

Framework for Analysis of the Types of Innovations in Organizations

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SUMMARY

The present essay presents one framework for analysis of the types of innovations, which are understood as an evolutionary and interactive process. In this perspective the innovation is described as a complex process that occurs for the endogenous effort of the firm and for its intra and interfirm interactions. For the delineation of the framework we use as reference Giget's model (1997) - "diamond of the total innovation". It presents three categories of innovations: product, production and distribution and its interactions with the techniques functions of the enterprise - human resources, P&D, marketing, financial and production. In Giget's model (1997) a new type of innovation is considered - innovation in management -, it strengthens the interactivity of the innovative process of the enterprise. The challenge of this article is to articulate the types of innovations, being aimed at to contribute for analysis of the process of innovation in the organizations.

1 INTRODUCTION

The opening of the markets to the international trade, the technological expansion, the advance of the computerization and of the communications are uncontrollable forces that change the concepts and procedures accepted traditionally. This new scene has stimulated alterations in the competitive position of the main industrialized countries, for regions developed and for organizations that had always been in prominence in the ranking international. Some cases of success are distinguished in the long one of the last decades, as of the Third Italy, in the North of Italy, of the Valley of Silicon in the United States, Finlândia, China and India for its innovative strategies. Examples of success organizations also are innumerable, with the Microsoft, the Dell and the 3M, between many others, which they have become powers, surpassing the standards of its industries and getting competitive advantages, what they conferred prominence in the global market. Why this has happened?

The reply is that well-succeeded countries, regions and organizations are changing the form to manage its businesses for understanding that has a new dynamics in the business world and that one of the ways to conquer competitive advantages is to be proactive to the changes in real time, surpassing the expectations of the market, developing emergent innovations in products and processes and adopting strategical and management models that take care the necessities of the stakeholders. Many reasons have been enumerated for the growth of the innovations, amongst which are the necessity of the organizations to offer a line of products of superior quality, more diversified and with aggregate value; the necessity to modernize the productive and administrative processes, to increase of the productivity and reduction of the costs; the access the new markets and the increase of the participation in the global market and to improve the competitiveness. The innovations are also responsible for the growth of the enterprises, regions

and countries for the development of actions of R&D and for the C&T diffusion. For Zawislak (1996), the development of the productive activity it processes for the modifications carried through in the techniques and the technologies, what it means a new base of empirical and scientific knowledge represented by new methods, new techniques and languages, new conditions of work, indicating an advance in relation to the previous situation.

The growth of the complexity to get new knowledge and resources makes with that the enterprises depend, many times, of external sources for its innovative activity. Thus, the competitive advantage comes of a process of innovation constructed to the long one of the time and developed for the interactions between companies, stakeholders and the institutions that they are part of the institucional environment. This explains why some nations, regions and organizations are more innovatives than others. In the global changes environment cannot deny a contribution of the innovations in the social and economic development of nations, regions, productive arrangements and organizations. The innovative effort is seen as a continuous search for new business-oriented for the opportunities that make possible the attainment of sustainable competitive advantages. Ahead of the importance of the innovations for the enterprise success this essay has as central thematic to propose a framework for the analysis of the types of innovations in enterprise.

2.1. INNOVATION

The interest for the innovative change has been demonstrated in the last years for the works of Schumpeter (1982; 1985), Nelson and Winter (1982), Dosi (1982; 1988; 1991), Freeman (1987; 1988), Lundvall (1988; 1992), that they look for to explain it as a dynamic and complex process, intensified for the relations intra and interfirmas. Its studies compose the estimated theoreticians of the evolutionary and interactive boarding of innovation.

