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A Systematic Literature Review of Knowledge Sharing in Creativity: Factors, Barriers and Enablers

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Abstract

Firm innovation is essential to maintain a competitive advantage and to improve organizational performance. In innovation, creativity is the fundamental process in which people generate novel and meaningful ideas. To create novel and meaningful ideas, knowledge is crucial because it is the basis upon which creativity flourishes and organizational success is built. While creativity often benefits from knowledge being shared within and among organizations, knowledge sharing is not always easy to achieve nor is it always supporting creativity. Numerous research has been conducted to analyze knowledge sharing to determine the variables that affect the process in the context of organizations. Some research was done at the individual, group, organizational, and inter-organizational levels separately. Other studies, instead, were conducted without considering the process through which knowledge sharing occurs, considering only the communication, or considering only the translation process. Therefore, the different factors, barriers, or enablers found in the literature have not been analyzed holistically. This study contributes to the understanding of knowledge sharing in creativity by offering the much needed multi-level view of its factors, barriers, and enablers. In particular, this systematic literature proposes a conceptual framework that identifies the factors, barriers, and enablers across the two main activities involved in the knowledge sharing process (i.e. communication and translation processes). Moreover, the conceptual framework highlights the differences in the factors, barriers, and enablers across different levels of interactions in which knowledge sharing occurs (i.e. individual, team, organizational, and inter-organizational). Finally, the study contributes by proposing future research directions. In particular, while some factors, barriers, and enablers were widely discussed, others such as reputation, reciprocity, the ill-formed structure of nascent ideas, knowledge retention plan, and organizational translation enablers were not examined enough.

Instead, by analyzing rewards and competition, contradictory impacts emerged among scholars. The analysis of the literature also seems to suggest that certain elements at the individual and team levels can also influence inter-organizational dynamics. Therefore, another research direction is to investigate the relationship between individuals, teams, and inter-organizations to understand whether meta-theories from one domain can be applied to the other and how they are related to each other.

Key-words: innovation, knowledge management, knowledge sharing

Abstract in Italiano

L'innovazione aziendale è essenziale per mantenere un vantaggio competitivo e migliorare le prestazioni organizzative. Nell'innovazione, la creatività è il processo fondamentale con cui le persone generano idee nuove e significative. Per creare idee nuove e significative, la conoscenza è fondamentale perché è la base su cui fiorisce la creatività e si costruisce il successo organizzativo. Sebbene la creatività tragga spesso beneficio dalla condivisione della conoscenza all'interno delle organizzazioni e tra di esse, la condivisione della conoscenza non è sempre facile da ottenere e non sempre sostiene la creatività. Sono state condotte numerose ricerche per analizzare la condivisione della conoscenza e determinare le variabili che influenzano il processo nel contesto delle organizzazioni. Alcune ricerche sono state condotte separatamente a livello individuale, di gruppo, organizzativo e inter-organizzativo. Altri studi, invece, sono stati condotti non considerando il processo attraverso il quale avviene la condivisione della conoscenza, considerando solo la comunicazione o solo il processo di traduzione. Pertanto, i diversi fattori, barriere o abilitatori presenti nella letteratura non sono stati analizzati in modo olistico. Questo studio contribuisce alla comprensione della condivisione della conoscenza nella creatività, offrendo una visione multilivello dei suoi fattori, barriere e abilitatori. In particolare, questa letteratura sistematica propone un quadro concettuale che identifica i fattori, le barriere e gli abilitatori nelle due attività principali coinvolte nel processo di condivisione della conoscenza (ossia, i processi di comunicazione e traduzione). Inoltre, il quadro concettuale evidenzia le differenze tra i fattori, le barriere e gli abilitatori ai diversi livelli di interazione in cui avviene la condivisione della conoscenza (individuale, di gruppo, organizzativa e inter-organizzativa). Infine, lo studio contribuisce proponendo future direzioni di ricerca. In particolare, mentre alcuni fattori, barriere e abilitatori sono stati ampiamente discussi, altri come la reputazione, la reciprocità, la struttura malformata delle idee nascenti, il piano di

conservazione della conoscenza e gli abilitatori organizzativi nel processo di traduzione non sono stati sufficientemente esaminati. Analizzando invece le ricompense e la competizione, sono emersi impatti contraddittori tra gli studiosi. L'analisi della letteratura sembra inoltre suggerire che alcuni elementi a livello individuale e di team possono influenzare anche le dinamiche inter-organizzative. Pertanto, un'altra direzione di ricerca è quella di indagare la relazione tra individui, team e inter-organizzazioni per capire se le meta-teorie di un dominio possono essere applicate all'altro e come sono correlate tra loro.

Parole chiave: innovazione, gestione della conoscenza, condivisione della conoscenza

Contents

x

1 Introduction

In a world that is continuously changing, continuous innovation and the knowledge that supports such innovation are considered significant sources of sustainable competitive advantage (Nonaka et al., 2000). Enterprises can produce innovation on their own as well as a result of the combination of knowledge. Indeed, knowledge sharing is a key factor of innovation. Knowledge sharing between employees and within and across teams and organizations allows organizations to exploit and capitalize on their intellectual capital as those intangible assets that generate value for companies (Edvinsson, 2000; Nonaka, 1994; Petty & Guthrie, 2000). This sharing process involves acquiring existing knowledge, translating it, and then using it to create new ideas or improve existing ones (Liyanage et al., 2009). Due to the potential benefits that can be realized from knowledge sharing, many organizations have spent a lot of time and money developing knowledge management initiatives, including knowledge management systems (KMS) to facilitate the collection, storage, and distribution of knowledge. An important reason for the failure of KMS to facilitate knowledge sharing is the lack of consideration of how the organizational and interpersonal context as well as individual characteristics influence knowledge sharing (Wang & Noe, 2010). Therefore, it is also important for organizations to identify impediments to knowledge sharing to improve their chances of removing them to attain a smooth flow of knowledge transmission (Alavi & Leidner, 2001; Paoloni et al., 2020). A lot of studies were conducted to identify the factors that impact knowledge sharing in the organizational context. However, given the growing complexity of the topic, these studies often focus on small interactions with very specific constructs. It

means that they were not conducted not from a holistic point of view. For example, some studies were conducted at individual, group, organizational, and inter-organizational levels separately. Pfister & Eppler (2012) and Tang et al. (2014) analyzed knowledge sharing at individual and team levels. Tseng (2010) analyzed the correlation between organizational culture and knowledge sharing. Easterby-Smith et al. (2008) analyzed knowledge sharing at the inter-organizational level. Other studies, instead, were conducted without considering the process through which knowledge sharing occurs (Goswami & Agrawal, 2018; Kim & Park, 2017; Nascimento et al., 2021), or considering only the communication process (Gupta & Agarwal, 2023; Wang & Noe, 2010) or again considering only the translation process (Hawkins & Rezazade M., 2012; Serino et al., 2020).

