Knowledge Management as Support for Innovation of Public Projects

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Abstract

Knowledge is an important organizational asset and it is essential to ensure efficient performance and competitiveness. Knowledge Management (KM) appears, therefore, as an important tool to guarantee the identification, absorption, creation, sharing and application of organizational knowledge. Innovation is seen as the creation or improvement of methods, practices, technology, product or service. In this scenario, this research had as a general objective to carry out a study of the conceptual foundations of Knowledge Management which are valid for innovation in public projects and as specific objectives to carry out a theoretical-conceptual survey on Knowledge Management, characterize the relationship between Knowledge Management and innovation and point out the valid indications in this study that support the innovation of public projects. The question to be answered was: How can Knowledge Management be used to support innovation in public projects? This research was elaborated through the Content Analysis Method and presented, as a result, the conclusion that the KM process as a whole has practices that aim to create in an organizational environment conducive to the emergence of innovative thinking encouraging the sharing of knowledge and experiences, the search for solutions and making individuals better qualified.

Keywords: Innovation, knowledge, knowledge management, public administration, public projects

1. Introduction

Knowledge Management (KM) is a research area that, in recent years, has received increasing attention in both private and public sectors. It can be a tool in the search for greater efficiency in organizations, since knowledge is seen as an important organizational asset and an essential factor for competitiveness, productivity and economic growth.

This research aims to analyze the relationship between Knowledge Management and innovative practices based on a theoretical essay, which will discuss the relevance of the theme when dealing with public projects. The general objective proposed is to carry out a study on the conceptual foundations of Knowledge Management which are valid for innovation in public projects. For that, the specific objectives are to carry out a theoretical-conceptual survey on Knowledge Management (1); to characterize the relationship between Knowledge Management and innovation (2); and to point out the valid indications in this study that support the innovation of public projects (3). The question to be answered in this study is: How can Knowledge Management be used to support innovation in public projects?

The study is structured in topics, where the first one provides an introduction to the research work, its objectives and its form. The second one presents the important concepts for the analysis. Next, the methodology to be used in the development of the work is presented in order to achieve its objectives. Finally, the analysis and the results achieved, the final considerations and the bibliographic references used in the research are presented.

2. Theoretical-Conceptual Review

This study is based on the Theory of Knowledge which is the field of philosophy dedicated to the study of knowledge; this theory aims to understand its origin, form and possibilities based on the relationship between the subject, the person who knows it; and the object, which can be known. A survey carried out in Sousa (2010) highlights that, regarding its origin, there are two currents: rationalism, which defends reason or logical and rational inferences as the only source of knowledge; and empiricism, which believes that it comes from experience, from the subject's observation and experimentation processes. As for its form, Tatto and Bordin (2016) emphasize that scholars of scientific methodology divide knowledge into four types, namely: popular or empirical knowledge (common sense), theological knowledge, philosophical knowledge and scientific knowledge. As for the possibilities of knowledge, Seibt

(2015) points out the differences between the skeptical position, with its position of negation, doubting or even denying some type of knowledge; and the dogmatic posture, which defends the individual's ability to reach all knowledge.

The definition of knowledge is expressed by Davenport and Prusak (2003), as a combination of condensed experience of values, contextual information and experienced insight, which provides a framework for the evaluation and incorporation of new experiences and information. A study in Correia, Mendes and Marques (2018) allows defining knowledge as an intangible, dynamic, renewable and adaptable resource to new situations. Therefore, it extrapolates the creative force and leverages new capabilities, now combined with other resources of the organization in the way of results.

Takeuchi and Nonaka (2008) state that there are two forms of knowledge: the explicit, which is expressed in common language and easily transmitted between individuals, usually through manuals, guides, books, audio or video; and tacit knowledge, which is derived from the experiences, values, perceptions and beliefs of each individual and, for this reason, it is hardly formalized and transmitted. Informal skills such as talent for an activity or so-called "know-how" are also expressed as tacit knowledge. The authors also emphasize that the conversion of tacit knowledge into explicit knowledge, and vice versa, is the way in which an organization creates and uses knowledge. The authors also determine that there are four ways of converting knowledge: socialization (1), from tacit knowledge to tacit knowledge; externalization (2), from tacit knowledge to explicit knowledge; combination (3), from explicit knowledge to explicit knowledge; and internalization (4), from explicit knowledge to tacit knowledge.

