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KNOWLEDGE CREATION IN THE COOPERATION NETWORKS OF ORGANIZATIONS: AN INTEGRATIVE REVIEW

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ABSTRACT

The objective of the research was to identify the main tools used by the cooperation networks published in the Scientific Electronic Library Online (SciELO) database between 2012 and 2022. The research identified that most of the studies, in total 11, were published in Spanish and the main tool used by the organizations is the internet that serves as an intermediary for the process, such as storing information on public health services, set in a model in knowledge management and decision-making, or also to dialogue through an interdisciplinary approach supported by ICT.

Keywords: Cooperation. Competitiveness. Tools. Knowledge.

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INTRODUCTION

Organizations orchestrate their resources and actions to ensure market share and resort to innovation to achieve this task, since this task can be implemented in products, services or even processes (MIHARDJO; RUKMANA, 2019).

The concept of innovation has already been discussed by classical actors, including Schumpeter (1982) and was reformulated by the Organization for Economic Cooperation and Development (2005) which classified it into five types: insertion of a new product in the market; introduction of a methodology in the production stage; emergence of a new market; obtaining new raw materials or semi-manufactured products; formation of a new organization in the industrial sector.

Therefore, to manage this scenario, the organization must know the most relevant problems for decision-making, so knowledge management and the resources to apply them can transform knowledge itself into a skill that must be employed by an individual or by the collaborative (AREED; SALLOUM; SHAALAN, 2021). There is a lot of evidence that network agents make intense use of technology and information and communication resources (DE HOLANDA *et al.* (2006). In summary, knowledge management can be a resource of great value for organizations that need appropriate resources and tools to be assertive in decision making.

Thus, organizations resort to external sources to innovate and there is an emphasis on the construction of knowledge, use of ideas, creation of cooperation networks and, above all, resort to the science and technological knowledge of universities, providing the establishment of regional networks or industrial districts when they decide to unite the efforts of companies that were previously competing for mutual benefits (ZENG; XIE; TAM, 2010).

In view of this, the following guiding research question arises: what are the main tools for knowledge management applied in cooperation networks by organizations? The objective of the research is to identify the main tools used by cooperation networks, through evidence published in the *Scientific Electronic Library Online* (SciELO) database between 2012 and 2022.

The justification for conducting the research is related to the ability that organizations have to innovate in knowledge and through certain tools it is possible to create advantages in relation to the competitor, as well as to provide the formation of alliances with other agents, thus generating benefits for those involved in this integration.

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The study is structured as follows: initially the literature review is presented from the sections that deal with Cooperation Networks, followed by the discussion about innovation in the market as a competitive differential and tools for knowledge management; soon after, the methodological procedures and the discussion of the results found are presented; Finally, the final considerations and references used for the theoretical basis are presented.

LITERATURE REVIEW

COOPERATION NETWORKS: BRIEF CONSIDERATIONS

Competitiveness in the market has been instigating strategies in organizations to facilitate their permanence, in this way cooperation networks of a commercial nature are created to reduce efforts, whether at a local or international level, and with this there is an establishment of a "web" of services that act in this process as a sector to make the purchases of products, a team responsible for legal services, people who represent the company's interest in other territories and communication with policy representatives (BRACHE, 2018).

In view of this representation, cooperation networks generate other benefits, especially for those who undertake at the beginning of their careers. According to Galvão *et al*. (2019) it is common for entrepreneurs to have ideas, knowledge and skills that can generate results if they are carried out, however certain businesses require resources to be developed, or else, there is a strong bureaucracy that prevents their dispute in the global market, so cooperation networks are used to establish the first steps and acquire the necessary information to generate positive results.

According to Brache (2018), the practice of creating bonds through cooperation is common in nature, but in the case of human beings it is a highly sophisticated level because there is a diversity of factors that can influence this relationship, such as the interest of those who resort to establish the relationship, as well as the identification of benefits for those involved. For Abidi *et al*. (2019) cooperation networks contribute to organizations being able to obtain more satisfactory results as a response to the opportunities that arise in the market, being able to act with competitive prices and with the development of a high quality of the product from the moment partnerships are formed.

