Knowledge Management Model for the Generation of Innovative Capacities in Organizations that Provide Services

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***Abstract*—The research was oriented to the development of a knowledge management model for the generation of innovative capacities in the organizations that provide services. A systematic review of articles published in the Scopus, IEEE Explore and Google Scholar databases was carried out, where 67 articles and 24 models were selected, which were subsequently analyzed based on their theoretical foundation, strategies used for the generation and dissemination of knowledge, incorporation of the organizational culture and the use of Information and Communication Technology (ICT) in the generation and dissemination of knowledge. The proposed model, unlike the models evaluated, is oriented towards generating added value with a new strategic approach structured in the knowledge management and organizational memory macro-processes, which in turn are divided into 29 and 11 macro-activities respectively, which incorporate the organizational culture and allows guiding the organization to improve its functions through the incorporation of innovation and use of ICT in all processes of the organization and in each stage of the generation and management of knowledge; establishing the essential parameters for the generation of innovative capacities, generation of knowledge, intellectual capital and transfer of information to knowledge, which can be used within the organization. The proposed model, unlike the models evaluated, is aimed at directly strengthening interpersonal relationships between members of the organization and between them and their clients. In the same way, it incorporates a maturity model made up of five levels to measure the state in which the organization is in relation to knowledge management.**

***Keywords*—Component; model; knowledge management; intellectual capital; information and communication technologies**

I. Introduction

In a competitive world like today, marked by globalization and constant changes in the environment, it has generated the obligation in organizations not only to produce but also to innovate their processes and improve their products and/or services through the incorporation of new technologies, knowledge and information management, among other strategies. [1,2] In these new innovations impregnated with radical changes, knowledge-based work prevails [3,4]. From this point of view, it is proposed that those companies that offer products and services based on knowledge and that put the generation of added value through innovation first will become an intelligent company with a competitive advantage over its competitors. [5]. Under this context, the knowledge and reflective capacity of people is the driving force for business and organizational performance [6,7], positioning itself as the essential element of an organization to achieve a competitive advantage over its competitors [8,9]. It is an element of high differential value in organizations, used as a competitive strategy to maximize the productivity of organizations [10].

Knowledge is recognized as a fundamental resource for modern society and organizations as it has unlimited potential for business growth [11], becoming the main source of competitive advantage for organizations [12,13]. In this sense, organizations in their search to stay current in competitive environments, must ensure continuous improvement in all their processes and make use of those concepts, tools, and models that make them faster than their competitors; one of these concepts is knowledge management [14]. Knowledge management has the purpose of collecting, organizing, distributing, sharing and using the intangible assets of an organization [15]. Knowledge management has emerged as the strategy companies need to adopt to manage and use organizational knowledge. [16,17], that is, it allows information to be managed among its stakeholders, to advance its process of wealth creation and value addition [18] positively impacting organizational innovation [19]

In this context, organizations are oriented to form high-performance work teams in such a way that it allows them to synchronize the knowledge applied in the available resources to be used optimally. In this same-dimensional scheme, knowledge, in-formation, and communications are extremely key factors in the production or service generation processes. In this sense, managing knowledge in organizations will not be anything other than the process of creating, storing and applying knowledge in solving problems related to the processes that are part of the value chain. To achieve this task, it is necessary to have quality information technology services, which include highly qualified human capital, as well as financial and technological resources through planning, direction, and control.

In this order of ideas, the following research questions emerged: What are the theoretical and practical elements that should be considered as base descriptors in the construction of a knowledge management model? What are the knowledge management models that facilitate the generation of innovative capacities in organizations? In this sense, the present investigation was oriented to the development of a knowledge

management model that allows service provider organizations to manage the knowledge inherent to the activities carried out by the personnel that work in the organization. The established objectives were as follows: a) Establish the theoretical and practical elements of knowledge management b) Compare the knowledge management according to the established theoretical and practical elements and c) develop a knowledge management model for the generation of innovative capacities in service provider organizations.

This research is structured as follows: Section II highlights a brief theoretical description of the issue raised. Section III describes the methodology used to address the research and develop the proposal of the knowledge management model. Section IV provides the development of the knowledge management model proposal for the generation of innovative capacities and the detailed description of each of the macro activities that comprise it. Section V includes the comparison of the models studied and the discussion of the most outstanding findings of the investigation. Section VI concludes the paper and highlights future work.

II. Theory

A. Knowledge

The triumph of new companies is based on learning, where the most important capital is man [20,21,22], who owns the most precious asset of this era and has the power to transform it through learning, its socialization and application [23]. In this regard [24] point out that the best source for obtaining lasting competitive advantages is knowledge. Knowledge is a flow in which experiences, important values, contextual information, and expert points of view are mixed [25, 18], which provide a framework for the evaluation and incorporation of new experiences and information [26, 27].