Therefore, this study is significant in several ways. This study wishes to contribute to the knowledge sharing literature by providing a systematic review of the factors, barriers, and enablers or solutions to knowledge sharing. This study aims to offer the much needed multi-level view of the enabling factors and barriers to knowledge sharing. It answers the following questions: What are the factors that influence the process of knowledge sharing and what is their level of impact? What are the barriers that hamper the knowledge sharing? What can we do to enhance the process of knowledge sharing? How factors, barriers, and enablers or solutions are correlated to each other? The review synthetizes the fragmented but rich literature on knowledge sharing and provides future directions for research to knowledge sharing scholars, whereas for practitioners this study facilitates them in finding the factors, barriers, and enablers or solutions to knowledge sharing to enable appropriate organizational interventions.

Introduction

The first chapter of the present systematic literature review is meant to introduce the reader to the study, by clarifying contextual factors, then deepening the systematic literature review objectives, and finally enfolding a draft of the steps carried out and the structure adopted in the following sections.

1.1. The Context

In today's rapidly changing business landscape, the ability to innovate has become a key success factor. To thrive and maintain a competitive advantage, businesses are always challenged to create novel concepts, goods, and services that meet evolving market demands. For some industries, continuous innovation was no longer only a driver of success, it has become essential to their survival.

Despite its enormous success, Amazon wasn't the organization that created e-commerce. Before Amazon, other businesses attempted e-commerce but failed. CDNow dominated the e-commerce industry and eventually had a public capitalization of over $1 billion. CDNow was a startup that sold CDs online, whereas Amazon started by selling books. Therefore, Amazon wasn't selling some ground-breaking new item that was right for the digital age. Instead, Jason Olim's CDNow.com and Jeff Bezos' Amazon.com started as quite similar websites offering broadly comparable goods. Along the way, CDNow made the first e-commerce affiliate program, designed the virtual shopping cart, and purchased the first online advertisement, experiencing exponential growth during the first of operation. However, CDNow failed while Amazon succeeded. This is because Jeff Bezos had the right idea, which was to build the "everything store". In particular, Bezos wanted to expand his online store so he emailed about 1,000 customers asking them what they wanted Amazon to sell, and the answers were diversified. By reading the different responses, Bezos understood that people wanted to buy whatever they were looking

Introduction

for at the moment and he got the idea to start selling everything. Jeff Bezos was able to turn a simple idea into something bigger (Dinin, 2021; Popomaronis, 2020).

Therefore, firm innovation is essential to remain in the market and maintain a competitive advantage. Moreover, it allows organizations to improve their performance (Arokiasamy et al., 2021; Basadur & Gelade, 2006). As we see from the Amazon case, breakthrough innovation can arise from a simple idea. In particular, in the literature, the definition of innovation involves the concepts of novelty, commercialization, and implementation. Innovation includes the generation of new ideas and their implementation into new products or processes. Focusing on the generation of new ideas, knowledge is crucial because it is the basis upon which creativity flourishes (Paoloni et al., 2020). Novel ideas are generated through deep interactions among employees within the organization. Knowledge resides in people's minds and individuals play a critical part in knowledge creation. Knowledge must be shared inside a company to be utilized, exploited, and improved, fostering knowledge creation (Goswami & Agrawal, 2018; Nonaka & Takeuchi, 1995). Thus, knowledge sharing is considered the foundation of organizational knowledge creation. Through formal and informal discussions and the sharing of knowledge among employees, knowledge sharing contributes to enriching the organizational database (Abbas et al., 2019; Al-Hakim & Hassan, 2013; Fatima & Masood, 2023; Jin & Sun, 2010; Kapoor & Aggarwal, 2021; Sáenz et al., 2009; Yousaf et al., 2022). New ideas are produced by cumulative information sharing combined with an entrepreneurial vision and they can represent a new customer need or a new way to produce. Then, the idea is developed and commercialized into a new process or a new marketable product through the implementation phase, which results in cost reduction and higher productivity (Urabe et al., 1988). According to this definition, innovation is the transformation or application of new ideas into products, processes, or services that create value for the company. These new ideas are generated through deep interactions among employees within the organization. Therefore, innovation depends on the creation of knowledge.

4

Introduction

In particular, Amabile (1996) defined creativity as the generation of new ideas that can be applied in various strategic areas of the firm. Innovation, on the other hand, refers to the application and implementation of these ideas to transform them into more concrete and valuable elements from an economic and business perspective. Thus, the innovation mechanism uses creativity to develop ideas that are then collected, put together, reorganized, and synthesized to emerge as valuable goods, practices, services, or procedures from an economic and business point of view (Popadiuk & Choo, 2006). This study will focus on the concept of creativity as the generation of new ideas considering that knowledge creation is the prerequisite of innovation as the implementation and commercialization of these ideas into new products, processes, and services. Focusing on the creative process, knowledge is crucial because it is the basis upon which creativity flourishes (Paoloni et al., 2020). Google, one of the largest and most successful media companies in the world, differentiates itself by fostering creativity. Google provides a free search engine for usual users and collects uncountable data and information about almost everyone that could be used for business purposes.

Google promotes creativity among employees. Google bases its training and development on interactions between employees. This is how up to 80% of all learning activities are provided. First of all, the organization recognizes the importance of employee's knowledge by providing them the possibility to learn and encouraging them to give back their knowledge to their fellow workers. Indeed, Google provides a range of learning, social, and development initiatives. For instance, employees can use 20% of their time to pursue other interests or concentrate on tasks that are important to them. Employees can utilize one day per week to work on any preferred project connected to Google or their passion of choice, fostering creativity and unconventional thinking. Additionally, Google frequently hosts world-renowned experts for conferences, presentations, and seminars. A wide variety of speakers who are sponsored by the corporation enrich and inspire Google employees. Google hosts a

Introduction

worldwide internal talk series known as "Talks at Google." The seminars are frequently given first to Google workers before being broadcast to the general public on their YouTube channel. The program invites authors, scientists, performers, artists, filmmakers, and musicians to share their work and experiences. Moreover, scientists and university professors are frequently invited by Google to give presentations or to engage with the vast amounts of data the company collects. Google also invites start-ups, emerging companies, and small enterprises to access Google's knowledge and collaborate with Google members to develop or improve their ideas. The mindset is that, as long as there is the possibility to benefit from the idea or to create something new, the company will give it a try. This approach to knowledge and creativity led Google to be one of the most innovative and successful companies in the world (Beattie, 2023; Leoni, 2017; Soregaroli, 2022).