2.1.1 The Innovation in the Evolutionary Boarding

The evolutionary theory is studied by diverse authors being distinguished Schumpeter (1982; 1985), that it searched to explain the functioning of the circular flow of economic development from the paper of the entrepreneur in the innovation process. The contribution of Schumpeter (1985) for the innovation process was pioneering because with its studies science and technology that for the standards of the neoclassical theory presented as exogenous changeable of the economic system had become endogenous, passing to be considered primordial elements of the process of capitalist accumulation. For Schumpeter (1985), the revolutionary change is the object of study of the economic development in the form of "creative destruction". Schumpeter (1985, p.55) defines innovation as a process characterized for the discontinuity with what it is established through of the new combinations that are conceived by the introduction of the new product; introduction of the new method of production; the opening of the new market; the conquest of the new raw material source; of the establishment of the new organization. Nelson and Winter (1982) and Dosi (1982; 1988; 1991) are distinguished as neoschumpeterianos. They explain the bases of the evolutionary theory through of routines, abilities and learning. According to authors, the evolutionary models have contributed to alavancar the increasing interest on the emergent dynamism, discontinuities and emergent variables in the economic and organizational systems, incorporating the technological change in decisorial process of limit rationality, what he leads for the differences between the firms. For Nelson and Winter (1982, p. 340) "the way as the routine functions in the organization can contribute for the emergency of innovation, that appears in the form of problems or anomalies in the routines". The innovation in the organizational routines is consists, to a large extent, with new combinations in the existing routine being understood as an incremental process. The survival and the growth of the firm are generated by its ability in to learn as to modify its routines.

Dosi (1991) points that the development of the firm and its capacity to answer to the changes depend on four basic factors: learning and routine, path dependency, environment and selection and core competences. The author affirms that the innovations imply in new solutions techniques in products, processes and organizations, which they are recurrent of the one continuous process of the mutations. Essentially, "innovation says respect the search, discovery, experimentation, development, imitation and adoption of the new products, new processes of the production or new organizational forms" (DOSI, 1988, p. 222). The advances of the evolutionary theory to explain the innovation has leded the new models that consider the dynamics of the innovation process and the relations intra and interfirmas. In reason of this, in recent years, has appeared in the innovation literature a new chain of knowledge -"interactive process of innovation"-, which describes the innovation as a process produced for interactions between structural influences and action of the individuals that occur simultaneously. This perspective is presented in the item to follow.

2.1.2 The Interactive Process of Innovation in the interactive perspective

The process of innovation has gotten bigger popularity in recent years for to investigate the nature of the innovation process examining as and why the innovations emerge, develop, grow and finish as well as the relations between producers, users and institutions. The innovation represents the development and the implementation of the new ideas of the people and organizations that keep transactions with different stakeholders. Such interpretations reflect the increasing interest in the processes by mean of which the ideas and the practices are initiates, developed and invented (SLAPPENDEL, 1996).

The interactive vision of innovation is the base for many conceptual elaborations of the innovative process that considers the increase of the complexity, importance of the sources of external knowledge to organizations and the relations intra and interfirmas for the success of the innovation. Some models are references in this area as the ones that study the national system of innovation (FREEMAN, 1987; 1991; LUNDVALL, 1988; 1992), local systems of innovation (CASSIOLATO; LASTRES, 1999; 2004; LASTRES et alii, 2002) and it relatives the a productive chains, clusters, nets of companies. (PORTER, 1990; 1998; 1999). Edward (2000) affirms that in the interactive process of the innovation is seen as being the consequence of the inherent uncertainties to the social interactions between groups of competitors in the introduction of new practices and routines, in the technological and organizational dimensions that can strengthen or modify an institucional arrangement. According to author, the term "interactive process of innovation" is common in the field of the innovation and has been used to describe the innovative activities intra and interfirmas.

One of the first definitions of "national system of innovation" was proposal for Freeman (1987) in its study on Japan in which he associates it with the net of institutions of sectors public and private, whose activities and interactions allow to initiate, to modify and to spread out new technologies. An important contribution was proposed for Lundvall (1988) in a publication about interactions between system of production, user-producer and R&D laboratories. In this direction, Lundvall (1992) considers that an innovation system is constituted by a set of agents and interactions which objectifies to production, to diffusion and to use of new knowledge in geographic border. The national system of innovation understood in an ample direction encloses the institutions that influence the introduction and diffusion of new products, processes and systems in the national economy, as the technological laboratories, departments of inquiry, universities, as well as the systems of production, marketing and finances of the enterprises. (EDQUIST; LUNDVALL, 1993). For Lastres et al. (1998) the local system of innovation offers one better possibility of understanding of the process of innovation in reason of the diversity that

exist between the different countries and regions in view of its histories and drawings politicians. Such picture of reference is based on some basic concepts - learning, interactions, abilities, selection - that they emphasize the regional and local aspects. For the authors, the local dimension consists in a determinative factor of the innovative capacity. Studies in innovation point that the potential of innovations is positively correlated with the number of the competitive and cooperative relationships existing between organizations (AFUJA, 2002; CHUNG, BAE; KIM, 2003; QUINTANA-GARCIA; BENALVIDES-VELASCO, 2003, MIOTTI, 2003). These ideas strengthen the theoretical findings of that to innovate in products, processes, markets and management the organizations have to firm relationships with other organizations and with agents of the institucional environment in a vision of interactive process. Giget's framework (1997) is used as base for the proposal of a framework conceptual based on the evolutionary theory and in the interactive process of innovation which is presented to follow.