Galvão *et al*. (2019) argues that these relationships between companies through cooperation networks stimulate innovation from the moment that the resources available by organizations can present new combinations and generate positive responses. Han and

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Kang (2020) disagree with Galvão *et al*. (2019) when explaining that the formation of this type of cooperation, such as alliances between companies, is configured as a scenario of uncertainty, as it is not always possible to measure the degree of return related to the benefits and risks for this activity.

In contrast to cooperation networks, there is also the concept of mergers and acquisitions: in the former, the academic literature identifies that organizations agree that the union will generate benefits for both sides, creating a new entity; in the second, it is understood that one of the companies takes control of the acquired organization and establishes a new owner. In this way, cooperation networks act as an activity that is intrinsically linked to conceiving results for all those involved, with no room for competition in the market (GOMES; SLAM; HE, 2021).

INNOVATION IN THE MARKET AS A COMPETITIVE DIFFERENTIAL

Markets are essential for managerial ideas and practices because they characterize what each company operates in a given sector, but it is common to have changes that alter the segment, such as new consumer preferences, implying the emergence of new markets while representing a challenge for organizations that struggle to survive in the face of competitiveness (SPRONG *et al*., 2021).

From this context, this scenario of uncertainty seems to be in the organizational environment that resorts to innovation. Purchasy and Volery (2020) define innovation as the process that there are problems or customer needs that, for some reason, have not been met and that it is necessary to reformulate operational actions to meet this opportunity. Innovation can also be articulated by government forces that are able to locate "flaws" in the market, such as the drop in sales by several companies that were responsible for fostering the economy, and articulate resources to foster the market (SPRONG *et al*., 2021).

For Mihardjo and Rukmana (2019), innovation in the market occurs when the organization understands the necessary changes in the digital age, mainly linked to the use of technological resources that imply new forms of model and operation. The authors emphasize that innovating in the market requires a human approach capable of directing organizational actions, and in this way a leader who understands these needs positions himself at the forefront of conducting the process.

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Along the same lines, one of the most renowned authors on innovation, Schumpeter, in the 60s, said that competitive companies in the market invested resources to remain in the market and today it is still possible to identify that this reality has not changed, and similar results are found in monopoly or oligopoly industries that dedicate most of their resources to the Research and Development (R&D) area to generate new products and raise the the quality of those that already exist, creating a competitive advantage (SCHUMPETER, 1961; GUEI, 2022).

KNOWLEDGE MANAGEMENT TOOLS

The creation of knowledge in interorganizational networks can take place in several ways. According to Balestrin, Vargas and Fayard (2005), among the reasons for the increase in interest in networks is competitiveness as an important factor. Information and communication technologies, through *intranet* and *internet*, expand and accelerate the channels of interaction. Along the same lines, De Holanda *et al.* (2006), when exploring mechanisms that improve knowledge creation processes, highlighted that the use of information and communication technology instruments are relevant for the communication and systematization of explicit knowledge.

The organizational environment has become a complex space in the face of uncertainties in the market, which reflects on the search for building centers for research and innovation, partnerships with potential customers and other external actors that can contribute to generate knowledge and increase the potential for innovation, which is fundamental at the current moment (OLIVA; KOTABE, 2019). This has repercussions on the process of identifying innovation and using tools that innovate and, at the same time, can manage and build knowledge.

To explain the importance of this process, Eslamkhah and Seno (2019) state that knowledge has become a valuable asset and that, depending on the conjuncture, there is also a strategic character that increases the dynamic capacity in the global competition of organizations. Oliva and Kotabe (2019) understand dynamic capacity as the act of moving strategically when identifying an opportunity and centralizing efforts for agile and intensive planning.

That said, some tools can be useful in everyday business. *Brainstorming* consists of bringing together a group of people who are involved in a process to reflect on a proposed

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problem and present the widest possible range of solutions, without any kind of judgment of the suggested ideas (KARUNANAYAKE; FERNANDO; KULATUNGA, 2022).

