1 Introduction

One of the most fundamental processes for the formation and support of society is communication. Whether oral, written or of any other nature, it bases any and all relationships between human beings and will guide everything from the creation of cultures to the most diverse social dynamics. Taking this as a starting point, it is also possible to argue that communication, as it is the transmission of information, ideas, emotions, and skills, through words, symbols, and others (Berelson & Steiner, 1964). It is inherently linked to business, as these are dependent on social relationships, inside and outside organizations. It is also what allows the process of generating and managing knowledge that, according to Nonaka et al. (2014), will lead to innovation and subsequently ensure the sustainability of the business.

Communication precedes all actions, therefore, for organizations, it is extremely important, as it will support the achievement of their goals, as it serves not only for the simple exchange of information, but also for persuasion, motivation, and the mutual understanding of the parties involved (Genç, 2017). And yet, according to Castells (2010), as the global economy is determined by the flow and exchange of information, cultures, and capital, it is necessary that organizations can effectively appropriate communication so that they are actually included in their markets and in the world. Thus, the importance of studying communication in the business context is perceived, as well as the understanding of the extent of its consequences within this environment.

The processes of communication of an organization can be many and occur both externally, as internally. Externally, there are relationships with suppliers, customers, partners, or other stakeholders, while internally, there are relationships between peers, superiors, or subordinates. The possible consequences of these different communication relationships are multiple and extremely powerful as they can significantly interfere in business results, improving or worsening the productivity and performance of any organization (Turaga, 2019).

In this work, the focus is placed on the internal communication of organizations, more specifically in relation to the communication process that takes place between peers within the innovation teams and its possible consequences. This because, in addition to being considered the engine of development (Schumpeter, 1934), innovation is based on the processes of communication and knowledge creation and management.

This fact is reinforced by Nagano, Stefanovitz and Vick (2014) who state that for innovation to occur, a set of interactions between human factors and other elements is necessary. These relationships, which are based on communication, constitute a process of production and mediation of knowledge since it goes beyond the simple transmission of information and occurs only when there is understanding, interpretation and application of past and received data (Lee & Yang, 2000). Therefore, it can be comprehended that efficient communication is the pillar for the construction of this knowledge, which, according to Nonaka et al. (2014), will be the real source of innovation.

This creation of knowledge generated within organizations came to be seen as a competitive advantage in business only in the 1990s (Von Krogh, Ichijo & Nonaka, 2000). And, since then, knowledge has become a resource, in fact, significant, since we are living in a knowledge society (Drucker, 1993). With that, there was the necessity to be able to organize, or even manage, the knowledge so that it could be put into practice and bring the expected results to the business.

Thus, with this context as a background, this work explores the role of practices of communication for knowledge creation and management. Likewise, it studies the

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communication process of teams and also tries to understand how these communication practices can influence the innovation of organizations.

This work intends to propose some an artifact to optimize the knowledge management process and the communication processes of teams in retail business that deal with innovation. Therefore, the work uses Design Science Research - which is a method that seeks to generate solutions that are useful and can, after tested and validated, expand the knowledge about the context in which is applied (Manson, 2006). The choice of this method fits in this study since it doesn't seek only academic relevance, but also its applicability in the professional sphere (March & Smith, 1995).

Aiming at greater relevance for the artifact to be proposed and taking into account that the business area is quite vast, the focus of this study is on the retail market, which is the part that links products or services from different sectors economical to the final consumer (Bastos, Feldmann & Dias Fouto, 2014). Due to its broadness, this market always tends to be impacted by numerous factors, whether economic, technological, social, political, cultural, or even legislative, which can generate uncertainty and instability, as well as a great need for adaptation on behalf of companies of this sector (Bălăşescu, 2018). Therefore, since there is this great and constant need to innovate so that they can meet the growing demands of their customers and succeed in the current market (Kovač, Babić & Bajkovec, 2016), retail companies are extremely dependent on their innovation teams to maintain their value to customers and business partners.

2 Theoretical Review

2.1 Communication

Communication is at the base of society, as it is present in any interaction between individuals. Its importance is such that there are several definitions to explain this process. One of the most comprehensive, or one that manages to account for the magnitude of the term, is from Berelson and Steiner (1964) in which *"communication is the transmission of information, ideas, emotions, skills, etc. through the use of symbols, words, pictures, images, graphics, etc. It is the act or process of transformation that is usually called communication."*

It is understood that for every communication process, the structure must always present a source that will transmit the information, followed by a recipient who will receive it and later, according to their knowledge, interpret the received message. Thus, we realize that the purpose of the communication process is to exchange or share information of the most diverse types through multiple means.

