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Diagnosis of innovative organizations: a study in the Center of the Industries of the State of São Paulo

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ABSTRACT

The article was aimed to diagnose the competencies of innovative organizations at Centro das Indústrias do Estado de São Paulo (CIESP). This is a quantitative, descriptive study. The research method adopted was the survey, and a structured questionnaire was applied to 62 companies affiliated to CIESP. Data were analyzed using Excel software. We used the descriptive statistics to analyze them. As a result, the companies demonstrate good leadership skills management and strategic intent, innovative medium and people, but have slightly lower scores when it comes to the process of innovation and results.

Keywords: Innovation. Competencies. Innovative Organizations.

Diagnóstico das organizações inovadoras: um estudo no Centro das Indústrias do Estado de São Paulo

RESUMO

O artigo tem como objetivo realizar um diagnóstico das competências das organizações inovadoras no Centro das Indústrias do Estado de São Paulo (CIESP). Trata-se de um estudo quantitativo, de caráter descritivo. O método de pesquisa adotado foi o *survey*, sendo aplicado questionário estruturado em 62 empresas filiadas ao CIESP. Os dados foram analisados com auxílio do *software Excel*. Foi utilizada estatística descritiva. Como resultados, as empresas demonstram boa gestão das competências liderança e intenção estratégica, meio inovador e pessoas, mas possuem pontuações um pouco mais baixas quando se trata do processo de inovação e resultados.

Palavras-chave: Inovação. Competências. Organizações Inovadoras.

1 INTRODUCTION

In this context, innovation organizations are organizations that innovate in a systematic way, meaning they are able to continuously innovate and maintain an innovation process (CROSSAN; APAYDIN, 2009; SMITH et al., 2008). These organizations value the ideas (MARKIDES, 1997) and the potential that the different types of innovations have for the company's competitiveness (CROSSAN; APAYDIN, 2009). As a result, they maintain a greater interaction with the internal and external environment and are able to capture market needs better, **turning them into innovation (ANDERSON; POTOČNIK; ZHOU, 2014; GEORGE; MCGAHAN; PRABHU**, 2012; OLIVEIRA; ALVES, 2014).

An innovative organization also has some key competencies, meaning some factors that contribute to the long-term prosperity and success of the business in terms of innovation (CHRISTENSEN, 1997; HAMEL; PRAHALAD, 1994). These skills are essential because they enable organizations to innovate, especially in the current competitive scenario, full of technological and environmental discontinuities and uncertainties (HALL; BACHOR; MATOS, 2014; HEAVEY; SIMSEK, 2013).

Among the models that deal with innovation competencies or key innovation factors, we can mention: Tang (1998), which has six innovation constructs - information and communication, behavior and integration, knowledge and skills, abstraction and elaboration of projects, orientation and support, and external environment; or Smith et al. (2008), which consider nine factors - management style and leadership, resources, organizational structure, corporate strategy, technology, knowledge management, employees, and innovation processes -Crossan and Apaydin (2009), which bring five main perspectives - innovation as a process, innovation as a result, management processes, management levels, and leadership; and the Fundação Getúlio Vargas Innovation Forum (2014), which considers five core competencies - leadership and strategic intent, innovative internal environment, people, innovation processes and results.

In this article, the model proposed by the Fundação Getúlio Vargas Innovation Forum (2014) will be used, with the objective of making a diagnosis of the competencies of innovative organizations in the Centro das Indústrias do Estado de São Paulo (CIESP). The choice for the model is due to the integrated view of the organization of the model and the ability to adjust to any type of organization, regardless of the size and sector of activity (FUNDAÇÃO GETÚLIO VARGAS INNOVATION FORUM, 2014). The article is divided in five sections, being: introduction, theoretical reference, methodological procedures, presentation and discussion of results and final considerations.

2 THEORETICAL FRAMEWORK

Innovation can be conceptualized as a process of "creative destruction," where old elements give way to new ones (SCHUMPETER, 1982). It can also be considered as a complicated process of applying new ideas for a financial purpose, which is the interest of many companies (TANG, 1998). However, many factors affect both its development and the results of innovation (HALL; BACHOR; MATOS, 2014; HEAVEY; SIMSEK, 2013; TANG, 1998). This complexity becomes even greater when considering the different perspectives, types and factors of innovation, innovation is measured in different ways in the literature and that there are several definitions of innovation (CROSSAN; APAYDIN, 2009).