Virtual Team Work, *on the other hand*, is a tool in which its users can share information from separate geographical spaces and together select a decision-making process (SAMUL; PETRE, 2019). This type of tool enables the crossing of knowledge from the most diverse hierarchical levels, in addition to being a communication that takes place through the internet, therefore not requiring a formality to be physically present.

From an organizational perspective, the *Design Think* tool emerges as an alternative for problem solving. According to Dell'Era *et al*. (2019) *Design Think* is a model divided into two phases: abductive, where ideas are presented; convergent, in which the most favorable ideas are selected to be put into practice in solving the problem. It is important to emphasize that this tool is not unilateral: different views can be presented and at the same time can unify knowledge that will be useful for the problem.

Finally, *Business intelligence* (BI) in companies encompasses a compilation of information that can be analyzed, shared, and from it generate knowledge that leads the manager to better understand organizational performance (ABUSWEILEM; ABUALOUSH, 2019).

METHODOLOGICAL PROCEDURES

The research, in terms of its approach, is classified as qualitative. According to Denzin and Lincon (2006), the qualitative approach involves an interpretation of the meanings and what they represent for the scenario in which it is inserted, through a description. Regarding the objectives, it is an exploratory study. According to Gil (2017), exploratory research provides the researcher with the possibility of delving deeper into a fact or phenomenon that has been little investigated.

Based on a bibliographic research, the study in question used the *Scientific Electronic Library Online* (Scielo) database and delimited the period between 2012 and 2022, an interval of ten years, with studies that have been published during this period. To narrow the search, the following filters were used: (*management tools*) AND (*knowledge*) AND (*organization*). In the end, 37 articles were identified.

To improve the research funnel, inclusion criteria were applied: type of literature: article; Year of publication: 2012 to 2022, resulting in 26 articles. The next step consisted of applying the exclusion criterion to all articles published in Portuguese, duplicated or that

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were not available in the database for reading: 16, leaving 10 articles. After a brief reading of the texts, associating them with the objective of the research, it was identified that the 13 articles were suitable for the methodology proposed for this study and were inserted in table 1:

Table 1 – Summary of the results found in the Scielo database

TITLE	AUTHOR (YEAR)	MAGAZINE	MAIN RESULTS
Enterprise Architecture, an enabler of change and knowledge management	Moscoso-Zea, Paredes-Gualtor and Lújan-Mora (2019)	UTE Approach	*Enterprise Architecture* (EA) is recognized as a knowledge management tool that helps the visualization of people, company processes, aided by Information Technology.
Advancing Patient Safety Knowledge: About the Patient Safety Brief Library	Solano *et al*. (2019)	Spanish Journal of Public Health	Website created to disseminate scientific knowledge pertinent to Social Security users in the city of Madrid, recognized as a milestone for the service.
Knowledge management to improve health services. A vision for IMIA-LAC	Chávez (2018)	Cuban Journal of Medical Informatics	Information System created in partnership with several nations in Latin America and the Caribbean, including Cuba, to systematize knowledge and share experiences in health services
Strategic risks. A study of the treatment measures implemented by large private companies in Antioquia, Colombia	Jaraba, Nuñez e Villanueva (2018)	Accounting Notebooks	Knowledge management tools assist in decision-making to reduce risks, and it is up to managers to have knowledge of business strategies for formulation and execution.
Health surveys: essential instruments in the monitoring and evaluation of budget programs	Hurtado the Sivi (2017)	Peruvian Journal of Experimental Medicine	The provision of public health services is guided by performance indicators that provide management with information on the quality of outcomes in the city of Peru.
Design of a knowledge management model for virtual health learning environments	Sanchéz and Dante (2016)	Cuban Journal of Information in Health Sciences	Through a virtual teaching of tutoring system administration, the GC-EVAS Model is structured in helices (social, technological and strategic) that helps in knowledge management and decision-making of organizational processes.
University management under the premise of intelligent organizations	Martins *et al*.	Research and Postgraduate Studies	Information and Communication Technologies (ICT) act as a tool that helps the management of university processes to identify the needs of the institution and convert them into more satisfactory results.
CIRAH website. New workspace for the center	Miranda *et al*. (2014)	Habanera Journal of Medical Sciences	This institution, CIRAH, has a website that brings together academic publications and its purpose is to bring together in a website of the same name studies of a scientific nature that