Therefore, it is noted that it can be written, spoken, illustrated, among others. According to Garcia (2015), communication is a reciprocal social act that uses signals in different ways, in addition to being a process of production and mediation of knowledge. For Luhmann (2002), one should never speak of action first, but of communication, since it is this operation that inevitably happens whenever social situations arise. So, it is through communication that the most diverse social ties, cultures and also businesses are generated.

Good communication is important for any business. According to Boone, Kurtz, and Block (1997), business communication is defined as "the communication necessary for an organization both in its internal and external environments". It is a vital process that allows the organization to materialize and achieve its objectives, as it is designed to inform, convince, motivate, and provide mutual understanding (Genç, 2017).

Since we are in the so-called "Information Age", in which the global economy is determined by the flow and exchange of information, cultures and capital, the importance of

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the communication process is growing (Castells, 2010). Thus, organizations can effectively master communication so that they are actually included in their markets and the world. After all, despite its simple concept, Luhmann (2002) highlights that it is possible to communicate the understanding and the misunderstanding, meaning that the exchange of information does not always happen effectively.

In the same way that effective communication interferes with the productivity and efficiency of an organization, it is still possible to say that it is also the pillar for the sustainability of a business. It is quite difficult to implement changes in terms of making the organization more sustainable when there is an absence or failure of internal communication or even a lack of a common understanding of the values and concrete objectives that must be achieved by the company to achieve sustainability. So, communication must, in addition to simply transmitting information, also establish social transformation for sustainable development (Genç, 2017).

It is important to emphasize that communication processes within businesses, as they are the activity predominantly carried out within an organization, can be presented in different ways, but with a very similar degree of importance (Muscalu, Todericiu & Fraticiu, 2013). It is possible to talk about a type of formal communication that deals with that process that is made to provide information that is linked to the work and objectives of the organization. While there is also informal communication that is constituted in this way by the character of the messages it transmits (Winarso, 2018).

Although fundamental and defining within an organization, the formal communication network, by itself, is incapable of dealing with all the uncertainties and informational deficiencies that arise between the members of a business. This way, formal and informal communication networks complement each other by bringing explanations and interpretations that one or the other can miss, which will result in a better understanding among collaborators (Driskill & Goldstein, 1986).

2.2 Knowledge Management

Since the '90s, the topic of knowledge management became important, many specialists, managers and other professionals began to consider knowledge as a competitive advantage in business (Von Krogh, Ichijo & Nonaka, 2000). And due to the growing importance of this subject, it is essential to first conceptualize what knowledge is. For Lee and Yang (2000), this term is more than simple information, which would be just data organized in patterns with some meaning. Knowledge is, therefore, when there is reading, understanding, interpretation and application of information. Knowledge is more than information and it only becomes visible when it is put into practice. Von Krogh, Ichijo and Nonaka (2000) add that knowledge is extremely significant and difficult to define, it gains meaning by the way it is used.

In business, knowledge can be divided into two categories: explicit and tacit. When we talk about the first one, we discuss the type of knowledge that can be transmitted more easily through drawings, explanations, and sentences, that is, more formal and systematic. When we talk about the latter, we are analysing something that is not easily visible or transferable, a type of knowledge that is more linked to the senses, skills, individual perceptions, physical experiences, practices, and intuition (Nonaka & Takeuchi, 1995). These two categories make up the so-called "knowledge spiral" proposed by Nonaka and Takeuchi (1995), which is composed of four processes - socialization, externalization, combination, and internalization - these processes will result in the progressive growth of individual and collective knowledge, so it takes the form of a spiral as represented in figure 1.

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Figure 1 – Knowledge Spiral
Source: Trierveiler, Sell and Pacheco (2015).

It is important to explain each of the stages of the spiral of knowledge proposed by the authors. It cannot be said that there is a beginning phase, since these are continuous, so an explanation about the moment of socialization is first proposed. At this stage, what exists is a sharing of practical knowledge, usually exchanged through dialogues, direct experiences, or observations. Soon after, the externalization phase takes place, in which there is a movement of crystallization of the previously exchanged practical wisdom. At this point, writing and its variants can be used to enable the generation of this new explicit knowledge. By following the flow presented by Nonaka and Takeuchi (1995), the phase that continues the spiral is the combination.

At this point, we have the most formalized part, in which explicit knowledge is exchanged through documents, meetings and other formal practices that intensify what was previously consolidated. And finally, the internalization stage will bring all those already crystallized knowledges into the realm of tacit knowledge. In this part, following what is already stated and explained, the idea is to create new knowledge through practice. So, these are the four stages constitute a cycle that repeats itself and allows for the permanent acquisition of more knowledge throughout social interactions within organizations.