The innovation literature says that organizations can become competitive with innovation management, but does not say how, and there is a need to identify the factors that allow good management of innovation (SMITH et al., 2008). At the same time, few attempts have been made to gather all the knowledge one has of innovation in a compact model, since to be effective, the model has to be based on several fields of knowledge (CROSSAN; APAYDIN, 2009; TANG, 1998).

Although few, such attempts can be observed in the studies of Crossan and Apaydin (2009), Smith et al. (2008) and Tang (1998), which deal specifically with models of innovative organizations, and in the studies of Herley and Hult (1998), Lawson and Samson (2001) and Teece, Pisano and Shuen (1997) which deal with innovation capabilities.

Tang (1998) identified three perspectives that have the potential to make organizations innovative: creativity, dynamics and organization. These perspectives would influence the six innovation constructs that, according to the author, form the model of innovative organization: information and communication; behavior

and integration; knowledge and skills; capturing and designing projects; guidance and support; and external environment. Smith et al. (2008), identified nine determinant factors for the innovative organization model: management style and leadership; resources; organizational structure; corporate strategy; technology; knowledge management; employees; innovation processes. The importance of the work of Smith et al. (2008) do not lie in identifying the factors but in understanding the relations between the factors, since these function in a holistic way.

The model presented by Crossan and Apaydin (2009) considers two perspectives, one focused on the determinants of innovation (leadership, managerial levels and business processes) and another on the dimensions of innovation (innovation as a process and as a result), both interrelated. The model directly relates innovation to competitiveness (CROSSAN; APAYDIN, 2009).

Regarding the capacity of organizations to innovate Teece, Pisano and Shuen (1997) emphasize the role of dynamic innovation capabilities - production factors, resources, dynamic capabilities, products, organizational resources and competencies, core competencies - and the trajectory of dependency, which causes some choices to determine the organization's future performance. Herley and Hult (1998) highlight the organizational characteristics - structural and process characteristics and cultural characteristics - and the outputs of innovation - capacity for innovation and advantage and competitive performance - as a process that drives and affects innovation in the organization.

Lawson and Samson (2001) consider innovation management as an organizational capacity, so that their model puts more emphasis on the knowledge that is generated within the organization and the mechanisms that are developed to support that knowledge, including leadership, culture, Vision and strategy.

By comparing the factors recommended in the models of innovative organizations and innovation capacity, as well as the temporal distance in which the work was developed, it is noticed that everyone places the organizational culture, even though Tang (1998) does not use the term in the model, as vital for the creation of an innovation model that best explains and directs innovation in organizations. In addition, there is a strong emphasis on aspects such as leadership, creativity, strategic vision and other attributes that place greater emphasis on what the company does rather than on what the company has, although resources are considered an important factor in all models. This allows us to understand the role of the people in the organization and the complexity of each factor of the models.

Based on these models and applied research, the Fundação Getúlio Vargas Innovation Forum (2014) developed the Innovative Organization Diagnostic Model, composed of five main competencies: leadership and strategic intent; Innovative internal environment; people; innovation processes; and results (Table 1).

Innovative Competencies	Innovation Dimensions	
Leadership and Strategic Intention	Leadership and strategic intent define the course and provide an environment conducive to creativity and innovation (CROSSAN; APAYDIN, 2009; TANG, 1998). This competency has two basic and complementary functions: the one of direction, which allows the definition of directions, and the exchange of information with the environment, which allows the organization to capture the external elements that affect it (FGV / EAESP, Forum of Innovation 2014).	
Internal Innovative Environment	Barbieri and Álvares (2002) coined the term internal innovative approach, adopted by the Fundação Getúlio Vargas Innovation Forum (2014), to designate the context that provides the internal synergies necessary to the continued generation of innovations in a given organization. The determining factors of the innovative internal environment are the mobilizing leadership, the formal relations and the sociocultural relations (FUNDAÇÃO GETÚLIO VARGAS INNOVATION FORUM, 2014).	
People	This competence deals with the specific characteristics of each person and is essentia to effectively fulfill their role as an agent of innovation and change (FUNDAÇÃO GETÚLIO VARGAS INNOVATION FORUM). Such aspects are qualification and learnin and motivation.	