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			promote the updating of knowledge about atherosclerotic disease.
Systematic Review of Knowledge Acquisition and Representation Techniques	Forero *et al*. (2014)	Technology	Literature review that presents the main technologies that support the acquisition and representation of knowledge in organizations, such as web 2.0, intranet and documentation records.
The interdisciplinarity of science and the organization of knowledge in curricular information management systems	Amador, López-Huerta e Díaz (2013)	Cuban Journal of Information in Health Sciences	Interdisciplinarity, with the support of Information Systems, converges to solve everyday problems that require an integrated system of knowledge from different areas.

Source: prepared by the authors (2022)

RESULTS AND DISCUSSIONS

With the data collection carried out, it was noted that some periods did not have publications: 2012, 2020 and 2022, while for seven consecutive years studies were published from 2013 to 2019. The subject on this basis is considered pertinent, since the frequency of publications denotes an interest of the public, although it was not possible to identify explanations for this fact.

Regarding the sample of the 11 articles that were systematized in Table 1, only 03 have the native language in English, evidencing a superiority of publications in Spanish.

Regarding the content found in the publications, some studies were convergent on the same theme, as occurred with Moscoso-Zea, Paredes-Gualtor and Lújan-Mora (2019) and Forero *et al*. (2014) where its tools are directed to the registration of information, especially with the support of ICT and its benefits when used by organizations, such as the creation of competitive differentials and a better systematization of data to convert it into information. Although there is no creation network, there is an effort to gather resources by companies and a concern with the importance of information/knowledge.

Amador, López-Huerta and Díaz (2013) recognize the benefits of ICT and how it can be used to manage information, adding that the various areas of knowledge converge to solve problems. In this way, organizations can use knowledge from various areas, such as suggestions from customers, from other companies in the market through the formation of alliances and centralize from the support of ICT, assisting in decision making, as proposed by Martins *et al*. (2015), Sanchéz and Dante (2016) and Jaraba, Nuñez and Villanueva (2018).

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The study by Chávez (2018) points out that information can be shared with society through Information Technology, and there must be transparency in the services provided, but for this it requires management to make decisions that reflect on process improvements. This reality is similar to the benefits of the BI tool in organizations, discussed by Abusweilem and Abualoush (2019), where it is possible to monitor business information. Even though there is an organizational vision, the construction and management of knowledge can be characterized as a competitive differential, especially in organizations that are willing to invest.

Society recognizes health as a human right, so the State must strive to raise the quality of public services through efficient management where knowledge of the results is made available to all those who are interested, as well as the dissemination of knowledge through publications of academic studies, which also represent a network of knowledge from various areas accessible to the population (MIRANDA *et al*., 2014; HURTADO; SIVIRICHI, 2017; Solano *et al*., 2017).

FINAL CONSIDERATIONS

Knowledge is an important resource that can be used by organizations to create differentials against the competitor, but its management requires tools and it is common in this environment to build alliances with other companies to reduce challenges, add efforts and achieve goals. Thus, the objective of the study was to identify the main tools used by the cooperation networks published in the *Scientific Electronic Library Online* (SciELO) database between 2012 and 2022.

The research identified that most of the studies, in total 11, were published in Spanish and the main tool used by the organizations is the internet that serves as an intermediary for the process, such as storing information from public health services, set in a model in knowledge management and decision-making, or also to dialogue through interdisciplinarity supported by ICT.

It is suggested for future research to propose the outline of a *framework* about the main tools to support decision making in companies that are part of cooperation networks.

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