When dealing with Knowledge Management, Lee, and Yang (2000) present some methods for the creation, dissemination, and management of knowledge so that organizational objectives can be met. However, according to Von Krogh, Ichijo and Nonaka (2000), knowledge cannot be managed, only enabled/trained within organizations. This is because the term management carries in itself an inherent part of process control, which is not possible with knowledge since it goes beyond any control possibility. So, according to the authors, what should be done is the promotion of knowledge creation or, as the authors called it, its qualification through the steps proposed in the spiral.

2.3 Innovation

In business, innovation has become the pillar of every organization (Du Plessis, 2007). According to Nelson (1993), it is the process in which new product designs and new manufacturing processes are put into practice by the company and this is important because "innovation is the main strategic option to leverage the competitiveness of companies" (Proença et. al. 2015). For Du Plessis (2007), organizations need to ensure that their strategies are innovative to create and maintain competitive advantages, which is quite complex since there is a growing increase in the amount of available knowledge, which is the basis of innovation.

For the innovative process to be successful, it is, therefore, necessary to be able to identify and manage the wealth and reach of this knowledge.

Innovation plays a fundamental role in the sustainability of organizations. Whether through its essence, which is the introduction of the new things – new products, services, business models or markets, as stated by Schumpeter (1934) and, more recently, by the Oslo Manual (2004). Or through its application and function within the business, as stated by Du Plessis (2007) when he says that innovation would be the backbone of every organization. Finally, it is the innovation that will keep companies looking ahead and seeking updates that can keep them active in the market.

Nonaka et al. (2014) say that the real source of innovation comes from the social and dynamic practice of knowledge creation and exploitation. Therefore, for there to be innovation in organizations, a set of interactions between human and technological factors and more market and organizational elements is necessary (Nagano, Stefanovitz & Vick, 2014). Since knowledge is the origin of innovation, a process that allows the discovery, learning and application of new technologies and ideas from different sources is necessary (Tang, 2005).

2.4 Integration between Communication, Knowledge Management, and Innovation

Knowledge is fundamental for business, as it is already considered an indispensable asset for organizations. Therefore, there is a need for good management of this resource and efficient communication can help it and also allow the flow of information and intensify its impact. Some of the recent transformations in workspaces, such as the format of offices and other new practices, seek to encourage the sharing of knowledge among employees, since this exchange, as is already known, will lead to greater creativity, more innovation and better performance for individuals, teams, and organizations (Gagné et al., 2019).

The guiding principle for having a good structuring of knowledge is the efficient communication of teams of employees, which is directly linked to the willingness of team members to share what they know with their colleagues. Thus, it is understood that the knowledge management process takes place through sharing and collaboration, procedures in which individuals exchange their knowledge to create new knowledge, donating and collecting information from each other.

In a study on the intersection of the fields of communication, knowledge management and innovation, Machado, Souza and Catapan (2019) define that to work with these themes in a globalized world, it is necessary to involve the discussion of aspects related to technologies that can disseminate knowledge by through innovative tools. Likewise, the authors identified, through their bibliometric analysis, that the approach to these constructs is a multidisciplinary discussion, in which discussions of Social Sciences, Management, Business, Humanities and many other areas intersect. Thus, it was concluded that knowledge networks when connected to communication efficiency can generate assets that are the driving force of innovation in an organization. (Machado, Souza & Catapan, 2019)

One of the possible sources of competitive advantages for businesses is the ability to learn and be able to explore the knowledge generated (Othman & Hashim, 2004). However, for this to occur, a process of dissemination of learning and a subsequent generation of knowledge is necessary, which must leave the individual level and move to an organizational level, which fundamentally depends on the participation, interaction, and communication of the members of the organizations. (Ahn & Hong, 2019). So, it is possible to state that organizational learning presupposes the capture, storage, and dissemination of what is learned.

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Although the great importance of the knowledge generated by organizations is well known, there are still many failures in its apprehension, transformation, dissemination, and application. And without completing these processes, there is no real effect on creating business opportunities or competitive advantages for companies. For this reason, even with extremely sophisticated software for communication and organization of processes, the true use of knowledge is only possible through the sharing of learning that will be based on social interaction processes and on a culture that encourages the propagation of individuals' knowledge through efficient communication (Othman & Hashim, 2004).

According to Othman and Hashim (2004), everything that is learned within organizations must be disseminated by their sectors to facilitate processes, avoid mistakes, and achieve the proposed objectives. However, according to the authors, organizations seem to fail in this aspect repeatedly. This is due to some reasons, including the inability to communicate what was learned. Since there are departmental distances, bureaucracies and vertical structures, there is, as a result of these factors, a discouragement of knowledge flow within organizations, which makes the knowledge sharing process rarer and complex. (Ahn & Hong, 2019).

In this way, it is understood that the structure of organizations should support the learning and dissemination of knowledge through a process of integration and institutionalization of information obtained and understood by their members (Othman & Hashim, 2004). Therefore, it is argued that communication processes are essential for the management of this knowledge, as well as for its composition and implementation. Effectiveness in generating and managing knowledge will have multiple results, which can range from avoiding errors and unnecessary repetition to basing innovation processes.