In organizations, knowledge is often embedded not only in documents or repositories, but also in routines, processes, practices and standards. According to Choo (1996), for knowledge creation to occur in an organization, a synergistic relationship between the two forms of knowledge is required, in addition to processes that create new knowledge through the conversion of each individual's tacit knowledge into explicit knowledge. The author also states that tacit knowledge, while still individual, does not have much value for the organization. Jannuzzi, Falsarella and Sugahara (2016), in turn, declare that knowledge is a fundamental resource in any organization, helping in the search for excellence, competitiveness and progress.

2.1 Theoretical-Conceptual Survey on Knowledge Management

In the contemporary scenario, Knowledge Management (KM) appears as a significant support tool in organizations, which allows their managers to achieve desired efficiency in the processes, while identifying, creating and sharing the valid cognitive inputs in the most diverse tasks; that's why Batista (2012) defines Knowledge Management (KM) as a method that aims to mobilize the organization's knowledge in order to achieve its objectives and improve its performance based on a set of techniques and tools capable of identifying and use information and knowledge assets.

A study in Davila, Varvakis and North (2019), allows defining that KM practices imply in actions carried out in the organization aiming to maximize the value generated by its most relevant assets and competences, as well as the creation of a strategy based on the creation, diffusion and constant evaluation of knowledge. Furthermore, according to Behr and Nascimento (2008), Knowledge Management practices are directly linked to the idea that information and technology are valuable assets and strategic resources for obtaining competitive advantage on the part of organizations and the emergence of this field itself occurred as a direct consequence of their unstable environment. Brix (2017) analyses, in his study, the relevant connections between the organizational learning and the knowledge generation from a framework design and its using to study a public organization in Denmark; then, he shows where the two fields are connected, how they complete each other and their differences. And, according to Castagnara (2017), such management practices have as main categories Business Intelligence, Corporate Education, Skills Management, Intellectual Capital and Organizational Learning, as categorized in Table 1 below.

Table 1. Categorization of knowledge management practices

Category	Description	Key practices
Business Intelligence	Absorb and transform information into knowledge and use it strategically, in conjunction with your own experiences, values and rules, aligned with objectives.	Innovation Centers, Competitive Intelligence, Customer Relationship Management, Business Intelligence, Corporate Knowledge Portals and Social Media.
	It aims to create a culture where individuals share innovations and best practices, discuss	Corporate University, Forums and Meetings for Discussions.

Corporate education	common problems and seek solutions through collective and continuous learning.	
Skills Management	It seeks to use competencies (attitudes, knowledge and skills) to produce the best results within each context.	Skills Management, Process Mapping, Skills Bank, Expert Networks, Organizational Knowledge Maps.
Intellectual capital	Set of knowledge of all individuals in the organization.	Intellectual Property Management, Content Management, Electronic Document Management and Intellectual Capital Management.
Organizational Learning	Continuous process of creating, acquiring and sharing knowledge, detecting and correcting errors.	Communities of Practice, Lessons Learned and Narratives.

Source: Prepared by the authors based on Castagnara (2017).

Pérez-Montoro (2016) analyzes the emergence and evolution of Knowledge Management, and highlights two different perspectives of the theme. The first is the oriental school, derived from the ideas defended by authors such as Takeuchi and Nonaka (2008), which understands the organization as a living organism that interacts with the environment, understanding knowledge as a psychological process and concentrating researches on tacit knowledge and its creation. The second school, in turn, derives from the ideas defended by Davenport and Prusak (2003) and is characterized by understanding knowledge as an object and the organization as an information processing mechanism, focusing its research on explicit knowledge and its management.