Table 1– Innovative Organization Diagnostic Model

Innovation Processes	This competence is related to the realization of innovations and includes: management of innovation processes, obtaining resources for innovation and stages of innovation processes (FUNDAÇÃO GETÚLIO VARGAS INNOVATION FORUM, 2014).
Results	The generation of innovation results is a challenge for organizations (QUANDT et al., 2014; RAMOS; ZILBER, 2015). The results can be analyzed from three complementary prisms: immediate results of innovations, impacts of innovations and fulfillment of objectives and innovation plans (FUNDAÇÃO GETÚLIO VARGAS INNOVATION FORUM, 2014).

Source: Fundação Getúlio Vargas Innovation Forum (2014)

Depending on how these elements interrelate in the organization, different outputs of innovation will be generated, ranging from not generating innovation to generating new products, processes, business models, among others. It is worth observing that the model also considers the role that learning plays in the organization, making it create conditions or not to maintain a process of innovation.

The model is, therefore, an attempt to provide subsidies to organizations so that they can guide their innovation practices towards better innovation results and the search for better performance and lasting competitive advantages. It should be noted that each organization has specific characteristics, so each factor gains more or less emphasis, as well as being related, among the other factors, in a different way, depending on these characteristics and the strategic intentions of each organization. Thus, the model is dynamic and has the objective of attending to the organizations as a whole and not a sector or specific type of organization, being its adaptation at the discretion of the decision maker.

3 METHODOLOGICAL PROCEDURES

The research was aimed to diagnose the competencies of innovative organizations at Centro das Indústrias do Estado de São Paulo (CIESP). For this, a quantitative study was carried out (SAUNDERS; LEWIS; THORNILL, 2007). The research method adopted was the survey, adequate because it allows reaching a larger number of respondents (BABBIE, 2001; SAUNDERS; LEWIS; THORNILL, 2007).

The companies linked to the Centro das Indústrias do Estado de São Paulo were chosen as object of study because Ciesp is the largest representative entity of the industrial sector in Latin America and, therefore, congregates companies with a strong economic impact.

As a research tool, a questionnaire was developed based on the methodology of the Fundação Getúlio Vargas Innovation Forum (2014). The questions were developed on a five-point Likert scale, ranging from 1 for Totally Disagree to 5 for Totally Agree. A total of 35 questions were prepared, distributed in: (a) 13 questions on the organization's profile; (b) 04 questions on Leadership and Strategic Intention competence; (c) 05 questions on the Internal Innovative Environment; (d) 02 questions on People competence; (e) 07 questions on Processes of Innovation competence; and (f) 04 questions on the Results competence. Table 2 presents the competencies and dimensions that guided the research and construction of the questionnaire.

Innovative Competencies	Innovation Dimensions	Innovation Indicators
Leadership and Strategic Intention	Direction	Corporative Principles Strategic Intent for innovation
	Interchange with the environment	Institutional action Prospecting and interpretation of signals
Internal Innovative Environment	Leadership	Mobilizing Leadership
	Formal relations	Management model Work life quality
	Informal relations	Culture and innovation Informal internal networks
People	People	Qualification and learning

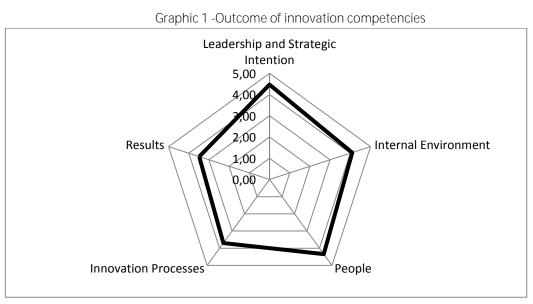
		Motivation
Innovation Processes	Innovation management	Management of innovation processes
	Innovation resources	Capital for innovation
		Knowledge for innovation
		 Strategic alliances for innovation
	Stages of innovation processes	Generating of ideas for innovation
		 Prioritization and development of projects
		 Implementation
Results	Innovation results	Economic and financial results
		 Fulfillment of innovation objectives
		 Innovation process results
		 Innovations impacts

