Thus, this dimension has been incorporated into Brazilian official survey albeit more superficial than in CIS 2008. The European survey also shows the objectives with organizational innovation, dimension not yet included in PINTEC.

Another issue presented here concerns the similarities between Brazil and Portugal in terms of innovation. These countries have similarities not only in their position in the innovation global arena, but also with regard to necessary changes and challenges to foster innovations - although in "scales" that must be compatible with each contexts.

Studies on innovation in Brazilian and Portuguese contexts can bring up issues related to the integration of countries into regional blocks. On the one hand, Portugal is housed in a consolidated economic block – the European Union – which has a joint project of innovation called the "Lisbon Strategy", whose main focus is on innovation and knowledge as central to the competitiveness of the member countries. In turn, Brazil, which has undergone a process of industrialization later, is inserted in a context less integrated than the European, especially in economic terms.

Conclusively, it is possible to identify some relevant contributions to the Luso-Brazilian debate, considering the differences and similarities between the two countries. Of course it is not possible to separate the language factor, which dates back to the time of colonization, as the permanent link between the two nations. Further than the cultural and historical reasons, there is an economic proximity illustrated by flow of trade and investments, as well as a possible similarity between work environments and organizational cultures in these countries. However, it is not possible to establish direct relationships in the field of innovation between Brazil and Portugal.

This may be due to the absence of systematic comparative studies between the two contexts in this field of research. Indeed, the insertion of each one in different economic blocks and the

different magnitudes of both countries require a relativized to better understand how to align and to converge the issues of common interest. One of the issues that deserves attention and which approximates strongly the two countries is the quality and a deficit of the work force in terms of specialization, learning capacity, educational level and skills, as observed by Bóia et al. (2004) in Portugal, and Barbosa (2009) in Brazil.

This is one of the greatest challenges to innovation in Portugal: the quality of human resources in different levels, among other aspects of bureaucracy, business environment and the insertion of small and medium-sized enterprises. Portugal also has as a major challenge in terms of innovation and competitiveness, according to their Industrial Association (AIP) Business Conference: the enlargement and strengthening of its portfolio of products and services (Magrinho, 2009: 33). On the other hand, Brazil must increase the investments in innovative activities, specially research and development, among other improvements.

Finally, it is suggested to carry out further studies to examine more thoroughly the developments in the editions of PINTEC and CIS compared. Thus, we can infer, for example, that there is a predisposition for organizations to implement organizational innovations and innovations in products and processes.

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