B. Knowledge Management and Innovation

Knowledge management is the ability of a company to generate knowledge for its subsequent dissemination and incorporation into its products or services [28]. It is the relationship between the employee and the company aimed at managing information; that is, identify it, select it, organize it and give it a use to generate competitive advantage. [29, 30, 31, 32]. Knowledge management is more than a process of accumulation of information, since the most important objective is to create new knowledge that contributes value and is a source of competitive advantages [33, 34, 35]. Through knowledge management, organizations manage to capture, preserve, generate, and transmit the knowledge necessary to obtain a competitive advantage, through the generation of value and the innovation of their processes [36, 37, 38, 39]. In this sense, we can affirm that knowledge management is one of the most important assets of the organization, being the engine of organizational innovation [31, 32, 40, 41].

III. Methods

A systematic review of articles published in the Scopus, IEEE Explore, and Google Scholar databases was carried out applying criteria to filter information such as the definition of keywords, aimed at obtaining the information according to the intention of the analysis of the present investigation. The first step was to select the knowledge management models present in scientific databases and scientific indexing services such as Scopus, IEEE Explore, and Google Scholar, where 46 knowledge management models were selected. In the second step, the models that did not meet the criteria were discarded and only 24 were selected that clearly established the foundation bases and the strategies used for knowledge management. The third step was to perform a search for articles related to knowledge management, and 625 related articles were reviewed. In the fourth step, articles that did not meet the requirements were discarded and 67 articles that fall within the knowledge areas of this study were selected. In the following, Fig. 1 shows the flow chart for the selection of models and reviewed articles.

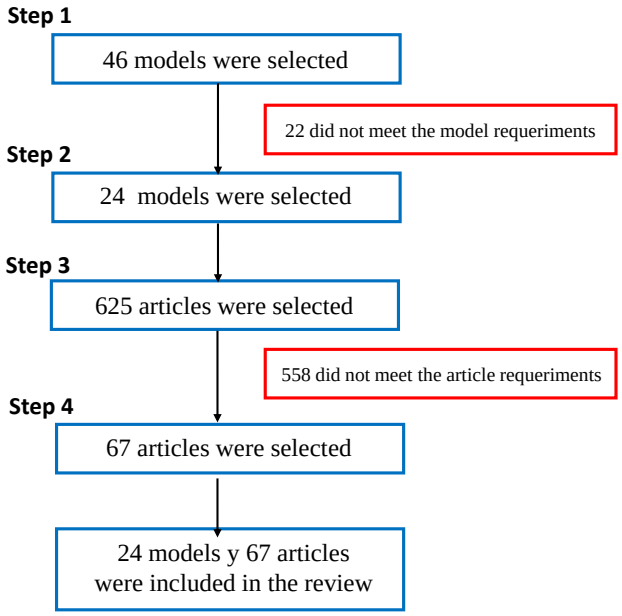

Fig. 1. Flow chart for the selection of models and reviewed articles.

The knowledge management models that were analyzed and that were the pillars of the proposed knowledge management model were: Wiig's knowledge management model. (Wiig, 1993), Nonaka and Takeuchi (1995), Technology Broker Model (Brooking, 1996), Canadian Imperial Bank Model (Hubert Saint-Onge, 1996), West Notary University Model (Bontis, 1996), Skandia Navigator Model (Leif and Malone, 1997), Intangible Assets Model (Sveiby, 1997), Intelect Model (Euroforum, 1998), Dow Chemical Model (Dow, 1998), Competitive Strategic Management Model: Intangible Capital (Bueno, 1998), Knowledge Practices Management Model (Tejedor and Aguirre, 1998), Nova Model. (Nova Care, 1999), Andersen model (Andersen, 1999), Knowledge Management Assessment Tool Model (Andersen and APQC, 1999), Cities Intellectual Capital Benchmarking System Model (CICBS, 2001), Operations Intellectual Capital Benchmarking System Model. (OICBS Viedma, 2001), Kerschberg technology integration model. (Kerschberg, 2001), Bustelo and Amarilla's knowledge management model (Bustelo and Amarilla, 2001), and Riesco's situational integrated model. (Riesco, 2004), Knowledge management model from a "humanist" vision (De Tena, 2004), Design of a knowledge management system in a school organization

(Durán, 2004), Paniagua technological knowledge management model and López (Paniagua and López, 2007), Holistic Model for knowledge management. (Angulo and Negrón, 2008), Knowledge management model for productivity and innovation centers. (Rivera, 2021); where fundamental aspects that give the nature of knowledge management models were evaluated, such as: the bases that support the models, intervention strategies for the generation, sharing, dissemination and internalization of knowledge, organizational culture and the role of technologies in knowledge management.

IV. Results

A. Construction of the Knowledge Management Model

Based on the results obtained from the analysis of the 24 knowledge management models mentioned above and the analysis of the 67 articles related to the research topic that were selected as input for this research, a knowledge management model was developed for the generation of innovative capacities in organizations that provide technological services, supported by various strategic actions that are in turn grouped according to the processes considered important for the correct generation and dissemination of knowledge.

