



Research Article

Results of the Innovative Process: Measuring what Matters

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Abstract

Innovation is vital for an outstanding performance and over the top results. It is a complex concept with multiple perspectives which should be always situated in the center of attention. For creating the premises of a successful innovation, its measurement and impact should be analyzed both on the theoretical level as well as on the practical dimensions of the industrial organizations. The measurement of the organizational innovation allows the contouring of a general framework and the determination of the actual values, followed by the quantification of the results and the identification of the relevant indicators, the development being measured in a constant manner. The chosen indicators need to be comprehensive, covering the financial and non-financial area, having numerical and non-numerical values that allow the mirroring of the situation and of the achievements. Organizational innovation attracts a superior performance from the perspective of high returns offered to the stakeholders, together with a general development of the business performance while the innovation measurement systems come with an accelerated improvement of the results.

Keywords: Innovation management, Innovation measurement, Innovation process

Introduction

The measurable side of the innovation theory consists in presenting, launching and implementing various measurement procedures during the innovation process lifecycle in the industrial organizations. In modern production systems, the measurement data are important for improving the management of the technical systems and the business context. With a

tight control of the measurement results, a constant monitoring of the activities related to the innovation process will be ensured (Brusakova, 2016).

Together with the proposal of including in the regular reporting the innovation plans with the leading factors which are determining the innovation performance, an indicator which would be focused on the return of the innovation investments could

be considered an aggregated measure of quantifying innovation in industrial organizations. This indicator will determine the efficiency with which the investments allocated to research and development and for obtaining new products become profitable for the enterprise, comparing the profits achieved with the expenses of the innovation process, offering different perspectives over the innovation process and realizing a vision over the company's capacity to innovate.

In the industrial organizations, a high importance is given to the innovation quality. The added value is given by the facility of registering the defects count and their usage in increasing quality, creating the premises of the successful commercialization on the market.

Innovation is one of the most important challenges which impact on the enterprises directly but also through the other connected partners like suppliers, customers or through the market in general, independently if we are talking about the distribution and consumer market or labor market. The world is continuously changing and the openness for novelty is crucial not only for progress but also for facing an increased competition and substitutability and for remaining relevant.

In all the definitions given to innovation, changes and improvements of products and processes are constantly appearing. The process of innovation makes the debut of a new plan or idea which will be later realized through a new function, so it keeps different than the process of a simple creation but becomes a dimension of business generation.

Companies, which aim to have a systematic innovation and a structured process, benefit from a higher competitive advantage, can improve the capacity of dealing with possible limitations which may appear and limit significantly the exposure to the risk of default. Reduced timing or production costs, increased volumes in the same interval or a higher

profitability, could also be noticed as benefits deriving from innovation.

Business development based on innovative technologies

The association between innovation and entrepreneurship is frequently encountered, having Peter Drucker (2002) dedicating his studies to these concepts and perceiving innovation as a function included in the entrepreneurship area. A real work of innovation with a systematic approach is a path to establish new resources or rise the level of efficiency that will bring an added value.

Following Kondratiev's theories according to which technological innovation is considered a seed for the long economic cycles, Schumpeter (1939) reintroduces his expertise and comes with a new perspective, with innovation as a foundation for the economic development and a main determinant for the predilection to replace the old with the new.

Schumpeter (1934, 1947) considered that during the time, innovation has played a fundamental role, being derived from entrepreneurship, the same as the technological change with which it is correlated. Between the innovation process and entrepreneurship is an organic relationship (Drucker, 1985, 2014) and Tom Peters (Peters, 1997) develops the circle of innovation, a cyclic model that has the possibility and advantage to be used in various beneficial innovative processes. In the larger pursuit of emphasizing the innovative mindset of entrepreneurship, Scarlat (2014) has observed the intersection of the concepts of innovation, of entrepreneurship and of technology and launched the idea of technopreneurship as also the process of obtaining new technologies with the help of knowledge (technowledgepreneurship) or a kind of entrepreneurship that is built over the knowledge from the technological area.