Therefore, Google fosters both tacit and explicit knowledge sharing. Tacit knowledge is shared by inviting scientists, universities, start-ups, emerging companies, and small enterprises to collaborate with Google and their knowledge. Instead, explicit knowledge is shared by fostering interactions among employees through casual collisions or Talks at Google seminars. The appropriate mentality, culture, and tools can help employees develop breakthrough knowledge that improves the company's business. By providing employees with the tools they need to collaborate, experiment, and share knowledge, organizations can create an innovative workplace culture that inspires everyone to be more creative. Thus, knowledge sharing empowers organizational knowledge creation. Organizational knowledge creation refers to "the capability of a company as a whole to create new knowledge, disseminate it throughout the organization, and embody it in products, services, and systems" (Nonaka & Takeuchi, 1995). Knowledge can be classified in two ways based on its complexity. Knowledge that is easily recorded, encoded, and stored and that can be easily articulated and transmitted in formal and systematic language is defined as explicit knowledge (Nonaka, 1994). On the other hand, tacit knowledge is personal

6

and context-specific knowledge. Since it is deeply rooted in behavior and commitment, it is difficult to formalize and transmit (Polanyi, 1996). As knowledge is the engine of knowledge creation and is a dynamic system that continuously evolves, it is necessary to manage it to capture tacit knowledge and convert it into explicit knowledge (Nonaka et al., 2000). According to this point of view, knowledge management (KM) has become a tool that guarantees the right evolution of organizational intellectual capital to reach innovation and the improvement of the firm performance (Paoloni et al., 2020). There is a lack of precision that surrounds the definition of knowledge management and KM building activities (Beesley & Cooper, 2008). Overall, knowledge management relates to the set of policies and guidelines that foster the identification, dissemination, generation, and institutionalization of knowledge (Andreeva & Kianto, 2012; Davenport & Prusak, 1998; Kianto, 2007; Nonaka & Takeuchi, 1995). Through KM, organizations try to ensure the full utilization of their knowledge base by empowering employees' competencies, skills, and ideas. Thus, knowledge creation is a process that arises within the organization and the management must establish suitable policies to encourage this process. Ideas are generated through deep interactions among employees within the organization. This point of view highlights how knowledge is tied to people and how individuals play a critical part in knowledge management and knowledge creation. Knowledge must be shared inside a company to be utilized, exploited, and improved, fostering knowledge creation. According to Nonaka, 1994, this process can be thought of as an upward spiral that starts at the individual level. It progresses to the collective level, where interactions among individuals foster knowledge sharing among teams, reaching the organizational level. This means that transfer occurs at various levels, from individuals to groups, between groups, across groups, and from the group to the organization (Alavi & Leidner, 2001). Thus, knowledge sharing is considered a key factor of knowledge management as well as the foundation of organizational knowledge creation (Goswami & Agrawal, 2018; Nonaka & Takeuchi, 1995). Knowledge sharing is an area of knowledge management

concerned with the movement of knowledge within and among organizations across different specialized knowledge domains (Carlile & Rebentisch, 2003). Successful knowledge sharing involves acquiring and assimilating knowledge. Through knowledge sharing, employees can constantly improve knowledge and make it once again available for others. They also can exploit it creatively or innovatively to add value to their existing knowledge base (Liyanage et al., 2009). Therefore, knowledge sharing is a fundamental process for the creation of knowledge.

Therefore, having recognized that business innovation is essential to maintaining competitive advantage and being aware of the correlation between innovation and creativity, knowledge creation is essential as well as innovation. In particular, knowledge creation involves a continuous process through which people share tacit and explicit knowledge with others to enhance individuals' knowledge base and to foster idea generation. Therefore, knowledge sharing is essential to create new knowledge and produce innovation. Having acknowledged the importance of this process, the focus of this study will be on the process of knowledge sharing.

1.2. Objectives of the research

Knowledge sharing represents a powerful catalyst for establishing and maintaining competitive advantage, successful strategy, effective management, and efficient use of resources. Indeed, the results in Figure 1 show there is an overall increasing trend for publication in Knowledge Sharing through the years.

Introduction

Documents by year
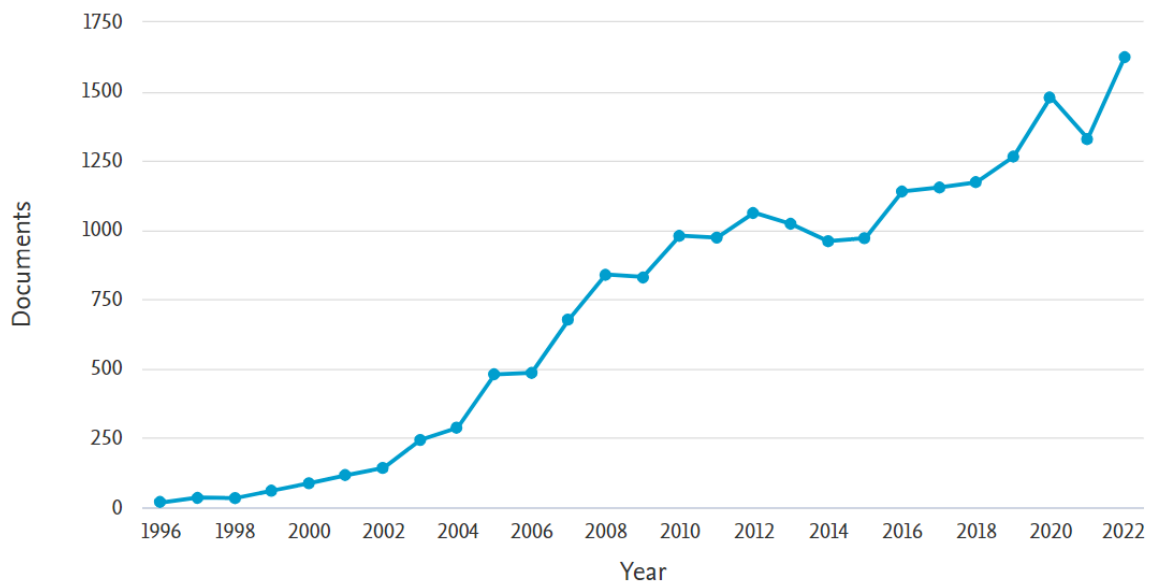
Figure 1 - Publications Trend in Knowledge Sharing

Numerous research has been conducted to analyze knowledge sharing to determine the variables that affect the process in the context of organizations. However, these studies were not carried out from a holistic point of view. Some research (Choo & de Alvarenga Neto, 2010; Easterby-Smith et al., 2008; Pfister & Eppler, 2012; Tang et al., 2014; Tseng, 2010) were done at the individual, group, organizational, and inter-organizational levels separately and without taking the correlation between the elements into account. Other studies, instead, were conducted without considering the process through which knowledge sharing occurs (Goswami & Agrawal, 2018; Kim & Park, 2017; Nascimento et al., 2021), or considering only the communication process (Gupta & Agarwal, 2023; Wang & Noe, 2010) or again considering only the translation process(Hawkins & Rezazade, 2012; Serino et al., 2020). Therefore, the different factors, barriers, or enablers found in the literature have been analyzed without considering how they are related to each other. A multi-level and holistic study of knowledge sharing could be important in understanding why some practices may fail and which

9

Introduction

is the right combination of them that the organization should pursue (Wang & Noe, 2010). Moreover, the majority of articles analyze these variables without considering the proper process. Knowledge sharing involves the acquisition of information and then the assimilation of the knowledge to exploit it and generate new ideas or add value to the existing knowledge base. Without considering these two processes or by considering only one, these variables are not collocated correctly, and, thus, organizations can't analyze and use them properly (Liyanage et al., 2009). This, in turn, makes it even more difficult to understand which combination of the variables is the proper one since it is not clear which process the variable is related to. Moreover, although knowledge sharing is considered essential for innovation, it represents one of the main challenges in the knowledge management field. For knowledge to be absorbed, it should be presented in ways that encourage the receiver to first contemplate the information and then examine its relevance. Therefore, the characteristics of knowledge have a significant impact on the process of communication as well as the process of translation. Knowledge characteristics not only affect the ability to communicate the information but also the rate at which it will be assimilated and how much is retained (Argote et al., 2003; Easterby-Smith et al., 2008). To transfer information, individuals need to replicate the knowledge. If the replication is not aligned with the meaning of the original knowledge, a casual ambiguity as a distortion of the knowledge can be produced (Szulanski, 1996). The levels of tacitness and complexity of knowledge have a great influence on the replication of the information due to the knowledge stickiness. The term "stickiness" is used to describe the difficulty of transferring a piece of information and, thus, describes the required effort to transfer it. Stickiness can be attributed to different factors such as the information itself, the way it is encoded, and the characteristics of information seekers or providers (Argote et al., 2003; von Hippel, 1994). Furthermore, employees may become frustrated or refuse to complete the knowledge translation when the knowledge is considered too difficult to absorb. People are more inclined to