In the model that is going to be presented, there are two macro processes such as Knowledge Management and Corporate Memory. In turn, from the Knowledge Management macro-process, two processes emerge, such as: Knowledge Management and Organizational Culture with their respective subprocesses: Intellectual Capital, Knowledge Transfer, Organizational Development, Organizational Learning, Organizational Commitment, and Competency Development. Each thread has its respective strategic actions to guarantee the harmonious functioning of the processes. Next, in Fig. 2, the Knowledge Management Model for the Generation of Innovation Capabilities in organizations that provide services.

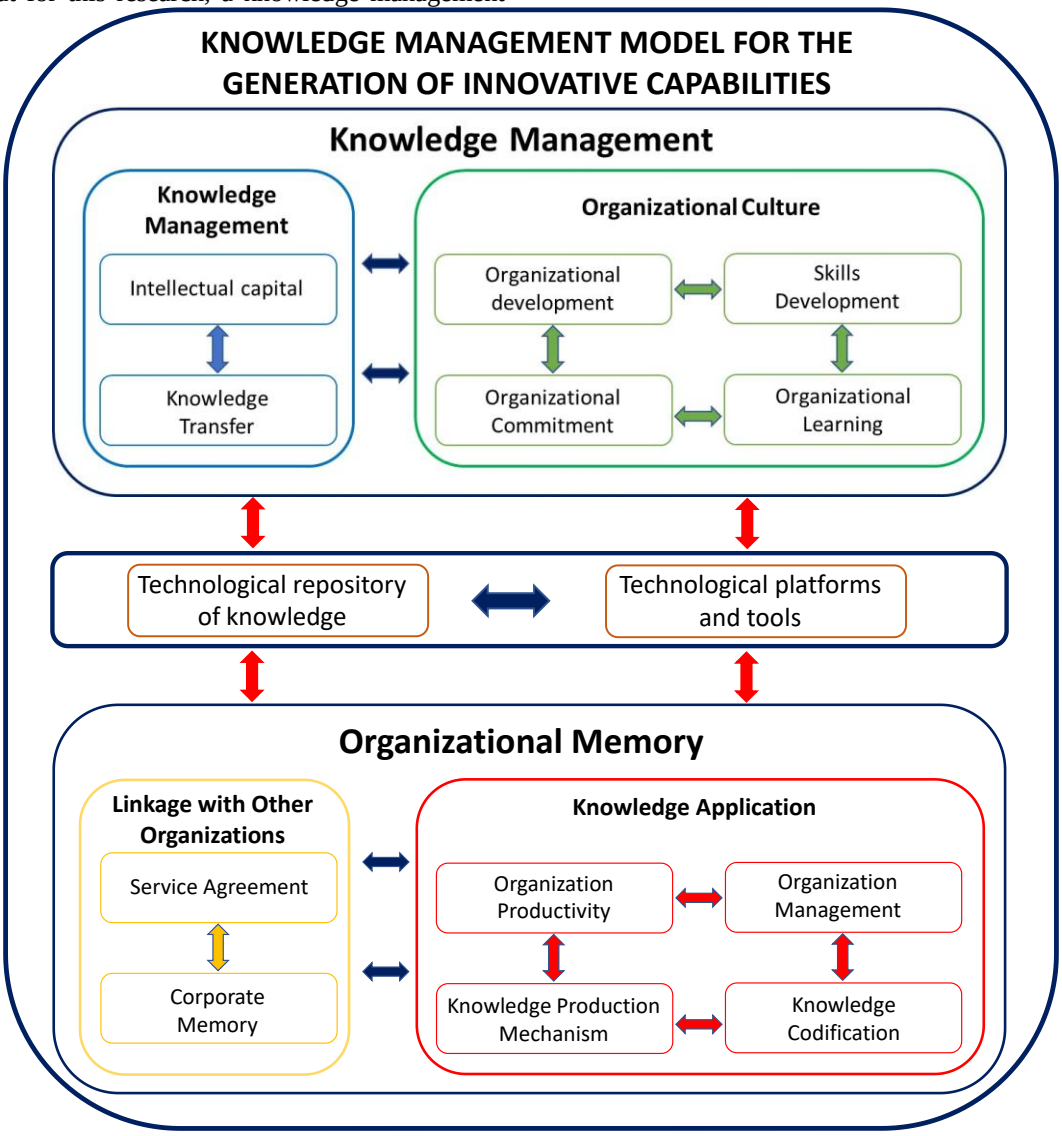

Fig. 2. Knowledge management model for the generation of innovation capabilities in organizations that provide technological service.