Source: Fundação Getúlio Vargas Innovation Forum (2014)

From the development of the questionnaire, the following stages were accomplished: (1) elaboration of the communication process and stimulus material for the research respondents; (2) inclusion of the questionnaire in the SurveyMonkey platform. The questionnaire remained available between November 2016 and February 2017. At the end, 62 valid questionnaires were obtained. Finally, the data collected on the SurveyMonkey platform were exported to Microsoft Excel, where descriptive statistics were applied.

4 PRESENTATION AND ANALYSIS OF RESULTS

This section discusses the results found in the 62 sources of this study based on the five competencies -Leadership and Strategy, Innovative Environment, People, Innovation Processes, Results. Graphic 1 gives an overview of the results obtained in each innovation competency.



Source: Field Research (2017)

The organizations studied present better results in the skills Leadership and Strategic Intention, Innovative Internal Environment and People and worse results in the competences Processes of Innovation and results. Although the last two competencies do not have such low scores, the disproportion between competencies indicates that the organizations studied have difficulty transforming previous competences into innovation results. Competencies are the basis of innovation and have a joint role in maintaining an innovative organization, so that difficulties in a competency affect the overall result of innovation (CHRISTENSEN, 1997; HALL; BACHOR; MATOS, 2014; HAMEL; PRAHALAD, 1994; HEAVEY; SIMSEK, 2013).

4.1 Leadership and strategic intention

The Leadership and Strategic Intention competence is related to the dimensions of direction and interchange with the environment (FUNDAÇÃO GETÚLIO VARGAS INNOVATION FORUM, 2014). Of the 62 companies, 56 assessed themselves positively. This competence indicates the ability of the company to understand the signs of change from its external environment and to create protection mechanisms. The CIESP companies that participated in the study perceive themselves as capable of transforming their strategic principles into actions that lead to innovation. As a result, these firms are more likely to align innovation practices with business (OLIVEIRA; ALVES, 2014) and generate innovation opportunities (ROBERTSON; CASALI; JACOBSON, 2012).

The positive self-assessment in this competence also indicates that the companies studied perceive themselves as companies that build an environment conducive to the self-realization of their employees, helping them to find meaning in their work and sharing power. This has a positive impact on creativity and innovation (CROSSAN; APAYDIN, 2009; TANG, 1998).

4.2 Internal innovative environment

The Internal Innovative Environment competence is related to the dimensions of leadership, formal relations and informal relations (FUNDAÇÃO GETÚLIO VARGAS INNOVATION FORUM, 2014). Of the 62 companies, 52 assessed themselves positively. This competence concerns the creation of an internal cohesion environment that connects a mobilizing leadership to a management model that allows the construction of an innovative culture. The companies that composed the study do not show, therefore, difficulty in mobilizing people to fulfill the organization's strategic attempts (CROSSAN; APAYDIN, 2009) and for the generation of internal ideas and potentials (ÁLVARES, 2001), which allows the organization to generate innovations continuously (BARBIERI; ÁLVARES, 2002).

The positive self-assessment in this competence also indicates that the companies studied perceive themselves as companies that stimulate initiatives such as: participatory management, valuing people and continuing learning, lack of punishment for errors due to good intentions, and a climate of trust with freedom to express opinions. Initiatives for innovation arise when people live in a good and reliable environment, which feeds commitment and motivation, favoring the emergence of ideas for innovation.

4.3 People

The Leadership and Strategic Intention competence is related to the dimensions of people (FUNDAÇÃO GETÚLIO VARGAS INNOVATION FORUM, 2014). Of the 62 companies, 53 assessed themselves positively. This competence refers to the learning processes, the improvement of the professional qualification and the motivation of the people involved. The result obtained in this competence indicates that the companies that participated in this study do not present difficulties in qualifying and keeping people motivated, which in turn positively influences companies' capacity to innovate (VASCONCELLOS, 1997). An innovation infrastructure that stimulates learning mechanisms and promotes higher qualification helps companies to realize established innovation practices and foster innovation opportunities (CROSSAN; APACHDIN, 2009; ZACHER; ROSING, 2015).