10

react to information that they are familiar with because it requires less effort to decode it (Baer et al., 2013). Positive or negative emotional responses as well as the degree to which information aligns or misaligns with values, attitudes, and beliefs can compromise the meaning that might be assigned to the information received (Beesley, 2005). This process of attribution might occur without the individual being aware of how or why these associations have developed (Beesley & Cooper, 2008). Therefore, casual ambiguity can be also a result of a wrong or reluctant understanding of the information. (Li & Hsieh, 2009). Knowledge sharing is also difficult to understand and put into practice because there is no precise practice for transferring knowledge (Liyanage et al., 2009). Considering the importance of knowledge sharing in the creation of knowledge and being aware of the different shortcomings and challenges, it is relevant to understand which are the factors that influence and hamper knowledge sharing to facilitate the creative process.

More specifically, this systematic literature review aims to identify which factors influence knowledge sharing, observe if barriers are generated from them, find potential solutions or enablers that can boost and empower creativity within the organization, and analyze the correlation among the different variables. The systematic literature review will analyze the results considering two theories that explain the process of knowledge sharing – the theory of communication and the theory of translation - at different levels of interactions (individual, team, organizational, and inter-organizational).

1.3. Steps and articulation of the research

The process to conduct the research has followed different steps. The first step of the study involved a comprehensive literature review to examine existing research on the core topics of the thesis. The objective was to gather an in-depth understanding of the

field and identify gaps in the literature that could have been addressed. Once the gaps in the literature, the objectives of the thesis were defined. The gathered theoretical background arising from the review of the literature is reported in *Chapter 2*.

After the objective of the systematic literature review was established, a query was defined. The query definition and the detailed steps of the data extraction form are reported in *Chapter 3*.

In *Chapter 4* the results are presented in detail, highlighting the main points of interest. The findings are divided by knowledge sharing process (theory of communication and theory of translation) and by level of interaction (individual, team, organizational, inter-organizational).

In conclusion, *Chapter 5* presents a detailed discussion of the relevant findings. Theoretical and managerial contributions are presented, together with suggestions for future research and limitations of the present study.

2 Theoretical Background

This chapter provides, through a revision of the extant literature, a comprehensive overview of the constructs and theoretical perspectives that inform this systematic literature review. The key concepts and theories that are relevant to the aim of this study are explored and a model of analysis is presented. In practice, the chapter is divided into 4 sections: (i) innovation and creativity definitions, explaining the fundamental difference between these two terms; (ii) an overview of the main concepts related to the knowledge, such as knowledge creation, knowledge management, and knowledge sharing; (iii) description of the theory of communication and the theory of translation, which are theories that explain the process of knowledge sharing; (iv) presentation of a model of analysis, defined by the concepts and theories analyzed in the previous sections.

2.1. Innovation and Creative Process

Innovation and creative processes have become key factors for the performance and success of organizations. In the organizational context, the two concepts of creativity and innovation are used almost interchangeably. They are simply considered as part of the process through which knowledge is developed and transformed into business value. Nevertheless, there is a fundamental difference between these two terms from a conceptual point of view.

2.1.1. Definitions

The definition of innovation in the literature includes the ideas of novelty, commercialization, and implementation. Innovation specifically refers to the development of a new idea and its implementation into new products, processes, or services. New ideas might represent a new client need or a new method of production and are created by information processing and a business vision. The idea is then developed and commercialized through the implementation phase into a new procedure or a new marketable product (Urabe et al., 1988). As a result, creativity is a prerequisite for innovation. Amabile (1996) specifically described creativity as the creation of new ideas that can be used in a variety of strategic areas of the company. Therefore, the innovation process could be considered as a combination of two activities: creativity and implementation. Creativity is the generation of novel and useful ideas while the implementation is their conversion into valuable products from an economic and business point of view (Fetrati & Nielsen, 2018). Having acknowledged the difference between creativity and innovation and being aware of the importance of new ideas for innovation as the implementation and commercialization of these ideas into new goods and new services, this study will focus on the idea of creativity as the generation of novel ideas because the creation of new knowledge is essential to produce innovation (Nonaka, 1994; Nonaka & Takeuchi, 1995). It's important to understand how valuable knowledge can turn into future innovation to improve organizational performance (Konno & Schillaci, 2021; Paoloni et al., 2020). By understanding the different mechanisms involved in the knowledge creation process, the quality and quantity of ideas can improve and, as a result, organizations can have more opportunities for innovation (Aramburu et al., 2006; Arokiasamy et al., 2021; Sáenz et al., 2009).

2.1.2. Creative Process

The creative process could be considered the seed of innovation. The successful creation of new products or new business practices starts with and is dependent on the organization's creativity, thus employee knowledge plays a key role.

Knowledge is crucial and it is the basis upon which creativity flourishes and organizational success is built (Paoloni et al., 2020). Indeed, knowledge is considered by the literature as a key strategic resource of organizations that influence innovation and one of the most relevant sources of competitive advantage (Erena et al., 2023; Hasan & Al-hawari, 2003; Narayanan et al., 2020; Nonaka & Takeuchi, 1995; Popadiuk & Choo, 2006; Arokiasamy et al., 2021; Schneckenberg et al., 2015). The potential for innovative ideas and solutions can be unlocked by appropriately leveraging knowledge and fostering the creative process within businesses. Therefore, understanding the complex relationship between knowledge and the creative process as well as learning good knowledge management techniques are critical. Knowledge creation involves continuous individual information processing and different factors are involved, such as knowledge characteristics, cognitive styles, and knowledge boundaries. Knowledge can be characterized by different levels of tacitness and complexity (Szulanski, 1996). Cognitive styles refer to how individuals acquire, organize, and process information, thus they influence how people interpret knowledge (Aggarwal & Woolleyb, 2019) and they are also influenced by knowledge boundaries. A knowledge boundary, instead, represents the limit of the individual knowledge base concerning different domains of knowledge. They can adjust through learning as well as influence how people interpret knowledge by determining what information is important and thus what information should be integrated into the existing knowledge base (Hawkins & Rezazade, 2012). Understanding how these knowledge factors are related to knowledge creation can facilitate information processing and, thus, idea generation (Aggarwal & Woolleyb, 2019; Carlile, 2002; Li &

Hsieh, 2009; Szulanski, 1996). Moreover, knowledge management (KM) is considered a tool to guarantee the right utilization of organizational intellectual capital to reach innovation and the improvement of the firm performance (Paoloni et al., 2020). By examining which are the activities, policies, and guidelines that facilitate both knowledge communication and translation, knowledge management can further improve the creative process and give more opportunities to organizations to innovate themselves (Gao et al., 2018).