Each of the processes with their respective sub-processes is described below:

1) Knowledge management macroprocess

a) Process: Knowledge Management

Sub-process: Intellectual Capital

The strategic actions required for this subprocess are mentioned below:

1) Increase individual capacities through the encouragement and support of their staff to carry out post-graduate studies and/or updates

2) Guide the generation of knowledge to the needs of the environment.

3) Use the investigations carried out by the personnel who work within the organization.

4) Guide the production of knowledge to the solution of customer problems.

5) Establish knowledge-exchange relationships with other institutions in the area.

6) Establish policies for knowledge management.

7) Relate knowledge management to the organization's exchange strategies.

8) Guide the generation of tacit and explicit knowledge in the creation and capture of the same.

9) Establish the generation of knowledge due to the functions of the personnel that make it up .

*10)*Establish the order of knowledge in the organization that generates it.

*11)*Classify knowledge according to its content.

Sub-process: Knowledge Transfer

The strategic actions required for this sub-process are mentioned below:

1) Spread knowledge both internally and externally.

2) Share the knowledge produced to improve professional practice.

3) Establish the dissemination of knowledge generated by the staff working in the organization.

b) Process: Organizational Culture

Sub-process: Organizational Development

1) Relate the shared values with the management philosophy of your clients.

2) Operationalize shared values through productivity.

3) Guide the self-development of workers in relation to the needs of their clients.

4) Guide the self-development of workers in relation to personal skills.

Sub-process: Organizational learning

1) Link competencies related to knowing how to know with individual expectations.

2) Recognize the importance of organizational learning for knowledge management.

3) Spread knowledge and share best practices through workers

4) Relate the exchange strategies of the organization with knowledge manage-ment.

Sub-process: Corporate commitment

1) Develop a training plan aimed at organizational development and knowledge management.

2) Establish common protocols and standards for the production of knowledge

3) Evidence the organizational commitments in the production of knowledge.

4) Show individual commitments in the production of knowledge.

Sub-process: Competence development

1) Link the competences related to know-how with the capacities of the personnel, for the correct generation of knowledge.

2) Orient the competences related to know-how towards the ideal performance.

3) Link the competencies related to knowing how to know with the requirements of a particular situation.

Likewise, from the organizational memory macroprocess, two (2) processes emerge, such as: Application of knowledge and Linkage with Other Organizations. The Knowledge Application Process through the Management of the organization under study, was made up of the sub-processes (with their respective strategic actions): Productivity, Organization Management, Knowledge Production Mechanism, and Knowledge Codification. The Linkage process with other organizations was made up of the sub-process: Services agreement and Corporate Memory. Each of the strategic actions grouped into the corresponding sub-processes is described below:

2) Organizational memory macroprocess

a) Process: Application of Knowledge

Sub-process: Productivity of the Organization

1) Guide operational processes through the management responsible for knowledge management.

2) Include knowledge delivery mechanisms in the organization responsible for knowledge generation.

Sub-process: Organization Management

1) Add value to processes and results through the generation of innovative knowledge.

2) Promote and maintain cooperation with public and private institutions in-volved in national development.

Sub-process: Knowledge Production Mechanism

1) Establish an administrative structure for the registration of knowledge pro-duction.

2) Include knowledge production mechanisms in the different processes that make up the organization.

Sub-process: Codification of Knowledge

1) Codify the knowledge generated based on each product or service provided.

Sub-process: Investigation

1) Develop an adequate inventory of the knowledge production of the different processes that make up the organization.

2) Establish a human resource training process for Management based on the priorities of its clients.

b) Process: Linkage with Other Organizations

Sub-process: Acuerdo de Servicios

1) Establish cooperation agreements for the transfer of knowledge

Sub-process: Memoria Corporativa

1) Incorporate ICT for the storage and management of knowledge

The model embodied considers the technological platform as a fundamental pillar for the correct management of knowledge. The model is part of the contribution of IT in each process that makes up the organization under study, which will allow knowledge to be generated due to the functions of the members of the organization under study, for which standard processes are required for their management, which is specified in: capturing and creating knowledge; classify, order and encode to transfer, disseminate, and share it in a common language; thus, it is possible to objectify it,, separate it and group it according to common characteristics of the organization.

In relation to the Organizational Culture for knowledge management, priority should be given to the characteristics of people and organizations such as: self-development, values, learning and sharing skills, as well as knowing, knowing how to do, and organizational exchange strategies; likewise, to the human asset, organizational development and organizational learning.

The Knowledge Management and Organizational Culture components are derived from the proposed Knowledge Management model, and both components interact with the possibility of being improved and affected. This is because knowledge management is an organizational process of intellectual capital, which is made up of human, structural, and referential capital.

The effectiveness of the knowledge put into action by the Management of the organization under study must be oriented by reason of the organization's mission. For the quality of knowledge, emphasis should be placed on the following: staff training regarding the social reality of the industry and the country and thus achieve a rational use of knowledge, have a standard structure and a system of indicators to measure and evaluate the added value of the knowledge managed by the Management.