The use of information and communication technology (ICT) is essential for effective knowledge management. Many organizations are developing knowledge management systems specifically designed to assist in the creation, sharing and storage of their cognitive arsenal, as Santoro, Vrontis, Thrassou and Dezi (2018) point out. So much so that Helfenstein et al. (2020) warn that organizational managers with few resources to keep up with technological advances end up losing the focus that would allow them to guarantee the necessary support for efficiency in their own knowledge management, which results in difficulties in the effective solution of their demands.

2.2 Concepts That Characterize the Relationship Between Knowledge Management and Innovation

Correia et al. (2018) deal with the definition of innovation given by Schumpeter (1934), as "a new combination of productive means that consist of the introduction of a new product, a new production method, a new market, a new raw material or a new form of industrial organization". The authors also bring the definition given by Herkema (2003), which establishes this as a process of knowledge that aims to create new knowledge for the development of viable solutions. Therefore, we have knowledge as an essential element for the innovation process in general.

Neto, Dias, Sano and Medeiros (2019), state that innovation can be classified as product or process. Product innovation is seen as new goods or services, for the sector or organization, or significantly improved, while process innovation is about the introduction of a new production method, a new technology to improve production and management or even a new management approach.

Jannuzzi et al. (2016), in turn, state that the fundamental tripod to guarantee the competitiveness of an organization is composed of information, knowledge and innovation, the latter being the determining factor. Also according to the authors, any type of innovation is based on the generation, use and assimilation of knowledge, corroborating with Correia et al. (2018). Davila et al. (2019) demonstrate in their studies that it is possible to realize a direct relationship between KM practices and the improvement of innovative performance in organizations, especially in practices related to information and communication technology and human resources, confirming in their research the hypothesis that the greater the use of KM practices, the better the innovative performance of an organization. The findings of Than, Nguyen, Tran and Le (2019) also emphasize the importance of building a stimulating organizational climate in knowledge sharing among individuals, in order to improve the organization's capacity for innovation.

2.3 Definitions of Valid Theoretical Indications to Support the Innovation of Public Projects

Cavalcante, Camões, Cunha e Severo (2017) state that innovations in the public service can have several functions, giving as an example the investment in science; public purchases, such as the electronic auction; institutional economic innovations, such as regulatory agencies; institutional political innovations, such as participatory budgeting; public services, such as the digitization of health care; and the organizational function, such as the creation of innovation

laboratories. The authors also state that the State's search for innovative practices aims at correcting government failures, solving increasingly complex and transversal problems encountered, meeting the social demand for more services.

According to Batista (2012), based on the changes that have occurred in public policies in the last decades, aiming at obtaining more efficiency and innovative practices, effective Knowledge Management helps to face new challenges, implement more innovative management practices and improve quality of public processes, products and services offered to society in general. The author also points out that in public organizations, innovations are aimed at increasing efficiency and improving the quality of public services provided to the population, and that changes in the pattern of public policies can be perceived, especially in local spheres of government, from the creation of new forms of public management verified through innovative practices in the provision of services to the population.

Sonntag and Carvalho (2018) report the importance of managing lessons learned in previous projects with the aim of seeking to ensure that errors are not repeated, hits are replicated, consolidate and standardize practices and even map professionals according to their capabilities. Similarly, the Duffield and Whitty (2015) study demonstrates how applying a systemic model of lessons learned allows managers to conceptualize and illustrate how organizational know-how for projects is distributed among their individuals.

3. Methodology

This research used a qualitative approach, which according to Creswell (2014), aims to identify and understand phenomena based on an analysis characterized by the interpretation and observation of data collected and the non-use of statistical instruments. To achieve the proposed objectives, the research used the Content Analysis methodology in the analysis of the collected data. The method is defined by Bardin (1977) as a set of communication analysis techniques that aim to obtain, through systematic procedures and objectives of describing the content of messages, quantitative indicators or not, which allow inferring knowledge related to the conditions of production or reception apprehended, cognitively elaborated and treated. Flick (2013), points out the method as "one of the classical procedures for analyzing textual material.