2.2. Knowledge

Some authors addressed the issue of defining knowledge by differentiating between data, information, and knowledge. A widely accepted belief is that data are raw numbers and facts, information is processed data and knowledge is validated information (Alavi & Leidner, 2001). The concept of knowledge provided by Davenport & Prusak (1998) goes well beyond this. They define knowledge as a dynamic combination of framed experiences, beliefs, background knowledge, and professional insight that serves as a framework for assessing and assimilating fresh experiences and information. According to Bender & Fish (2000), individuals generate information by processing data, and by adding meaning, understanding, relevance, and purpose. Then, information is transformed into knowledge through personal application, values, and beliefs. Knowledge, which is defined as information with meaning (Skyrme & Amidon, 1997), can only be accumulated within specific knowledge networks and can only be shared if those who possess it are willing to do so (Brauner & Becker, 2006), unlike data and information, which can be externally stored, easily accessed, and traded.

Theoretical Background

Knowledge is mainly generated from an individual's brain. According to Zins (2007), knowledge is structured and organized information that has been elaborated inside a cognitive system or is a part of a person's cognitive history. Some of the knowledge produced by the internal cognitive human system is more explicit and so easier to understand and transmit, others are more implicit and hence more difficult for individuals to express or externalize. Explicit knowledge is easily recorded, encoded, and stored (Nonaka, 1994). It may also be articulated and transferred in formal and systematic language. Therefore, verbalized and articulated knowledge in a formal language that is simple to be transmitted among individuals is defined as explicit knowledge. On the other hand, tacit knowledge is personal and context-specific knowledge. Since it is deeply rooted in behavior and commitment, it is difficult to formalize and transmit (Polanyi, 1996). Knowledge is considered to be embedded within individuals and occurs either as a result of experience or is generated through thinking or reasoning. Ideas, insights, and practical know-how are possessed by people, and this knowledge helps them work intelligently and helps organizations accumulate expertise to increase organizational effectiveness and performance (Gupta & Agarwal, 2023). Therefore, one dimension that influences and nurtures creativity is the human element (Gurteen, 1998). Creativity can be also nurtured by knowledge management. In the organizational context, knowledge resources never create value alone. As knowledge is the engine of knowledge creation and is a dynamic system that continuously evolves, it is necessary to manage it to capture the tacit knowledge and convert it into explicit knowledge (Nonaka et al., 2000). Without managerial actions and processes that enable knowledge productivity, even a substantial stock of intellectual capital (IC) will not be able to generate a significant amount of value (Paoloni et al., 2020). According to recent studies (Al-Hakim & Hassan, 2013; Erena et al., 2023; Narayanan et al., 2020), the relationship between knowledge resources and knowledge management activities should be explored to better understand how intellectual capital drives innovation and organizational competitive advantage.

17

2.2.1. Knowledge Management

Different definitions of knowledge management have been developed by academics from a wide range of disciplines. These definitions are not entirely clear and have different meanings according to the authors' points of view. Knowledge management can be defined as a systemic and organizational process for acquiring, organizing, and communicating both tacit and explicit knowledge that employees can utilize to be more effective, efficient, and productive (Alavi & Leidner, 2001). The process involves a dynamic interpretation of intangible assets (Kianto, 2007) and a set of systematic managerial activities and procedures focused on the effectiveness and efficiency of firms' knowledge resources (Davenport & Prusak, 1998). Through KM, organizations try to ensure the full utilization of their knowledge base by empowering individual competencies, skills, and ideas and creating more efficient companies (Nonaka & Takeuchi, 1995). In conclusion, considering the different definitions of knowledge management, the main goal is to help employees increase the effectiveness of their learning and integrate multiple information sources to improve the organizational competitive advantage by guiding workers in understanding which information is important and in using and transforming this information (Paoloni et al., 2020). Therefore, knowledge management is responsible for creating knowledge, controlling its flow within the organization, and its application by ensuring that it is used efficiently and effectively (Andreeva & Kianto, 2012). However, there isn't a unanimous consensus among scholars regarding the specific characteristics of the knowledge management process. Research has introduced different types of KM activities and some of them seem more relevant than others, such as knowledge capture, knowledge transfer, knowledge storage, and knowledge application (Gao et al., 2018). Knowledge capture is defined as the process through which knowledge is identified and examined in accordance with the organization's strategy (Hari et al., 2005). Knowledge transfer or knowledge sharing refers to the transfer of knowledge

where is needed and where it can be used (Argote & Ingram, 2000). Knowledge storage refers to the process of keeping knowledge in repositories such as archives and databases and internalizing it (Johannsen, 2000). Knowledge application refers to the actualization of the knowledge to properly use the new knowledge (Newell et al., 2004).

In addition to knowledge management, different knowledge theories were introduced within the knowledge creation study. Nonaka & Takeuchi (1995) proposed a model known as the SECI model based on four ways through which tacit and explicit knowledge can be combined and converted, showing how knowledge is shared and created in the organization. Moreover, the place where this knowledge conversion occurs is defined as "Ba" (Nonaka et al., 2000). The theory of communication, instead, argues that communication is the process through which people share information with each other to acquire new knowledge (Beesley & Cooper, 2008; Gao et al., 2018; Liyanage et al., 2009; Tsai & Zheng, 2021; Zhang et al., 2021). Lastly, the theory of translation affirms that it requires additional knowledge to shape the knowledge transferred and transform it into new knowledge (Seaton, 2002). These theories are further analyzed in the following section.

2.3. Knowledge Theories

This chapter aims to present different theories that describe knowledge processing. In particular, three theories are analyzed: the SECI model together with the concept of "Ba", the theory of communication, and the theory of translation.

2.3.1. A Dynamic Theory of Organizational Knowledge Creation: SECI Model and the concept of "Ba"

The theory of knowledge creation was developed by analyzing Japanese companies during the late 1970s and the 1980s. In the late 1980s, Nonaka and his team conducted research based on the concept of information processing in organizations and they proposed the idea that Japanese companies are doing more than mere information processing. Therefore, he established the concept of "knowledge creation" by introducing a philosophy that was inspired by Michael Polanyi's notion of "tacit knowledge".

In 1994, proposed the "SECI model" that drew upon the conversion of tacit knowledge and explicit knowledge. Based on this theory, new knowledge is created and this process enables companies to acquire or foster new internal knowledge assets.

The SECI model is composed of the following four stages:

(1) Socialization (conversion from tacit knowledge to tacit knowledge) involves learning and disseminating tacit information through direct interactions and observations.

(2) Externalization (conversion from tacit knowledge to explicit knowledge) utilizes theories, analogies, metaphors, and so on to express the essence of tacit awareness in words and concepts.

(3) Combination (conversion from explicit knowledge to explicit knowledge) merges different bodies of explicit knowledge to obtain new categories of knowledge.

(4) Internalization (conversion from explicit knowledge to tacit knowledge) is a learning process through which people are trained to do specific tasks.