B. Proposed Knowledge Management Maturity Model

For the implementation of the proposed model, a maturity model for knowledge management was developed, which is made up of five levels, as can be seen in Fig. 3. Each level reflects the state in which the organization is with related to knowledge management.

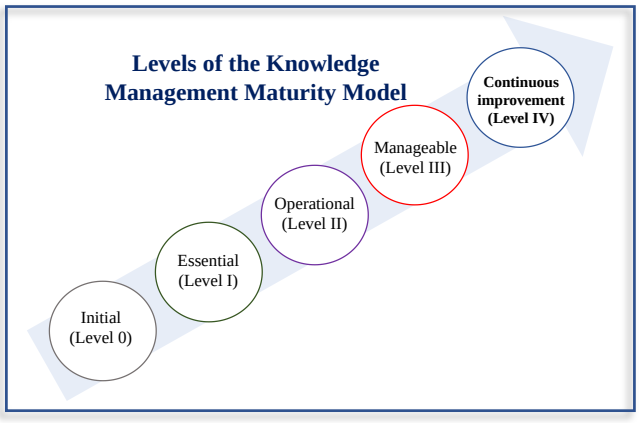

Fig. 3. Levels of the proposed maturity model for knowledge management. Adapted from Ronceros and Arias (2022).

Each stage reflects a state of maturity that is manifested through a set of characteristics (see Table I), which define the scale of the organization, which is visible through a process of evaluation and feedback as progress is made in its implementation.

TABLE I. MATURITY LEVELS

Maturity levels		
Level	***Name***	***Features***
I	Initial	There are no defined standard processes or methodologies for knowledge management.
		Knowledge management processes are not used or are used very little.
II	Essential	Fundamental processes for knowledge management defined and implemented.
		Tools implemented for the generation and dissemination of knowledge.
		Defined Roles and Responsibilities.
		Establishment of a standard communication scheme.
III	Operational	Defined, documented and integrated standard processes for knowledge management.
		Establishment of methodologies for the generation of knowledge
		Using the standard communication scheme.
		Quality Assurance in the generation and dissemination of knowledge.
		Processes for the generation of knowledge used by most of the organization's personnel.
		Training process based on the career plan
		Particular management for corrective actions.
IV	Manageable	Standardized and configured processes for the generation of knowledge.
		Historical database structure with

Maturity levels		
Level	***Name***	***Features***
		information on the different processes, lessons learned and metrics available to the entire organization.
		Evaluation of the processes involved in the generation and management of knowledge.
		Knowledge management tools integrated with corporate systems
		Identification, definition and documentation of critical success factors known by all members of the organization
V	Continuous improvement	Permanent evaluations and improvements in knowledge management
		Review and update of staff training plans
		Improvement of the instrument for measuring the maturity of knowledge management
		Evaluations and implementation of improvements to the methods and tools used for the generation and management of knowledge

V. DISCUSSION

The selected models were compared on the basis of their operation, intervention strategies for the generation, sharing, dissemination and internalization of knowledge. The comparative analysis of the knowledge management models and the selected learning models was carried out based on the descriptors base or foundation, Strategies for the generation and dissemination of knowledge, Organizational culture, participants and use of technologies; on which the following findings were obtained:

- Base or foundation: some models are based on the conversion of tacit knowledge and organizational knowledge on individual knowledge; others establish their operation in the culture of the organization and the commitment of the people who are part of it; another model is based on understanding different learning strategies by planning learning strategies to achieve learning conditions and objectives, in order to apply their knowledge and conceptual understanding to organizational problems.
- Strategies for the generation and dissemination of knowledge: the intervention strategies used in the different models for the generation, sharing, dissemination, and internalization of knowledge were evaluated. Saint-Onge (1996), bases his strategy on the fulfillment of corporate objectives through intellectual capital. Leif and Malone (1997) propose the creation of knowledge from the integration of human capital, structural capital, and client capital. Sveiby (1997) focuses on the cause and effect relationships between human capital, structural capital and relational capital. Bueno (1998), focuses on aligning the intellectual capital of the organization with the company's strategy. Tejedor and Aguirre (1998), the model guides its strategies in the strategic direction through competencies. Andersen (1999), the model establishes its strategies aimed at the measurement and management of intellectual capital in organizations. Andersen and APQC (1999) are based on facilitating the flow of knowledge from individuals to the organization and back to individuals. Nonaka and Takeuchi (1999) proposed the creation of knowledge maps for the generation of tacit knowledge. Molina (2002), establishes learning communities and good practices for the generation of knowledge, assistance meetings, and help among the participants. Duran (2004) established the creation of forums for debates, meetings, and seminars among the participants to facilitate the generation of knowledge. Stallis and Jones (2002) and De Tena (2004) are based on the generation of knowledge maps for the creation of knowledge based on knowledge communities. Arciénaga et al. (2018) propose the creation of combined knowledge, through cooperative, learning, and work-based strategies.
- Organizational culture: Participation of the organizational culture in the processes of knowledge creation and management. The models proposed by Saint-Onge (1996), Leif and Malone (1997), Sveiby (1997), Bueno (1998), Tejedor and Aguirre (1998), Andersen (1999), and Andersen and APQC (1999), Stallis and Jones (2002), do not consider organizational culture in their model. Nonaka and Takeuchi (1995), De Tena (2004), Molina (2002), and Duran (2004), require for their operation that the culture of the organization pro-motes the sharing of knowledge among its members. Arciénaga et al. (2018) consider culture as a central point and a systemic factor in any discussion about the development of new knowledge or innovation.
- Participants: The different models consider the members of the organization responsible for the generation and development of knowledge creation and management systems.
- Use of Technologies: the role of technology in each of the evaluated models is slightly present in management, but is not present in the generation of knowledge. The Arciénaga et al. (2018) model establishes the use of ICTs for the generation and transfer of knowledge that allows innovation.