Innovation is viewed as vital for the enterprises, to bring enhancements and try to add value constantly in the lives of the consumers and in the businesses, obtaining

at the end an extra value also for the shareholders and stakeholders. A similar approach is represented by the work of adding new advantages for existing or new consumers, in the already operating or new markets, a modality to modify the balance corresponding to the profitability equation (Skillicorn, 2016).

From another point of view, innovation will put into place new improved ideas that will better satisfy the requests that are new to the existing market necessities or the requests from the business (Maranville, 1992). People who are characterized by innovation, will manifest the habit of looking into the long term perspective in the future, and bring it in the actuality. This could have various meanings from developing new habits of the market and in the business or removing limitations or previous borderlines.

The concept of innovation defines the duty of a person or of a team which are really extraordinary, and the companies which reach such innovating performances are entitled to receive the tag and recognition of the excellence (Peters and Waterman, 2006).

Management of the innovative process

As per the definition of "Dictionnaire du management de l'innovation", innovation management represents the multitude of the actions of an enterprise, of the decisions taken and of the options considered for prioritizing innovation projects, decisions regarding their launching and new products commercialization, or even the implementation of new internal processes, with the final purpose of obtaining an increased competitiveness (Fernez-Walch and Romon, 2009).

Innovation management could also be considered an implementation of the management techniques and tools, in order to create the most favorable conditions for developing innovations. This domain is based on a constant evolution, with many of the innovations being the result of a mix of various competences, many of them taking over from the external environment

(Introduction au management de l'innovation, nd). From the perspective of Rotterdam School of Management, innovation management refers to the modality in which innovation activities are administrated by the companies and their employees (Erasmus University of Rotterdam, nd).

Innovation is viewed as a global process of technological and commercial creativity, a process of directing the activity to the transfer of a new idea or concept, until the final stage of a new product, process or service delivery, accepted by the market (OECD, 2005).

Similar with all the other managerial activities, innovation management requires planning, organizing, commanding, coordinating and controlling. Each of the functions are interconnected and require full attention for a successful innovative process. Right from the beginning, an adequate, realistic and feasible planning is needed, by establishing the innovation necessity, checking the most appropriate approach, resources preparations and establishing the targets which need to be achieved. Organizing is important as the necessary resources and activities performed for reaching the goal should be prepared while all these should be constantly properly coordinated during the entire process, from the beginning to the end. Innovation commanding is addressed to the human factor involved in the process, both directly or indirectly, being responsible for the motivational component and contouring a clear image of the innovation, but also for the individual and collective role for all the participants. Additionally, during the entire process, a good controlling should be put into place in order to measure the results together with the progress and to ensure that the achievement/accomplishment of the objectives is obtained in a timely and optimal way (Rânea *et al.*, 2012).

Innovation Measurement In The Industrial Organizations

In order to get the maximum efficiency, the measurement of the organizational

innovation needs to take into consideration a set of well-established principles, which would facilitate its usage and necessity. The measurements need to determine the justification of the innovations which the company needs, following the efficacy of the innovation management, not only a simple count and the set of the chosen measurements needs to represent a connection with the long-term progress. The system of measurement should not be centered only on the financial indicators but also on demonstrating the increasing capacity of the company to deliver the results of innovation in correlation with the future business performance, the innovation measurement indicators being focused on constructing the innovation competences and the specific culture. Moreover, for ensuring the general involvement and the long-term success, an innovation measurement system in the industrial organizations needs to be well defined, simple and easy to understand by all the stakeholders (InnovationManagement.se, 2020). Successful organizational innovations are described by their authors by the presentation of the details referring to the benchmark practices, a sustained experimental process being often found among them (Murnane and Nelson, 1984). Due to the experimental character and the novelty factor of the organizational

innovation, the design of the measurement system needs to be modeled to bring a visualization of the actions which need to be taken and of the resources which need to be allocated for ensuring the success of the business. New working methods need to be stimulated by offering a comprehensive set of measurements which would facilitate trials and prototypes, while concentrating on the capacity of the company to innovate.

In the industrial organizations, a performance management system designed for innovation needs to be structured in an eloquent way, in order to be efficient. Specifically, as shown in Figure 1, the metrics used for the innovation activities have to be objective quantitative like the numeric measurements obtained after applying a specially defined algorithm, which realizes the assessment independently on the person responsible for the measurement role, subjective quantitative like obtaining a numerical score through alternative techniques achieved after a subjective assessment based on the personal assessment of an expert, but also subjective qualitative like various determinations which are not expressed numerically and place the judgment of the evaluator behind (Spanò et al., 2016).