Regarding to the procedures in the execution of the proposed method, the study brings together the indications of Schiavin and Garrido (2018); these authors describe the three main stages of the content analysis process determined by Bardin (1977), such as the pre-analysis stage, where the material is organized and the initial ideas that will serve as a basis for the analysis are organized; the following stage, involving the exploration of the material, where the one established in the previous stage will be applied, including the coding, clipping, classification and categorization of the collected data and, finally, the stage of treatment of the results and interpretations, consistent in the comparative analysis of the manifest and latent contents contained in the material, in order to highlight similar and different aspects between them.

In order to make up for the insufficiencies that the method of content analysis can bring about in the course of the analytical work, the critical theory in Habermas was sought in the analysis of the cleaved Corpus. For Habermas, human development is only possible through communication, debate and consensus, and therefore collectivity and society can be transformed in this way. Thus, understanding that the formulation of innovative public projects does not require the use of critical analysis practices aimed at sharing knowledge with the community and, as a result of its deliberative bias, Habermas' arguments support the analysis exposed in the following results.

4. Results

For the results in this task, the objectives indicated in this document were observed and the methodology that was outlined here. Corpus was selected in accordance with the construction of understandings that formed in the following subtopics, what it serves and is treated in this study compartment. The categorization of the theoretical clippings guided the analysis of the elements that become nouns in this task.

4.1 Theoretical-Conceptual Survey on Knowledge Management

Based on the knowledge concepts presented and Behr and Nascimento's statement (2008), people have knowledge as a valuable and strategic organizational resource, capable of enhancing the development of new capabilities once associated with other resources.

Based on the definitions of Kianto and Andreeva (2014) and Batista (2012), it is possible to conceptualize Knowledge Management (KM) as the mobilization of organizational knowledge from practices based on the creation, sharing and constant evaluation of this knowledge in order to maximize the value generated by it, improving performance and achieving goals. The categorization of KM practices covered in Castagnara (2017) allows a better view of the roles of

each KM practice, and where each one fits in the process of creating, absorbing, organizing, sharing and evaluating knowledge, as it shows Table 2.

Table 2. Knowledge management concept

Dimension	Concepts
Knowledge Management Concept (KM).	Knowledge as a strategic and valuable resource.
	Mobilization of knowledge in order to achieve objectives and improve performance.
	Practices based on the creation, sharing and constant evaluation of knowledge.

Source: Prepared by the authors.

The first element selected demonstrates the change in perception in organizations that occurred because of the transition from an industrial era to one based on information and knowledge, a consequence of the technological and scientific revolution that occurred in the world, where these organizations started to perceive that these resources have an extreme value both for gaining competitive advantage over competitors and for their own development. The knowledge of each organization is unique to this one, since it is the result, not only of its explicit knowledge but also of the sum of the tacit knowledge of each of the individuals that are part of it, being, therefore, something impossible to be reproduced in another organization. In this way, this element establishes the value and importance of that resource and human capital for an organization.

The second element, in turn, deals with the central point of the concept of KM, that is, the action of mobilizing all the knowledge present in the organization, in each of its individuals, aiming to generate the greatest possible value of it, to reach the objectives and improve organizational performance. This element is directly linked to Habermas' concept of communicative rationality, since it considers human relationships, through communication, as the main tool of the human being to seek understanding of a situation and coordinate plans and actions in a consensus, aiming at a common goal.

The mobilization of this knowledge is made from the practices highlighted in the third element, based on the four ways of converting tacit knowledge into explicit knowledge listed by Takeuchi and Nonaka (2008), according to the theoretical framework of this work. Starting from the idea of Habermas' learning rationality, from the identification of the most relevant knowledge for the organization, and the adoption of practices for the creation of new knowledge, the sharing of existing organizational knowledge and the evaluation of this knowledge, an organization is capable to improve and evolve more and more.

4.2 Characterization of the Relationship Between Knowledge Management and Innovation

The definitions of innovation by Schumpeter (1934) and Herkema (2003) brought by Correia et al. (2018) corroborate the statement by Jannuzzi et al. (2016) and place knowledge as the basis for each and every innovation process, since it consists in producing new knowledge from the combination of the existing one, in order to generate a new method, approach, technology, service, or even perfect existing ones. This corroborates the results presented by Davila et al. (2019), which demonstrate a direct relationship between the use of Knowledge Management practices in an organization and the improvement in its innovative performance and with Than's et al (2019) results.