The models analyzed above mention that they use strategies for knowledge management, one group uses strategies that are oriented towards the identification and location of organizational knowledge, and another group uses strategies aimed at generating, disseminating and internalizing the knowledge that exists within the organization. each individual who works in the organization, however none of the models detail the strategies used or indicate the activities that involve these strategies, that is, they do not have a detailed scheme for the execution of the model unlike the proposed model where it is proposed a strategic structure that includes an execution scheme of the macro activities that make up each sub-process which in turn make up the macro processes of the model, in which 40 macro activities are involved.

Less than 30% of the models analyzed consider organizational culture as a fundamental basis for knowledge

management. However, it is not reflected in the model schematic. The organizational culture is a fundamental basis in the generation and management of knowledge, which is why in the proposed model it is considered as a process made up of four macro activities, being a main link of the model. In order to guarantee the alignment of the organizational culture to the proposal of knowledge management, the proposal of the maturity model of knowledge management composed of five levels was developed, in order to obtain a diagnosis of the state or level in which the organization is located. organization in relation to knowledge management in order to make the corresponding adjustments to the organizational culture to facilitate the success of the implementation of the knowledge management model. In this order of ideas, less than 40% of the models analyzed mention information technology for the transfer of knowledge and less than a third of this percentage indicates it in their scheme. However, the use of information technologies is not considered in the stages prior to the transfer of knowledge, which could be considered a weakness of these models. The proposed model considers the use of technologies in each of the phases of knowledge generation and management in organizations.

VI. Conclusion

Knowledge Management should be understood as the process within the organization aimed at creating a culture of sharing knowledge that has been acquired outside of it or that has been generated within it, with the purpose of being used by all members of the organization. organization, in order to encourage it to be more competitive through the generation of innovative processes, products and/or services. In this context, the proposed model:

- Generates value through knowledge management in all processes that are part of the organization, supported by communication as a process where the receiver is of great importance in the development of knowledge and its dissemination to its collaborators and clients.
- It is supported by concepts such as intellectual capital, knowledge management and organizational culture. Therefore, it translates into the need to develop the intellectual capital of the organization under study.
- It is a strategic process since it contributes to the generation, recruitment, organization, dissemination and use of intellectual capital, which allows the creation of a sustainable competitive advantage in organizations.
- Provides a new approach to guide the organization to improve its function; establishing the essential parameters for the generation, treatment and transfer of knowledge, which can later be used within the organization.
- It allows establishing the framework on which the organization can improve the work performance of the workers, as well as safeguard all the necessary knowledge for the full operation of the organization, strengthening the work groups that are in charge of solving problems and preserving the information.
- It allows contributing to the constitution of teams or working groups for the transfer of information and problem solving, directly strengthening the inter-personal relationships between the members of the organization and between them and their clients.
- It allows organizations to improve organizational performance, since its application directly contributes to the performance of the organization, which translates into more efficient employees and therefore a more profitable company.
- It provides a maturity model made up of five levels that allow measuring the relationship level of knowledge management within the organization, important information for the application of any knowledge management model.
- The proposed model is oriented to organizations that provide services; however, it could be considered to be implemented in other types of organizations. In this sense, the authors consider its implementation in a production organization for further studies to measure its level of effectiveness and its impact on knowledge management.

References

[1] A. Hayfa, A. Abdullah, and A. Blaqees. “The Impact of Knowledge Management on Organizational Performance” International Journal of Advanced Computer Science and Applications(ijacsa), 9(4), 2018. http://dx.doi.org/10.14569/IJACSA.2018.090432

[2] K. North and R. Rivas. Gestión del conocimiento. Una guía práctica hacia la empresa inteligente, Libros en red, 2008. México.