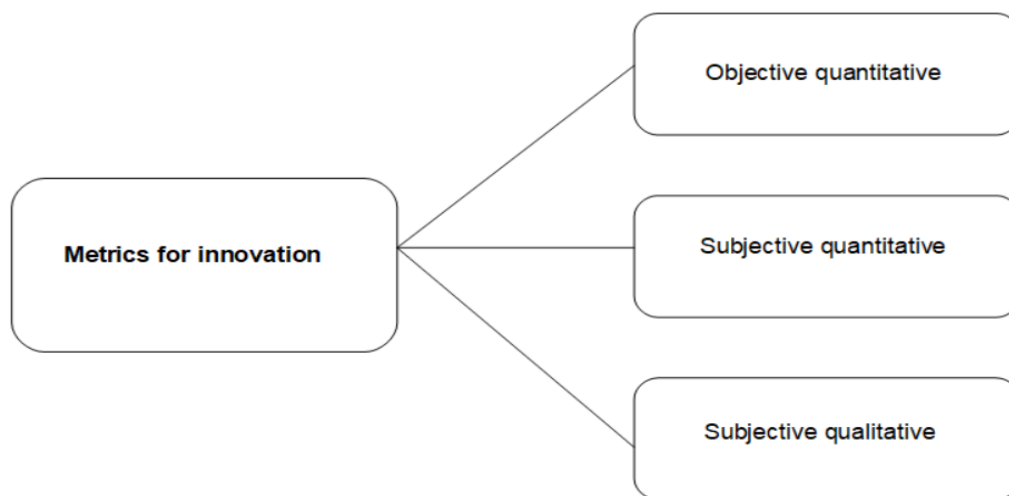


Figure 1: Innovation measurement metrics in the industrial organizations

By trying to identify the main competences and technologies used for ensuring a long term leadership on the market, the industrial organizations need measurements which will facilitate the assessment of the performance obtained by the new projects and the possibility of having some indicators which will signal the presence of the lead driving factors that conduct to the success of the organizational innovation. Alongside the popular financial indicators, the innovation measurements based on the market or stock exchange should also be taken into consideration and used at the scale.

In the industrial organizations, two types of innovation measurement are identified: the directional measurement based on some unidirectional indicators and the conversational measurement which takes into consideration multiple different indicators (Brattström et al., 2018). The directional measurement is related to establishing objectives and the development direction with a top to down approach, while the conversational measurement, based on the observations of the operational level, ensures the spread of ideas and enlarges the communication spectrum.

The innovation data could be constituent of a complex and comprehensive analysis of the innovation behavior and performance in the industrial organizations. After the innovation measurement, the indicators obtained offer statistical information about the innovation activity, the results of the innovation, the context of this process and its impact on the company level. The relevant indicators of the novelty creation process could be used in interrogative analysis of the innovation activity, for monitoring and controlling the innovation performance during a period of time and for the reference comparison with other firms or industry figures and a documented measurement of innovation together with the following analysis could determine the importance of the factors that influence the decision process or the superior results obtained (OECD, 2018).

Organizational culture, leadership and strategic planning are constituent elements of a company which stimulates organizational innovation, and for determining the results of the innovation and organizational performance, the monitoring of these organizational components should be done simultaneously. Even if any of these attributes is individually associated with the novelty, the managers and the persons responsible with the innovation measurement have to take into account these factors simultaneously instead of in a separated way, through a leadership characterised by human resources and specific delegation, through a type of culture which promotes changes, transformation and renewal, next to strategy and employees creativity, succeeding in this manner to establish the focus on innovation.

Importance Of the Innovation Measurement in Industrial Organizations

Studies have presented the importance of the organizational innovation measurement in the industry and highlighted the advantages brought by a comprehensive innovation measurement system, developed on three dimensions like capability, results and performance (Edison et al., 2013). Capability refers to measuring the input factors of the organizational innovation, its determinants and processes; results refer to the output factors of the organizational innovation, including products, processes and other internal or external elements; and the organizational performance refers to the direct and indirect benefits provided by the business together with the technological development.