2.1.3 The Giget's Framework: types of organizational innovations and its relationships

Giget (1997) present a framework for analysis of the innovations approaching the types of innovations and its interactions with the organizational areas. For the author (p.627), "innovation is not limited strictly to the sphere technique"; the innovations most promising are those that reposition the firms in competitiveness, using the financial and human resources so as well as the relationships that exist between the different areas and its abilities techniques. The author demonstrated through the triangle of the innovation technique (Fig.1) that the abilities techniques in R&D, production, marketing lead the three categories of innovations techniques: product, production and distribution.

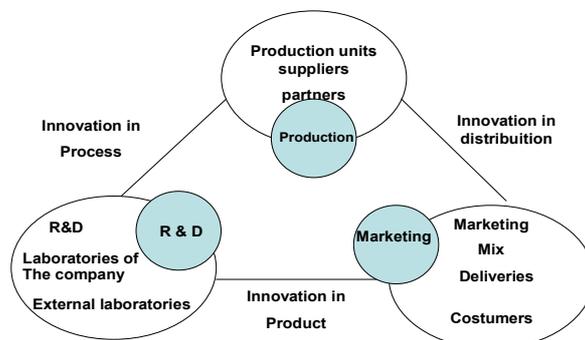


Figure 1. Triangle of the innovation technique

Fonte: GIGET, M. Technology, innovation and strategy. *International Journal of Technology Management*, v. 14, n°.6-7-8, p. 624, 1997.

The author also considers the "diamond of the total innovation", that it presents the multiple faces of the innovation through the communication enters the diverse functions of the company: human resources, R&D, marketing, financial and production resources. According to Giget (1997), the innovation cannot be considered the result of a linear process that it initiates with the basic research, it passes for the applied research and it finishes with the development of a new product or a new process. The innovative process is not determinist and nor follows a ready way, but it is socially constructed by the involved or interested actors in the generation of innovation. The innovative process must be understood as a series of interactions and exchanges between researchers, users, technician, scientists, government and companies which constitute the innovation net.

3 Proposal of the Framework for analysis of the types of innovations in organizations

The framework proposed part of the Giget's framework (1997). The original model indicates the innovations in product, process and distribution. This framework (Fig. 2) includes a new type of innovation - management innovation.

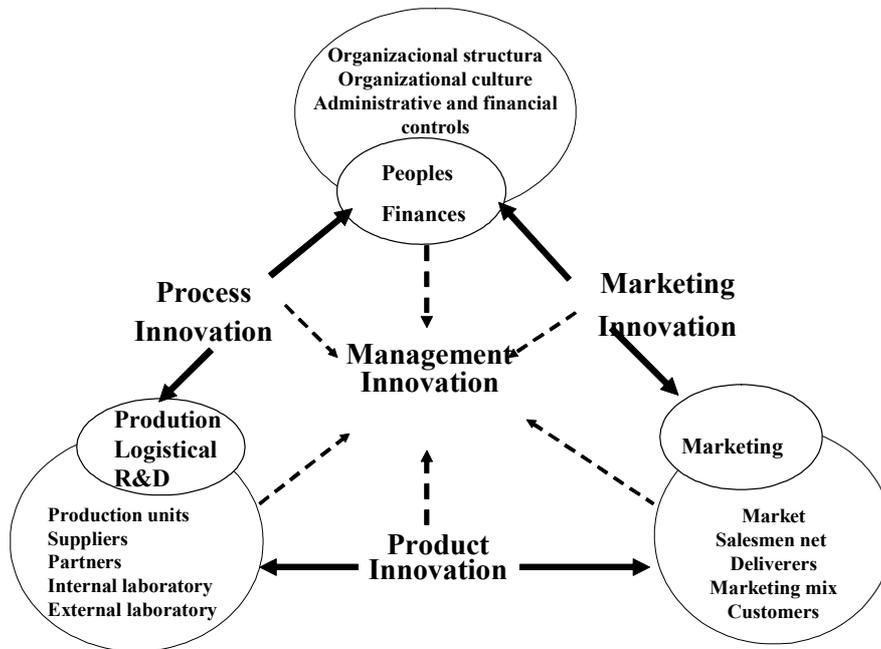


Figure 2 - Types of innovations in the organizations

Source: adaptate of GIGET, M. Technology, innovation and strategy. *International Journal of Technology Management*, v. 14, n.6-7-8, 1997

In this framework presents four types of innovation: product, process, marketing and organizational management:

- product innovation: it contemplates the development and launching of new products;
- process innovation: it indicates new practices, routines and equipments used in the production of raw materials and products;
- marketing innovation: it says respect to the exploration of new markets, new practices of distribution and of marketing;
- innovation of organizational management: the changes in the management are related the organizational structure, administrative and financial controls .