Theoretical Background

The fundamental of the four processes is to create new knowledge through cyclical interactions among these processes, as shown in Figure 2. These cyclical interactions are based on intersubjectivity and relationships among individuals. Taking this knowledge creation theory into account, the processes by which groups integrate information are critical and they should be investigated (Hinsz et al., 2008). By looking at and analyzing how they share knowledge, utilize information, and make judgments, knowledge creation can be improved. Moreover, these processes should be examined also because organizations have moved to more team-based structures to develop and implement creative products and solutions (Aggarwal & Woolleyb, 2019; Jin & Sun, 2010). Consequently, interest in team creativity among scholars and practitioners has increased due to the critical role that team covers in organizational innovation.
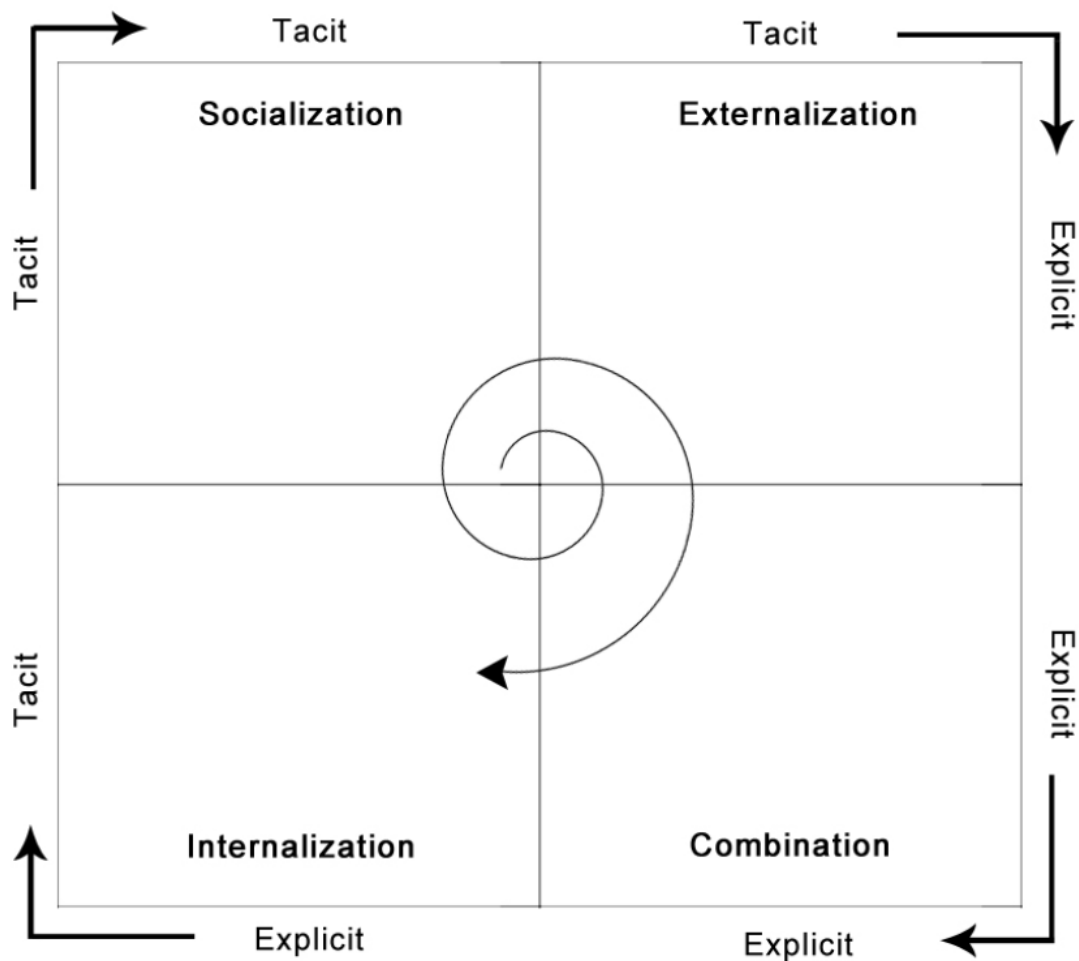
Figure 2 – The SECI model

After the SECI model was introduced, the concept of "Ba" was proposed. Ba is defined as the specific time–space nexus where tacit knowledge emerges and is converted into explicit knowledge, thus the place where the SECI process occurs (Nonaka et al., 2000). "Ba" is considered a basic foundation to create knowledge and it was defined as a "shared dynamic context-in-motion,". From this concept emerged the idea that knowledge emerges in a place, such as an organization. However, "Ba" not only refers to the physical place, it could be virtual, mental, or a combination of them that actively promotes simultaneous and spontaneous interaction for knowledge creation. It doesn't have to stay within the boundary of the organization, but rather it should expand to

produce new knowledge, developing the point of view of knowledge creation as an inter-organizational boundaries process (Nonaka & Konno, 1998; Nonaka & Takeuchi, 1995). According to the SECI model, sharing tacit knowledge and transforming it into explicit knowledge is the starting point for knowledge creation. Innovative companies and organizations have created physical, virtual, or mental places that contribute to this kind of knowledge creation, constituting the "Ba" as the place where this conversion of knowledge occurs. A great deal of physical space and organizational functions and methodologies facilitate the knowledge conversion. Therefore, variables such as organizational climate, culture, and behavior should be analyzed relative to the creation of knowledge (Konno & Schillaci, 2021).

2.3.2. Theory of Communication

According to the theory of communication, the process of knowledge transfer has two main actors: the sender who shares the knowledge, and the receiver who acquires the knowledge. Knowledge sharing is successful if both parties are willing to send and receive knowledge. If one party is hesitant to share knowledge, the other will suffer and ultimately team, department and organization will suffer too. Thus, organizations should encourage their employees to share and receive new knowledge for overall development. Communication is the process through which people share information with each other to achieve mutual understanding and it is essential for knowledge sharing (Beesley & Cooper, 2008; Gao et al., 2018; Liyanage et al., 2009; Tsai & Zheng, 2021; Zhang et al., 2021). The "student-teacher" paradigm is characterized by one-way (single-loop) learning procedures. Although it appears to be the favored method of knowledge dissemination, it does not successfully establish the feedback loops necessary for two-way communication. At best, one-way communication will lead to the modification of current knowledge structures, where receptivity is constrained by the receiver's subjective interpretation and the intensity of their desire to learn. In contrast, double-loop learning promotes mutual understanding because it allows

participants to widen their perspectives (Halme, 2001). Thus, double-loop learning, also known as two-way communication, maximizes the amount of knowledge learned as well as the reliability of the information communicated. The one-way and two-way communication modes are represented respectively in Figure 3 and Figure 4.
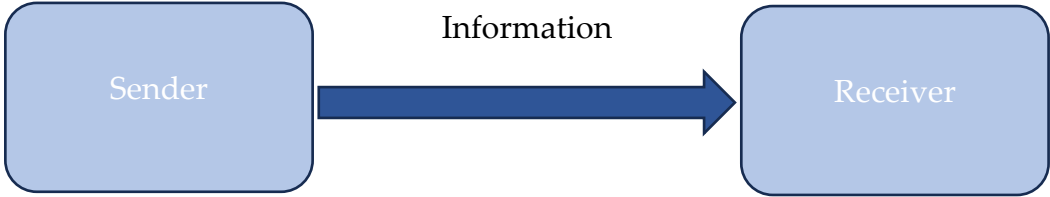
Figure 3 – One-way Communication