The measurement system of the organizational innovation needs to be dynamic, to be able to progress and to be updated in parallel with the development of the innovation competences and with the context changes. Due to the fact that it is important to focus on a creative behavior, establishing the basis of a culture

of novelty creation and innovation, the enterprises which treat innovation in an organized way, as a self standing discipline, need to take into consideration multiple relevant indicators. As the employees behavior and their attitude in regards to innovation is stabilizing, the existing measurements may become irrelevant, being a favorable occasion for introducing a new system (Forbes, 2015).

By using specific indicators, organizational innovation has been measured in terms of process innovation, product innovation, marketing innovation or whole company innovation and the studies regarding the sources of innovation contribute to the complementarity and the substitutability of resources, determining the effect over performance. In the industrial organizations, measuring innovation represents a self standing process and a tool for ensuring the long term success when introducing novelty factors, when pursuing adaptability and when implementing changes and updates. For having the right direction and obtaining the maximum benefits, the process has to be followed in real time, so that the efficiency is higher. In order to have a complete image and realize a complex analysis, numeric and non-numeric measurements have to be realised for determining the constituent elements of the innovation process and the results obtained.

Organizational innovation requires the identification of the indicators and complementary measurement types, together with the data collection and process analysis in order to stimulate this open innovation process, the innovation measurement offering in the same time the instruments for control in order to follow and improve the traditional measurement system. A flexible measurement system with various types of measurement and indicators allow a rapid change or replacement of some component elements, bringing alongside the stability required for ensuring an incremental development. As long as the change of an element from the internal organizational innovation system comes automatically with other

changes, all the elements are intercorrelated, this being an issue necessary to be taken into consideration when choosing or designing the measurement model.

Results Of The Innovative Process: Measuring What Matters

Innovation represents one of the most important and complex challenges which impact on the enterprises directly, on the other connected partners like suppliers or customers but also on the general market. Today, innovation represents more than ever an engine of business development but also an essential condition for competitiveness and for remaining relevant on the market: "L'innovation est plus que jamais le moteur de la croissance des entreprises" (Introduction au management de l'innovation, nd).

In the industrial organizations, it is emphasized the idea of an adaptive model of measurement indicators, a predetermined generally applicable one being non-existent. Besides the lack of a general agreement and consensus in the academic environment but also in the business professional area, some performance indicators have been positively correlated with some organizational traits and the companies which are using them for monitoring and assessing performance, alongside with coordinating and directing improvements, report superior results (Schrage and Kiron, 2018).

Porter (1990) is one of the authors who include innovation among the factors which undergo an accentuated increase of the competitiveness, by having a holistic approach, viewed from multiple perspectives, by adding new technologies as also by simply changing the way of doing things.

Trott (2008) considers that the purpose of innovation is to generate business. By introducing the novelty factor, new business opportunities can arise, independently if we are talking about launching new products and services or

new methods of working or doing business, which later on will generate new customers.

From a business perspective, productivity and economic development are key elements in the performance equation. As innovation management is influencing the performance management and as the performance management is under the attention of the higher management, it results that the innovation should constantly be in the area of interest.

Independently, when discussion is about revenues, profitability, economic development, customer satisfaction or market share, while referring to performance management, there are various tools to measure the results, but on the innovation side, the metrics intercalate with those of the performance. Doerr (2018) mentions the necessity of having clear goals and a management methodology that focuses all the efforts within the organization in the same direction while key results should be characterized by the word measurable. According to the author, OKRs (objectives and key results) are highly adaptable, this quality offering a better potential while continuous performance management is an actual alternative of the classic annual reviews, having the possibility to obtain improved overall results.

When launching a new initiative, the success expectation might be only 10%, but according to the probability law, it might increase to 65% when having 10 such launches, while for twenty-five such initiatives, the success expectation is over 90% for at least one of them and 75% for at least two of them. (Peters and Waterman, 2006) So, the advantage of a relevant comprehensive and flexible performance management for innovation that the chances to succeed will be highly increased, and so, the competition and innovation would be stimulated while a supportive environment will be created for the entrepreneurship development.

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