Becoming enlarged framework on the types of innovations in a "diamond of innovations" it is possible to visualize the multiple relations of the innovations through the communication enters the diverse functions of the enterprise: human resources, finances, logistic, production and, marketing (Fig. 3).

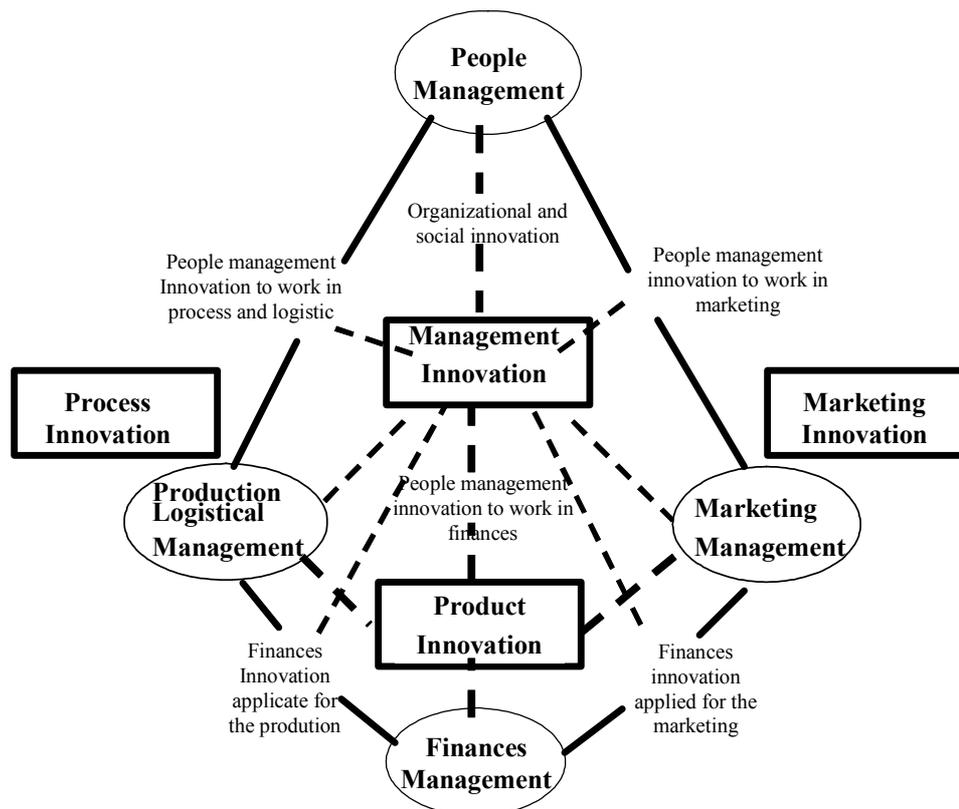


Figure 3: Diamond of Innovations

Source: adaptate of GIGET, M. Technology, innovation and strategy. **International Journal of Technology Management**, v. 14, n.6-7-8, 1997

FINAL CONSIDERAÇÕES

The adoption of the perspective of the interactive process reflects a dynamic interpretation of the innovations in organizations recognizing the participation and the influence of a series of relationships intra and interfirms. The framework proposed is presented in this conception, still that only presenting the types of innovations and its relationships intrafirma. The framework suggests that the analysis of the innovations in organizations must consider the innovations in product, process, marketing and organizational management and its relationships between the main functional areas - management of people, marketing, logistic, production and finances. This framework has been applied in grapes and wine enterprises locate in the Valley of the Vineyards at Serra Gaúcha/RS/Brazil. This study has revealed that this framework is appropriate for the analysis of the innovations in organizational level. We expect that this work can contribute of the academic point of view, therefore it evolves in the theoretical field from the proposal of plus a type of innovation - organizational management.

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