3 Method

Since the universe of management and organizations is extremely broad and diverse, and it is formed by multiple subjects and practices, it is necessary to apply research methods that can encompass such differences and peculiarities. As Flick (2009, p.37) states, "qualitative research is aimed at analysing concrete cases in their local and temporal peculiarities, starting from the expressions and activities of people in their social contexts."

Thus, because of the need for a future application of the study carried out and a search for its meaning beyond the academic world, the chosen method for this work was Design Science Research (DSR). A method that aims to generate some type of artifact, solution, methodology or procedure for new and practical problems within different contexts (Freitas Junior et al., 2015). The choice of the DSR can also be explained through its presentation, which is based and structured in a reality, in addition to its ability to provide greater validation and a sense of security regarding the effectiveness of the study in the contexts in which it is developed. (Anderson & Shattuck, 2012).

One of the premises of the Design Science Research method is the researcher's action in the study reality, going beyond the simple description of phenomena. The aim is to explore the issues within the field of analysis - in a prescriptive move, whether designing or validating systems that do not yet exist to create, recombine, or alter existing situations (Lacerda et al., 2013). Thus, the DSR must follow a series of procedures that will culminate in the construction and presentation of a solution or improvement of some type of problem (Freitas Junior et al., 2015; Takeda et al.,1990; Vaishnavi & Kuechler, 2004; Manson, 2006). The steps in the process of the method are problem awareness, suggestion, development, evaluation, and conclusion.

Anyway, it is necessary to understand that this research was concerned with the creation of a method, or, more specifically, considering the subdivision brought by Vaishnavi and

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Kuechler (2015), of a framework as a solution to the problem found. The fundamental intention is to have a guide that could help to optimize the knowledge management and communication processes of retail teams. So, it is believed that this type of artifact has a representation that is good enough to accomplish the proposed objective, as well as being able to bring other developments of its content, enabling future expansions of the proposed solution.

4 Analysis and Discussion of Results

This section presents the results obtained from the research carried out. To obtain a better understanding, the data will be described according to the five steps of the DSR research methodology.

4.1 Problem Awareness

The theoretical foundation presented in the second chapter of this work was essential to allow the evidence of the problems raised by the researcher based on empirical observations. Likewise, from the understanding of the research context, the theoretical study shed light on the need to research this intersection between knowledge, communication, and innovation in organizations. Since these areas were presented as essential for both the execution and the unfolding of any organizational process.

From this conceptual panorama created and analyzed, the research followed two movements. The first was the attempt to highlight and explain, with solid theoretical support, the connection of the three concepts that emerged from the learning resulting from investigations in articles and books. Thus, the interaction between communication, knowledge management, and innovation was presented, which highlighted the importance and presence of communication at all stages from the sharing of knowledge, as well as the management of this knowledge - its interpretation and understanding - and, also, innovation - or what would be considered the application of what was learned. This movement allowed the completion of the second research movement: the creation of a script of questions for interviews within organizations.

Due to time constraints and for better use of the study, this analysis was carried out in the retail market. Since this is quite broad, which would provide a good space for research, at the same time it would bring a horizon of organizations in need of adaptation since, due to its scope, this sector is impacted by several factors. Coincidentally, while the survey was being conducted, the retail sector, like many others, was affected by the COVID-19 pandemic that began in the year 2020. This was also a defining and differential factor for obtaining the results and carrying out this study. In addition to being adversity that highlights the importance of this research for better use of organizational advantages arising from efficient communication.

To understand the impact of communicational interaction on the creation of knowledge and innovation in companies, the questionnaire of semi-structured interviews with ten questions was applied with six employees from five different organizations. The plurality of companies was important for reaching and confirming common points within the market chosen for the analysis. And it was possible to understand many similarities between the communication processes performed by the interviewees, regardless of which institution they were part of.

Professionals from the areas of marketing, research and development, innovation and design were interviewed in this study. In this way, it was possible to cover most types of innovation contemplated in the Oslo Manual (2004). As for the number of interviewees, it started with no maximum limit of participants, and the interviews were conducted until there

were enough repetitions or similarities in the answers, which, together with the theoretical basis, indicated consistency in the results found. Therefore, six employees from different companies were able to clearly describe the context, the problems and also the positive aspects of communication exchanges between the retail teams.