The positive self-assessment in this competence also indicates that the companies studied perceive themselves as companies that see people as knowledge holders and, therefore, effective agents of change and innovation. It is the people who lead - make it happen - the process of innovation. They must therefore be heard when analyzing the innovative capacity of any organization.

4.4 Innovation processes

The competence of innovation processes is related to the dimensions of innovation management, resources for innovation and stages of innovation processes (FUNDAÇÃO GETÚLIO VARGAS INNOVATION FORUM, 2014). Of the 62 companies, 40 assessed themselves positively. This competence is responsible for allowing the organization to maintain an ongoing process of innovation. Compared to the previous competences, the organizations that are the sources of this study demonstrate greater difficulty in managing the innovation process.

This may compromise the innovative capacity of these companies and the appropriateness between daily innovation practices and market requirements (JOHNSON; CHRISTENSEN; KAGERMANN, 2008; TIDD; BESSANT; PAVITT, 2008).

Innovation processes lead to the realization of innovations, promoting a structured way to identify ideas for innovation, to obtain diverse resources necessary for the implementation of innovation and monitoring of its result. The greater difficulty in this competence indicates, therefore, difficulty in transforming previous competences into innovation.

4.5 Results

The Results competence is related to the dimensions of innovation results (FUNDAÇÃO GETÚLIO VARGAS INNOVATION FORUM, 2014). Of the 62 companies, 40 assessed themselves positively. This competency represents how much the company can reverse the inputs of innovation in innovation outputs that contribute to the strengthening and business growth. Just as in the competence processes of innovation, the companies demonstrated certain difficulty in the competence results. This is a reflection of the difficulty in maintaining an innovation process that transforms previous competences into innovation outputs (QUANDT et al., 2014, RAMOS; ZILBER, 2015).

Such problems can mean poor strategies, loss of competitiveness and difficulty in aligning the business with the market, so that organizations must not only create mechanisms that allow them to innovate but also align their actions with the expected results. By representing the need to measure the impact of innovations on an organization, the Results competence is a challenge for the companies studied.

5 FINAL CONSIDERATIONS

The aim of this article was to perform a diagnostic of the competencies of innovative organizations in the Centro das Indústrias do Estado de São Paulo (CIESP), according to the methodology of the Fundação Getúlio Vargas Innovation Forum, which is based on five competencies of the innovative organization: leadership and strategic intent; internal innovative environment; people; innovation processes; and results. The research method adopted was a survey.

The companies demonstrate good leadership skills management and strategic intent, innovative medium and people, but have slightly lower scores when it comes to the process of innovation and results. This is due to the fact that the innovation process is responsible for linking previous competences within an innovation strategy coherent with the business and the market (BARBIERI, 2003). In this sense, although they have innovative inputs that lead to the generation of results, the process itself is still challenging for these organizations.

Such notes suggest that organizations should focus on building mechanisms that leverage previous competencies into a dynamic innovation system, represented by a strong innovation process that leverages previous competencies. In addition, companies must take care for their competencies maintain synergy between them, thus avoiding an innovation process that proves to be ineffective in the long term (FUNDAÇÃO GETÚLIO VARGAS INNOVATION FORUM, 2014).

These results reinforce the need for companies to think of innovation as a result of idea, action and results and make efforts to maximize their innovative capacity for business continuity. A company that is unable to innovate or cannot keep up with the current market demands can quickly lose its competitive position and be replaced by others that better understand market dynamics.

As practical contributions, the article draws attention to the difficulty of organizations managing the innovation process and achieving results. Such insight allows companies to understand the need to link innovation competencies to a dynamic and interactive process that will deliver long-term results. As a theoretical contribution, the article presents as a proposal the diagnostic model of the innovative organization proposed by the Fundação Getúlio Vargas Innovation Forum (2014), which has been conceptually developed by the Forum over the last 15 years, culminating in five competencies responsible for generating innovation.

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