[3] P. Drucker. La gerencia en la sociedad futura. Grupo Editorial Norma, 2002. Bogotá.

[4] R. Ngah, T. Tai, and N. Bontis. Knowledge management capabilities and organizational performance in roads and transport authority of Dubai: the mediating role of learning organization. Knowl. Process Manag. 2016. 23, 184–193. https://doi.org/10.1002/kpm.1504

[5] F. Liu, D. Dutta, and K. Park. From external knowledge to competitive advantage: absorptive capacity, firm performance, and the mediating role of labour productivity. Technol. Anal. Strateg. Manag. 2020. 1–13. doi: 10.1080/09537325.2020.1787373

[6] H. Zaim, S. Muhammed, and M. Tarim. Relationship between knowledge management processes and performance: critical role of knowledge utilization in organizations. Knowl. Manag. 2019. Res. Pract. 17, 24–38. https://doi.org/10.1080/14778238.2018.1538669

[7] Wahda. "Mediating effect of knowledge management on organizational learning culture in the context of organizational performance", Journal of Management Development, 2017. Vol. 36 No. 7, pp. 846-858. https://doi.org/10.1108/JMD-11-2016-0252

[8] L. Namdarian, A. Sajedinejad & S. Bahanesteh (2020). The impact of knowledge management on organizational performance: a structural equation modeling study. ad-minister

[9] M. Zabaleta, L. Brito, & M. Garzón. Knowledge management model in the ICT area for a Colombian Caribbean university. Lasallian Research Magazine, 2016. 13(2), 136-150. https://doi.org/10.22507/rli.v13n2a13

[10] D. Rubier. The incidence of knowledge management in the success of organizations. Cooperativism and Development, 7(3), 392-405. Epub 2019. Retrieved on May 14, 2022, de http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2310-340X2019000300392&lng=es&tlng=es.

[11] D. Valdés. The incidence of knowledge management in the success of organizations. Cooperativism and Development, 2019. 7(3), 392–405. http://coodes.upr.edu.cu/index.php/coodes/article/view/269

[12] E. Agudelo, y A. Valencia. Knowledge management, an organizational policy for today's company. I will engineer. Chilean engineering magazine, 2018. 26 (4), Chile. (Pp. 673-684). http://dx.doi.org/10.4067/S0718-33052018000400673

[13] V. Pérez, and M. Flores. Theoretical models of knowledge management: descriptors, conceptualizations and approaches. Entreciencias: dialogues in the Knowledge Society, 2016. 4 (10), México. (Pp. 201-227). https://doi.org/10.21933/J.EDSC.2016.10.181

[14] F. Muñoz. Knowledge management, need or added value? Science and Air Power, 2017. 12(1), 276–286. https://doi.org/10.18667/cienciaypoderaereo.578

[15] Á. Fidalgo-Blanco, M. L. Sein-Echaluce, & F. J. García-Peñalvo. Knowledge Spirals in Higher Education Teaching Innovation. International Journal of Knowledge Management, 2014.10(4), 16-37. https://doi.org/10.4018/ijkm.2014100102

[16] C. Pons, O. Molina, L. Ruiz, V. Medero, & S. Rodríguez. Use of ICT for knowledge management and its contribution to agri-food development. Cuban Journal of Informatics Sciences, 2017. 11(3), 114-125. Retrieved on August 30, 2022, from http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2227-18992017000300010&lng=es&tlng=es.

[17] N. Silva, & D. Torres. Knowledge Audits and strategic knowledge management. Scope, 2018. 7(18), 138-152. Epub 27 de junio de 2019. Retrieved on August 30, 2022, http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2411-99702018000300138&lng=es&tlng=es.

[18] K. Asma and M. Abdellatif. A New Model for the Impact of Knowledge Management on University Performance. Journal of Information & Knowledge Management. 2016. Vol. 15 N° 4, pp. 1650041. https://doi.org/10.1142/S0219649216500416

[19] E. Byukusenge, & J. C. Munene. Knowledge management and business performance: Does innovation matter Cogent Business & Management, 2017. 4(1), 1-18. https://doi.org/10.1080/23311975.2017.1368434

[20] L. Pedraja, E. Rodríguez, & J. Rodríguez. The influence of knowledge management on organizational effectiveness: A study in public institutions and private companies. Magazine of the Faculty of Engineering University of Antioquia. 2009. 47, 218-227

[21] L. Afshari, A. Nasab, and G. Dickson. Organizational culture, social capital, and knowledge management: An integrated model. International Journal of Knowledge Management. Volume 16, Issue 2, April-June 2020, Pages 52-66, doi: 10.4018/IJKM.2020040104.

[22] J. González Millán, and L. Álvarez Castañón. Knowledge management and open innovation: Towards the formation of a theoretical relational model. Revista Venezolana de Gerencia. Volume 24, Issue 88, 2019, doi: 13159984.