The questions asked to the interviewees included the universe of structuring the teams, the dynamics of meetings and also the organization and choice of which type of communication to use. These processes were included in the universe of questions, as they managed to account for all the objectives proposed by this research. Thus, through the proposed questions, it was possible to obtain representative material to understand the functioning, the insufficient points, and the fundamental parts of communication within the retail teams, as well as what could be used as an artifact for optimization of communication processes. It is important to mention that, inevitably, even though the questions did not specify or contemplate in any way the differences between the pre-pandemic and post-pandemic periods, the interviewees were unanimous in citing the differences between the two scenarios. Therefore, the analysis of the responses received took into account all these statements that were made about the current situation of organizations with the arrival of COVID-19.

With the interviews carried out, it was possible to notice that, in the first place, communication processes are, in fact, fundamental and the majority in any organizational routine. It is, therefore, through communication that teams develop and execute their projects, as well as how companies make them official. As a second observation, it is clear that many things are communicated informally and orally and this has a strong impact on the progress of the processes. Since some confirmations, changes and doubts are clarified through this exchange of tacit knowledge of employees without any formalization or registration, it is understood that part of the process of transformation of knowledge present in the organization is no longer used since there is stagnation at this stage, called socialization by Nonaka and Takeuchi (1995) - where there is an exchange of only practical knowledge.

Based on this investigation, a new phase of the study was started. To this end, the theoretical references studied and the results extracted from the interviews were combined to generate suggestions that could deal with the identified problem. And, precisely, by following the steps of the method chosen for this study - Design Science Research, there was an attempt to create an artifact, still in beta version, which could be able to contemplate the findings of this research and propose effective solutions for implementation in companies.

4.2 Suggestion

At this stage, after analysing the results of the interviews and studying organizations in the retail market, there was, first of all, an increase in the understanding of the life cycle of the projects that take place in the daily routine of the teams. According to the literature, a project cycle would normally take place in four stages: beginning, organization and preparation, execution, and closure. However, based on the structures of the teams and the way the interviewees described the performance of their processes, it was noticed that there is, in reality, the application of a slightly more simplified cycle, in which the parts of the first are joined (beginning) with the second stage (organization and preparation). Thus, an alternative project cycle was thought to further help in a better construction of the artifact to be suggested.

This new version considers and describes only three well-defined steps for each project: beginning, execution and closure. For the initial stage, the basic tasks performed were listed, such as the deliberation of tasks, planning, definitions of deadlines and any type of necessary specification. In the next step, execution, in addition to the production itself, confirmations,

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changes, adjustments, research and/or improvements were also included. While at closing, the last step to be done, there are production deliveries, final considerations and also feedbacks, which can be both internal (team and organization) and external (customers, suppliers, etc.).

After this first part of the results, a more in-depth analysis of the communication means used in each of the activities described was carried out. It was identified, therefore, that both in the beginning and in the closure, the chosen types of communication tended to be more formal and resulted in written records. Regarding the start or completion of any work, a common was noticed in all the studied organizations, which is to hold formal meetings with the entire team to start or finish projects. In these meetings, there are presentations prepared for better visualization of the content to be communicated. And, after the discussions at these meetings, there are still records of everything that was decided to make things official and to communicate deliberations, activities, or evaluations. Thus, it is considered that these are stages in which the use of communication is mostly formal and written.

In the case of the execution phase, in which employees will be in charge of the tasks received for the production of deliverables, a significant increase in more informal communication methods was perceived. It was confirmed here that there is a tendency for conversations between colleagues to exchange information about what is being done by each one, as well as to communicate advances and/or obstacles that may arise. Similarly, there are more instant messaging exchanges, calls and research or searches within the team itself or also in other sectors of the company to solve something or help with decision-making movements. All of these devices are considered part of the team's informal communication network. They have no intention of recording or further analysis, they are just part of the team's process and routine. Although they are not within the explicit information scenario, it is important to remember that an informal communication chain is essential for an organization to effectively exchange information, since it complements many meanings and ideas. It will always be necessary to complement formal and informal exchanges for more comprehensive use of shared information. Therefore, the communicative transactions of the execution phase are not underestimated, but rather their importance is highlighted. Since the informal network is also essential for allowing more free expression on the part of employees, which can bring more creativity and also become extremely productive for the business. (Winarso, 2018).

When observing the stages of the projects, their activities, and communicational choices through the lens of the spiral of knowledge proposed by Nonaka and Takeuchi (1995), we notice some incompleteness in the current process carried out by companies. For the authors, there are four necessary stages for knowledge to be acquired and implemented by organizations. The first is the combination, in which the company's employees will exchange and combine their knowledge through meetings, documents, conversations and formalizations. Afterwards, we have the internalization stage in which individuals learn more things during practice, during the process itself. For the third stage, we have socialization, a phase in which the knowledge acquired through the experiences will be exchanged among employees through conversations, informal dialogues, direct experiences, and observations. And, finally, the fourth moment is the externalization of this knowledge, which happens so that everything that has been acquired so far can be crystallized. After this circuit of exchanges and dynamics of knowledge, the authors claim that there is real organizational learning, capable of generating opportunities both for innovation and for obtaining competitive advantages.