Information

Sender

Receiver

Receiver

Sender
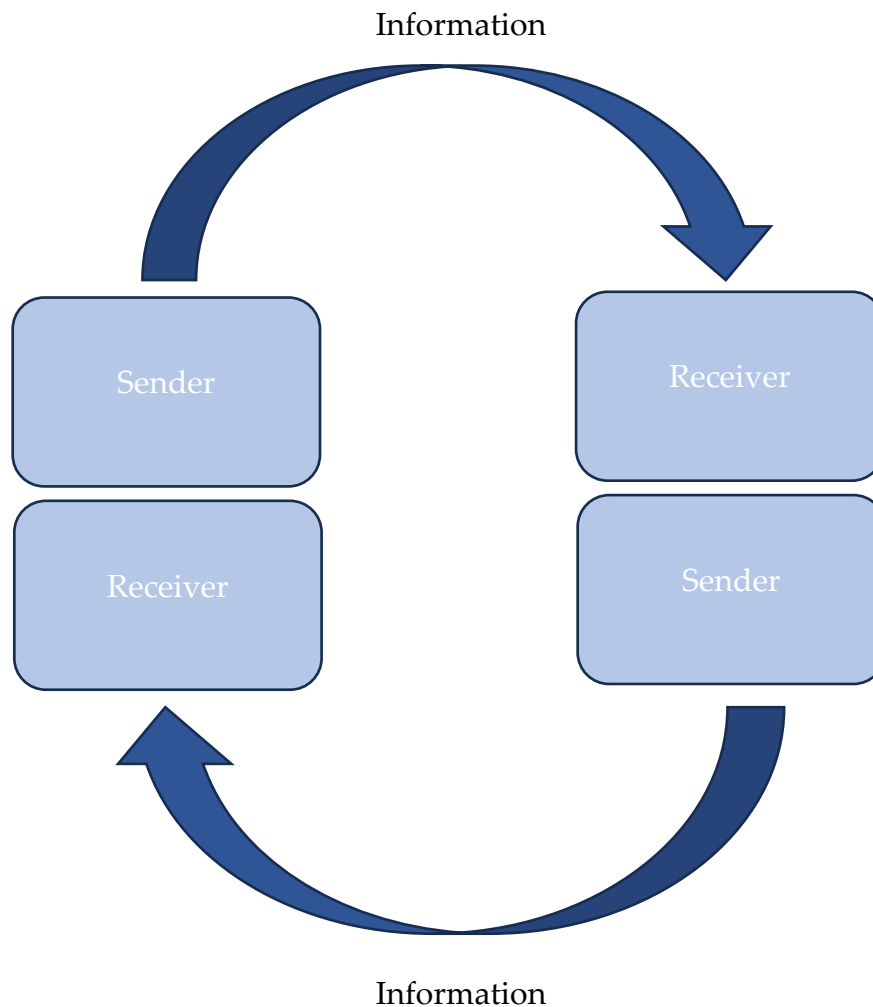
Information

Figure 4 - Two-way Communication

2.3.3. Theory of Translation

Considering instead the theory of translation, once an individual receives a piece of information, additional knowledge is required to shape the knowledge transferred. Thus, there is a transformation by adding or deleting knowledge or it can involve different interpretations of the same knowledge (Seaton, 2002). Therefore, it is recognized the need for rich social interaction and participants' engagement. According to (Beesley & Cooper, 2008), cognitive and social factors influence knowledge acquisition and its consequent utilization. Cognitive factors encompass existing knowledge structures and the capacity to incorporate new knowledge and

they operate together with personal experience. Whereas social contingencies include relationships, trust, leadership, power, status, and social structures within the organization. The possibility of maximum advancement of knowledge only exists when the influence and the intersection between communication, cognition, and social contingencies are understood and successfully managed. However, the degree of knowledge shared is influenced also by the role of emotions (Beesley, 2005). Emotions are supported by values, attitudes, and beliefs and they underpin the acquisition of knowledge. According to this theory, the degree to which entering information aligns or misaligns with existing values, attitudes, and beliefs affects the potential interpretations that can be assigned to them. The process of attribution might occur without the subject being aware of how or why these relationships have developed.

2.4. Knowledge Sharing

Knowledge sharing or knowledge transfer is considered a determinant of the success of the knowledge management process among all the activities (Goswami & Agrawal, 2018). Knowledge transfer (KT) and knowledge sharing (KS) are often used interchangeably because the difference between these two notions is blurry. Kumar and Ganesh (2009) used KT in an inclusive sense and considered knowledge sharing and knowledge flow as a part of knowledge transfer. On the other hand, Paulin and Suneson (2015) differentiated between KS and KT in terms of the level at which they occur, directionality, and focus. KS occurs between individuals and is multidirectional, either focused or unfocused. Whereas KT occurs among individuals, teams, units, or organizations and is unidirectional, and focused (Paulin and Suneson, 2015). In contrast to Paulin and Suneson (2015), according to Tangaraja et al. (2016), KT and KS are different from each other. KS is "an entirely behavioral concept because it involves observable actions" but KT is "not entirely a behavioral concept because it

encompasses both behavioral and non-behavioral features through various processes" (Tangaraja et al., 2016). According to different studies, KT and KS have different characteristics. Considering, instead, the definition of the two concepts, these two knowledge processes are equivalent. Knowledge sharing refers to the exchange of knowledge between and among individuals to put different knowledge sources together and create new knowledge structures (Wang & Noe, 2010)., as mentioned before, knowledge transfer refers to the transfer of knowledge where is needed and where it can be used and it is successful when it results in successful creation and application of knowledge (Gao et al., 2018).

In this systematic literature review, knowledge transfer and knowledge sharing are considered equivalent.

Knowledge sharing is considered a crucial constituent of knowledge management. Through formal and informal discussions and the sharing of knowledge among employees, knowledge sharing contributes to enriching the organizational database (Abbas et al., 2019; Al-Hakim & Hassan, 2013; Fatima & Masood, 2023; Jin & Sun, 2010; Kapoor & Aggarwal, 2021; Sáenz et al., 2009; Yousaf et al., 2022). Indeed, knowledge sharing is defined as "a sustained process of transferring experiences and organizational knowledge to business processes through communication channels among individuals, groups, and organizations" (Olan et al., 2016; Sedighi et al., 2016). Starting from peer-to-peer interactions, knowledge moves within the company (Pandey et al., 2022). Since knowledge dwells in people's minds, organizations should motivate employees to collaborate and share knowledge to develop and create new ideas (Erena et al., 2023). Knowledge sharing performed by people results in innovation and durable competitive advantage. It is essential to the success and growth of businesses, and it is considered a determinant factor of success among all steps in the KM process because knowledge management cannot be effective if people

are not willing to share the knowledge they possess (Yousaf et al., 2022). Moreover, according to Nonaka & Takeuchi (1995), knowledge sharing is a critical stage in the process of knowledge creation defined by the SECI model. According to this theory, the knowledge could be tacit or explicit. Tacit knowledge is personal, context-specific, and deeply rooted so it is difficult to transfer, whereas explicit knowledge is easily encoded, and thus is simple to be transmitted (Nonaka, 1994; Polanyi, 1996). Knowledge creation explained by the SECI model involves the conversion of tacit and explicit knowledge. In particular, tacit knowledge is used and produced through the processes of socialization and externalization, whereas explicit knowledge that has been codified and formalized is applied through the processes of combination and internalization. This knowledge conversion includes individuals' continuous information process by interacting and sharing tacit and explicit knowledge. In the organizational context, knowledge creation means sharing knowledge within and among organizations to amplify the knowledge base and improve the firm capability of innovation (Nonaka & Takeuchi, 1995). Therefore, knowledge sharing is the foundation of the SECI theory and is essential to creating knowledge and producing innovation.