Table 3. Characterization of the relationship between knowledge management and innovation

Dimension	Relationship
Characteristics of the relationship between Knowledge Management and innovation.	Innovation as the creation of new knowledge.
	Knowledge as an essential element for any innovation process.
	Direct relation of KM practices with the improvement of innovative performance.

Source: Prepared by the authors.

The first and second elements will be analyzed here together, as they are complementary. Both deal with a consensus found that knowledge is the basis for the innovation process, since it can be described precisely as the process of

creating new knowledge. This element again evokes Habermas' idea of learning and questioning rationality, capable of building new "products" (innovation) from the communicative action of individuals.

The third element, in turn, was brought here because it praises this relationship. When it is understood that knowledge is the basis for innovation, it becomes evident that its management is directly linked to innovative performance. KM practices involve creating an organizational environment conducive to innovation based on the exchange of individuals' information from different areas, with different experiences. Evoking the critical dialogue between areas and actors advocated by Habermas, contact with different views, the absorption of new knowledge and discussions to seek solutions to common problems provide opportunities for innovation.

4.3 Valid Theoretical Guidelines to Support the Innovation of Public Projects

Cavalcante et al. (2017) list examples of possible forms of innovation in the public service and highlight that the search for innovative practices on the part of the State aims, in general, to correct government failures, solve complex problems, higher quality services and popular participation. According to Batista (2012), the new focus of public administration on increasingly efficient and innovative management makes knowledge management an important tool to guarantee the creation of increasingly innovative practices for public policies and projects.

Table 4. Valid indicators that support the innovation of public projects

Dimension	**Indicative**
Valid indicators that support innovation of public projects.	Popular participation.
	More efficient management.
	Management of lessons learned from previous projects.

Source: Prepared by the authors.

The first element was cleaved because it represents one of the main reasons to search for innovations in public projects. As highlighted by Cavalcante et al. (2017), to allow greater popular participation in the decision-making process, meeting a demand from society itself, it is necessary that innovative public projects are created. This element is directly connected to Habermas' communicative action, in addition to Habermas' deliberative democracy, since it deals with everyone's participation equally and deliberation based on the will of a majority, of common sense.

The second element, in turn, expresses the importance of KM as a tool to ensure an increasingly efficient and innovative management based on the sharing of knowledge and best practices, thus allowing an improvement in the quality of services, products and processes, as analyzed in the previous subtopic.

The lessons learned, present in the third element, is an example of KM practice that is essential in public projects because, at the same time that it avoids the recurrence of errors and promotes the successes that occurred in previous projects, it also provides the raising of problems that were found out and shares good practices, avoiding wasting of time and giving space for innovative thinking. Here again, Habermas' concept of learning rationality is present.

5. Conclusion

The present study analyzed the relationship between Knowledge Management (KM) and innovative practices, especially its relevance when dealing with public projects based on Jurgüen Habermas' critical theory.

Based on the theoretical-conceptual survey carried out, knowledge has become a valuable asset and a strategic organizational resource and Knowledge Management (KM) as the mobilization of organizational knowledge from practices based on the creation, sharing and constant evaluation of this knowledge in order to maximize the value generated by it, improve performance and achieve objectives. Furthermore, it is possible to have knowledge as the essential element for the innovation process, showing the direct relationship between KM and innovative performance.

Regarding the question to which this research sought theoretical-conceptual basis, being it, how can Knowledge Management (KM) be used to support innovation in public projects? It is concluded that, the whole KM process has in its practices the necessary tools to create an organizational environment conducive and favorable for innovation, since it makes it possible to share not only knowledge, but also the experiences and experiences of individuals, putting in contact with different areas and perceptions, encouraging debates and discussions in search of solutions to problems common to the organization, sharing good practices and lessons learned. These practices make it possible to create more and more enriched projects, with increasingly better members and give space for innovative thinking.

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