Thus, one of the questions that were confirmed after observing the data obtained by the research is how it would be possible to have a better use or even a non-stagnation of knowledge in the socialization part. This is because it was recognized that this is the dynamic established during the project execution stage. Communication exchanges are all done informally so that

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all knowledge remains orbiting tacit knowledge. Thus, it is understood that there is no movement to capture some learnings that may be important or even fundamental for the organization. In other words, it can be said that the stage of externalization of all knowledge is not reached, since all the learnings of the process are not brought for closure. Most doubts are solved through this informal communication, and, in the same way, the decision-making follows this same logic. With this, only the final result of the project is reached, but many of the lessons learned throughout its production are lost. So, some employees will have this knowledge internalized, but as it won't be shared, this can negatively interfere with the possibility of increasing organizational knowledge.

At this stage, before starting the actual development of the solution, it was also thought about what would be the best type of artifact for the problem in question. With the support of the theory and the data obtained, the development of a framework was decided. The intention was that it could contextualize the necessary changes in the existing scenario of the teams' processes. This decision guided the steps at the time of the next stage of the DSR method – development.

4.3 Development

According to Manson (2006) in DSR, the artifact created must be an applied knowledge that can solve problems or even optimize existing processes. With this definition in mind, an attempt was made to generate some reorganizations of activities at different stages of the project cycle. So, in this stage of the method, four versions of possible frameworks were generated. In each of the versions, therefore, the incorporation of a record of doubts, solutions and decision-making that occurred during the execution phase was proposed. The initial idea for the framework was to add a new stage that could be named knowledge formalization.

Still, to adjust the artifact so that it made sense within a real organizational context, some more adjustments were made that took care to incorporate the suggestion presented to the cycle of processes. First, an attempt was made to place the new tasks as common activities of the execution stage. However, this new version seemed to generate a lengthening of the execution step, as it practically doubled the number of activities described in the framework. That said, it was thought that such a presentation could give a negative impression about the extent of this phase, which may, in the end, be harmful to productivity or even confuse employees who are guided by this representation.

The last adjusted version emphasized the disaggregation of actions that would serve to record the knowledge arising from informal communication from the second stage of the project cycle. Therefore, it was decided to insert these actions as a new stage in the circuit. This new phase would be called cataloguing, especially due to its function of generating an organizational knowledge catalogue based on the lessons learned throughout the execution process. In this way, there would be a total of four well-defined and simplified steps to be carried out throughout a project.

With this last adjustment, a more satisfactory result than the previous ones were reached. The idea that a new stage serving to record the knowledge obtained so far could even be considered as the creation of a "ba" that would have the purpose of organizing and generating organizational knowledge through project learning (Nonaka & Konno, 1998). The catalogue to be generated in this new stage was also thought of as an important result for research, as it would serve as a database for future projects. Even if it took place before the closure phase, much of the important data would be recorded there and could even be used for final considerations and feedback for the teams.

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4.4 Evaluation

The next stage of development is the evaluation of the artifact. At this stage, a validation of what is being proposed is sought through a rigorous process of verification of the artifact (Lacerda et al., 2013). In this research, the produced solution produced was assessed through the analysis of market experts. It was believed that, through rationalization and discussion of the suggestions, it would be possible to carry out the necessary changes, as well as to confirm the importance of such production.

For the critical evaluation of the artifact, two specialists were called. The first of them (A1) had extensive work experience, courses, and qualifications within organizations from different sectors. The second specialist (A2) had an extensive trajectory both in the organizational sphere and in the academic setting. It was understood that these specialists could understand the context and the problem studied, as well as make fundamental considerations for the proposed solution, bringing an unbiased and extremely up-to-date point of view due to their daily actions within business and academia. So, it ended up in the final version of the artifact that is represented in figure 2.

In the final version of the proposed framework, while previously, according to the interviewees and the literature, there were three stages in this circuit, with the proposed adjustments after the experts' evaluation, there would be six in total. The configuration of the activities carried out in each phase was maintained. The beginning served to deliberate tasks, plan and talk about deadlines, and the execution kept its character of research, changes, improvements, and production. In closure, the delivery, final considerations, and feedbacks remained the same. Likewise, the communication means were maintained.