[23] D. Rubier. The incidence of knowledge management in the success of organizations. Cooperativism and Development, 7(3), 392-405. Epub 2019. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2310-340X2019000300392&lng=es&tlng=es

[24] I. Nonaka, H. Takeuchi. Knowledge creation process. 2004. Available Online at: http://www.gestiondelconocimiento.com/modelo_nonaka.htm.

[25] M. Guerrero. Knowledge management in companies, its importance and dependence on the leadership style of senior management. INNOVA Research Journal, 2016. 1(1), 1-7. https://doi.org/10.33890/innova.v1.n1.2016.2

[26] C. Li, S. Ashraf, F. Shahzad, I. Bashir, M. Murad, N. Syed, and M. Riaz. Influence of Knowledge Management Practices on Entrepreneurial and Organizational Performance: A Mediated-Moderation Model. Frontiers in Psychology. Volume 11, 3 December 2020, Article number 577106.

[27] F. Alhamdi. Impact of Knowledge Management Models on Entrepreneurial Organizations and Mediating Role of Strategic Entrepreneurship: An Exploratory Study of Asiacell Mobile Communications, Iraq. Eurasian Journal of Educational Research. Volume 2022, Issue 98, 2022, Pages 147-164, doi: 10.14689/ejer.2022.98.010.

[28] I. Nonaka y H. Takeuchi. The Knowledge-Creating Company. 1995. New York Oxford. Oxford University Press.

[29] R. Bustelo and I. Amarilla. Knowledge management and information management. 2001. Retrieved from http:// www.intercontact.com.ar/comunidad/archivos/ Gestion_del_Conocimiento-BusteloRuesta-AmarillaIglesias.pdf

[30] E. Agudelo, and A. Valencia. La gestión del conocimiento, una política organizacional para la empresa de hoy. Ingeniare. Revista chilena de ingeniería, 26(4),673-684. 2018. https://dx.doi.org/10.4067/S0718-33052018000400673

[31] R. Kumar. Assessing The impacto of knowledge management on innovation: An empirical study. Prestige International Journal of Management & IT-Sanchayan, 8(1), 1-14. 2019.

[32] N. Nguyen, A. Pham, & T. Thang. Knowledge acquisition, knowledge management strategy and innovation: An empirical study of vietnamese firms. 2020. Cogent Business & Management, 7(1), 1-14.

[33] L. Giraldo, and D. Montoya. Aplicación de la metodología Commonkads en la Gestión del Conocimiento. Revista CEA, 2015. 1(2), 99-108. doi: https://doi.org/10.22430/24223182.133

[34] M. Abubakar and H. Elrehail. Knowledge management, decision-making style and organizational performance. Journal of Innovation & Knowledge, 4 (2), 2019. España. (Pp.104-114). https://doi.org/10.1016/j.jik.2017.07.003

[35] A. Alfaro-Ramos, and J. Ferreras-Méndez. Knowledge management and intellectual capital in the business model innovation of Costa Rican manufacturing firms. Tec Empresarial. Volume 16, Issue 2, 2022, Pages 18-33, doi: 10.18845/te.v16i2.6168

[36] M. Wang, and T. Yang. Investigating the success of knowledge management: An empirical study of smalland medium-sized enterprises. Asia Pacific Management Review, 2016. Vol. 21. No 2, pp: 79–91. Disponible: http://dx.doi.org/10.1016/j.apm-rv.2015.12.003.

[37] A. Calvo-Mora, A. Navarro-Garcia, M. Rey-Moreno, and R. Periañez-Cristobal. Excellence management practices, knowledge management and key business results in large organizations and SMEs: A multi-group analysis, European Management Journal, 2016. Vol. 34. No 6, December, pp: 661-673. Disponible: http://dx.doi.org/10.1016/j.emj.2016.06.005.

[38] L. P. Vargas, C. V. Durán, and J. C. Méndez. Innovation and Knowledge Management for the Increase of Business Productivity. Memories (0124-4361), 2016. Vol. 14. No 26, pp: 1-41. Disponible: doi:10.16925/me.v14i26.1571.

[39] J. Acosta, and A. Fischer. Conditions of knowledge management, capacity for innovation and business results. An explanatory model. Thinking & Management, 2013. Vol. 35, pp: 25-63.

[40] C. Cvitanovic, A.J. McDonald, A.J. Hobday. From science to action: Principles for undertaking environmental research that enables knowledge exchange and evidence-based decision-making, Journal of Environmental Management, 2016. Vol. 183. Part 3, pp: 864-874. Disponible: https://doi.org/10.1016/j.jenvman.2016.09.038.

[41] L. Gómez-Bayona, E. Londoño-Montoya, & B. Mora-González,. Intellectual capital models at the business level and their contribution to the creation of value. Revista CEA, 2020. 6(11), 165-184. https://doi.org/10.22430/24223182.1434