There was a reinforcement of the idea that the use of informal communication should not be taken away from the project and the teams at all. Therefore, it continued to represent the use of more formal communication in the beginning and closure stages, while in the intermediate stage of execution, communicational informality would be the main way of exchanging information.
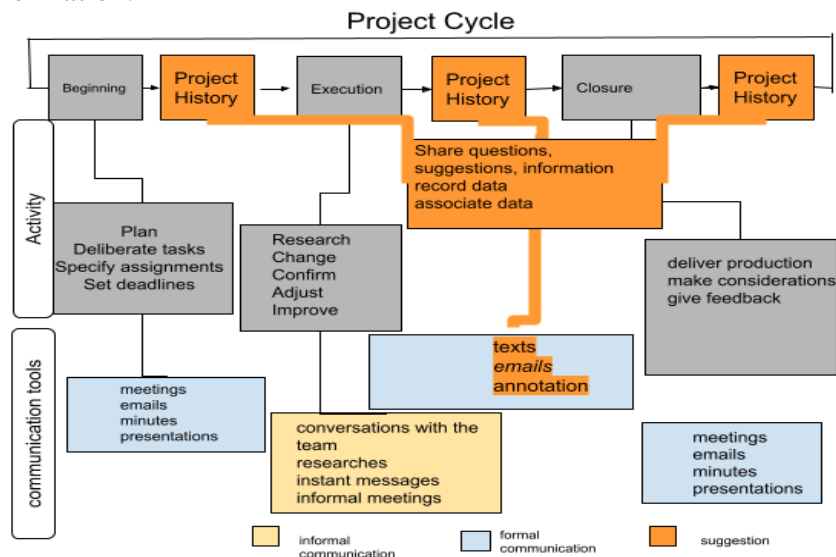
Figure 2 – Final Version of the artifact
Source: developed by the author

New stages within the project cycle were presented so that it could cause a greater understanding of what was seen. Steps of equal importance to those three already mentioned,

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but with the possibility of bringing a new way of organizing the projects, such as changing the communicational culture.

The additional stages were called "project history". The first was located between the beginning and the execution, later there is a similar phase between the execution and the closure and again another one after the closure and before the beginning of another project. It was imagined that in these stages, the collaborators would have space to gather all the information they have about the project, composing its history as thoroughly as possible. Here, everything counts from emails exchanged individually, historical information, project knowledge, various numbers, previous experiences that can help in the new construction, as well as everything that may involve that theme. It is noteworthy that the importance of the term history is fundamental, as it justifies the search for the richness of details and the non-judgment of any mistake or success. The new phases would then work for the gathering and composition of these "stories" which would, in reality, be the complete data of the projects of the organization's teams.

This would start a movement to generate a database with a mostly communicational origin. These records could be kept both physically and digitally, but they should be within the reach of these teams so that consultations of certain decisions or specifications would be possible. With this, the aim is to form explicit organizational knowledge that will streamline team processes. From this, it is possible to increase productivity, as the teams would know the ways to solve possible doubts or impasses. And, once the information sought was not there, a new process would take place and later it would be registered as well. Thus, communication processes would be optimized for the constant generation of knowledge.

With knowledge organized in this way, teams would be less dependent on employees with specific information or unique contacts. As well, they could enjoy their practice and good work, not wasting time on working more than necessary, stuck process or bureaucracy. Likewise, companies could, with the beginning of this new culture, generate more incentives for innovation within teams, as the work would be simplified and there would be space and fertile ground for new exchanges, ideas and, consequently, to innovate.

It is concluded here, therefore, that at the end of the evaluation stage, the artifact in its final version managed to solve all the points that were previously identified as doubts or problems. The studied theory allows the understanding of these stages as "project history" both as "ba" for knowledge exchange, as well as stages that drive the spiral of knowledge. They intend to accelerate the apprehension of everything that has been learned, in the same way, that they will encourage the materialization of organizational knowledge based on the database to be created. With this, we have an ideal space for the development of innovation, due to the acquired knowledge that will generate new doubts, extinguish pointless work, and considerably reduce confirmations of the same processes. (NONAKA; KONNO, 1998) (NONAKA; TAKEUCHI, 1995)

4.5 Conclusion of DSR

Then, at the end of the method steps, it was defined that the new phases included in the project cycle would have the same name "Project History". From this, it would seek to change the organizational culture in an attempt to increase knowledge sharing through organizational exchanges being emphasized and receiving more attention. Finally, it is believed that this change in looking at everything that is communicated can help generate and capture more data in teams, which would consequently generate more organizational knowledge, making room for innovation.

It is also noticed that the proposed artifact has a very important characteristic, as it manages to propose very simple steps that can indicate a change in culture to the organization. since this provides space and time for employees to feel like a necessary part of the teams, and, in addition, create a willingness to participate. Once storytelling becomes a productive part, teams can transfer a habit that was already attached to their members to another level in which everyone, including the company, can benefit from the data. This is fundamental not only for productivity but also for interpersonal relationships, which is an issue that greatly influences the processes.

Putting this artifact into practice, therefore, indicates greater proximity of employees, a greater use of the process that took time and also optimization of everything that was exchanged and learned. Furthermore, these new steps are easy to implement and do not require any kind of change in the organizational structure. The suggested phases can be performed in small or large teams, in vertical or horizontal companies, that is, there are no restrictions. This is one of the facilitating points both for implementation and for taking advantage of the benefits brought by the artifact.

5 Final Considerations

This study sought as to its main objective the proposition of an artifact that could generate an optimization of communication processes in teams in the retail sector. This framework is the materialization of all the paths that were taken during this research. It managed to produce new steps to be included in the cycle of processes of organizations, but not to increase or slow them down, but to, in fact, make better use of everything that is communicated or learned.

One of the most important discoveries during the development of this project was that innovation happens in retail companies, regardless of whether they have specific teams for it or not. This can be understood by remembering that the innovative process can take place in any space where there is knowledge. According to Nonaka and Konno (1998), the ba, a concept created by them, is a physical or virtual space where there is a flow of knowledge and, precisely because of this, it can generate innovations. Thus, it was understood that the structure of teams for innovation can be built on a single team, but it can also be spread across different sectors, such as marketing, R&D, design, and many others. Regardless of how these teams are organized, communication processes have many similarities.

It was understood that communication plays a central role in knowledge generation and management practices. It is the only tool capable of transmitting and transforming the learning of each employee into data that will be essential for organizational learning. It is these data arising from communication exchanges and the experience of employees that are now considered a valuable currency in the business world and knowing how to take advantage of them can be the key to an organization's success (Raj et al., 2020).

However, despite understanding the importance of communication in knowledge generation and management processes, it was discovered that communications are not always used in the best possible way to generate the intended knowledge. Therefore, it was noticed that there may be a stagnation in the spiral of knowledge (NONAKA; TAKEUCHI, 1995) due to how the practical knowledge of a team is communicated. It was pointed out here that the period of execution of a project tends to present an informal communication that is not concerned with apprehending any doubts, improvements, adjustments, or decision-making that may occur during this phase.

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Thus, practical knowledge ends up orbiting only in this informality, which does not allow anyone other than the employee who has it to take advantage of it. As a result, many actions may need to be reworked, productivity may decrease and, when dealing with recurrent issues, there is no space for new knowledge and innovation.

It is concluded, then, that an optimization of the informal communication processes of the execution stage is mandatory, as they will be crucial to continue the stages of the knowledge spiral, which may generate more organizational knowledge and, therefore, less dependence on some team figures, in addition to a greater possibility for generating innovation. It is pointed out that this optimization will require some type of process to register, become aware of, organize, and understand the information that was informally exchanged.

To this end, we thought about the development of an artifact that could help both in the task of encouraging and operationalizing these formalizations. The proposed model included three new stages in the project cycle that would be placed between each of the existing stages. These new phases would be called "project history" and would be premised on being able to tell the work in great detail, which would be done through the joining of records of meetings, emails, conversations, questions, suggestions, and any other exchange of information regarding the project. With this, it is expected to generate the creation of files (whether virtual or physical) that contain the information and knowledge of each project, to obtain a unique organizational knowledge. It is also highlighted that this cataloguing would simplify the processes, leaving space for innovation.

Here, it is explained that the option for this means of formalizing the communications of a team, it was considered that knowledge is power and that, at times, there may be a reluctance of the employee to share it, as they imagine that when sharing it, there may be a possible loss of its relevance in the team. However, it is believed that when talking about composing the history of a project, a change in the team's mentality and culture is proposed, in which the success of a stage of the work is linked to the direct contribution of all members. After all, in a story, there are no indications of mistakes or successes, but rather an improvement due to the greater detail that can exist from multiple sources. Likewise, if there is no participation, there will be gaps in the narrative that would not allow the completion of the proposed task. This can all bring out more personal motivation due to the possible rewards to be obtained and it will influence the employee's knowledge sharing (Hussain et al., 2021). Thus, it is believed that the proposal optimizes the communication processes that are in place in the retail teams.

It is also stated that the more there is this change in behaviour on the part of teams that aim to see communication as a fundamental process of knowledge sharing, the more there will be room for transformation to take place, that is, there will be a clear path for innovation (Hussain et al., 2021). That's why the solution found is so important, since it facilitates the understanding and sharing of all information, emphasizing communication exchanges, and, in the same way, allowing the emergence of insights from the team's data and knowledge (Kemp et al., 2021).

Finally, it is pointed out that the insertion of these new steps and the new data and records that they can generate is of total importance for the organization. All the information that is present in these project histories are components of a powerful database that will be a differentiating characteristic of organizations. A competitive advantage that can generate innovation, increase productivity, among other functions. Therefore, it is stated here that there are following and pertinent steps for the use and application of these resources arising from communicational exchanges that should be studied and tested, continuing this study.

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