2.4.1. The Knowledge Sharing Process

Research tried to describe the process of knowledge sharing through models or theories. Liyanage et al., 2009 have developed a model of knowledge sharing based on the two theories discussed above: the theory of communication and the theory of translation. According to the theory of communication, communication is the process through which people share information and it involves two main actors: the sender who shares the knowledge, and the receiver who acquires the knowledge. Knowledge sharing is successful if both parties are willing to send and receive knowledge (Beesley & Cooper, 2008; Gao et al., 2018; Liyanage et al., 2009; Tsai & Zheng, 2021; Zhang et al., 2021). After the receiver collects information, additional knowledge is required to

shape the knowledge transferred. The theory of translation argues that there is a transformation by adding or deleting knowledge or it can involve different interpretations of the same knowledge (Seaton, 2002). Once the knowledge has been translated or transformed, the new knowledge can be transferred and in turn, transformed once again. The theory of communication and the theory of translation appear to be two different but also two complementary theories for the area of knowledge sharing. The combination of the theories offers several insights into the process of knowledge sharing because it involves the act of communicating to others what one knows or the act of consulting people to learn what they know, while including the act of translation such as the change of knowledge form, shape or appearance and the importance to interpret the transformed knowledge in a meaningful way to be utilized effectively by the receiver. The first theory explains the behavioral side, so how the knowledge transfer is a collaboration between the source and the receiver. Whereas the second theory clarifies how to efficiently transform knowledge into a usable form. When participants involved in a knowledge sharing process are unwilling to share their information, the transfer can frequently go wrong. The parties may still be unable to smoothly transfer knowledge even if they are willing to make an effort due to the inherent problems in translating the knowledge. Knowledge sharing will only be successful if the receiver has the ability to receive knowledge and absorb it, assimilate it, and then effectively apply concepts, knowledge tools, and artifacts. Moreover, a successful knowledge transfer process should always take into account benefits gained at both ends (i.e. sender and receiver). This can occur through a feedback loop or two-way communication. The process of externalizing knowledge adds value to both parties, enhancing collaboration and relations. Thus, externalizing knowledge is crucial to transfer the experiences or new knowledge created by the receiver to the sender, exchanging the roles. The receiver becomes the sender whereas the sender becomes the receiver, starting again the process of

communication and translation. This knowledge sharing process described by the theory of communication and translation is represented in Figure 5.
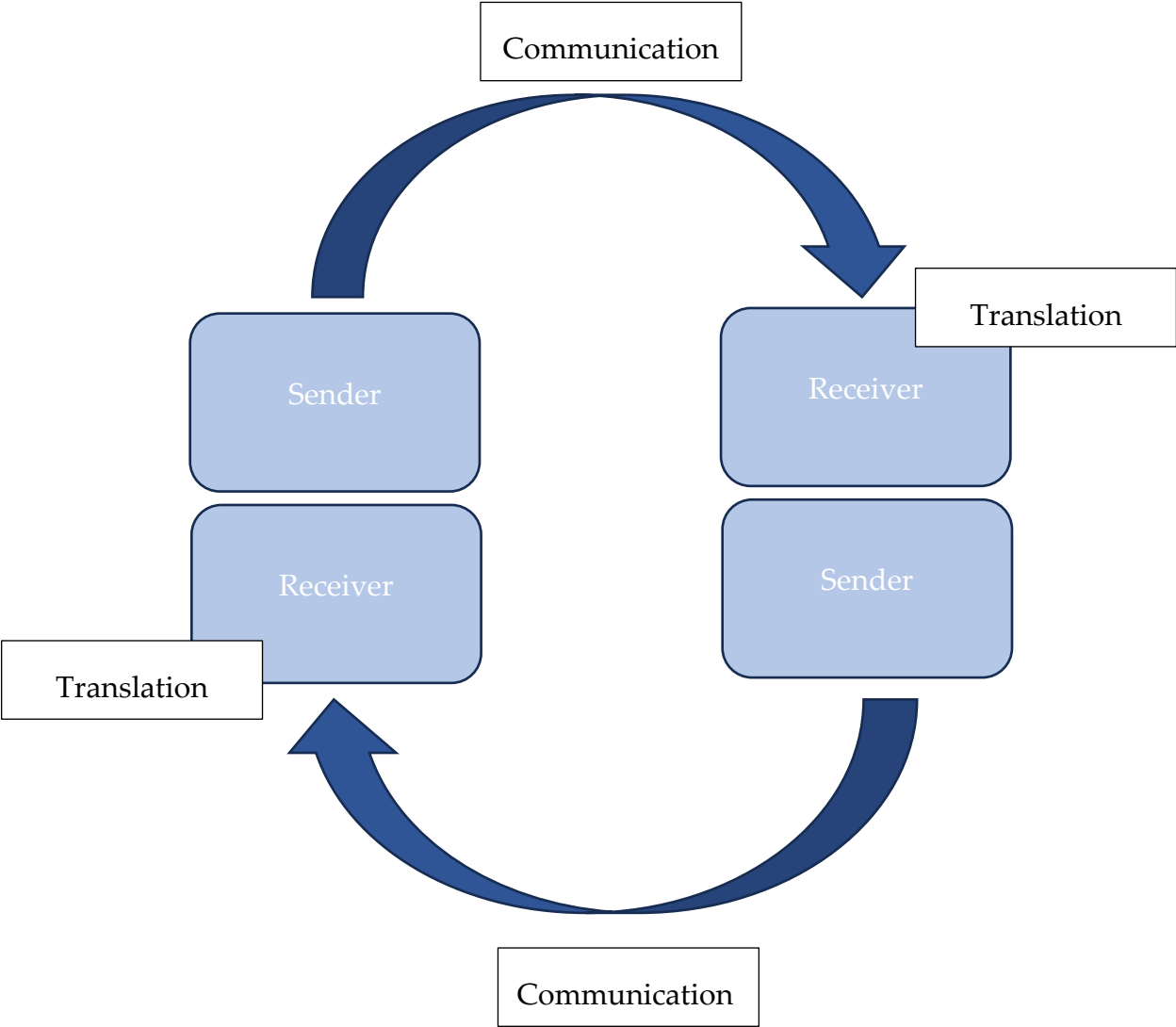
Figure 5 – Knowledge sharing process

2.5. A Knowledge Sharing Model

Continuous innovation as the implementation and commercialization of new ideas into marketable products, processes, or services is considered a key factor for sustainable competitive advantage (Urabe et al., 1988). The innovation mechanism uses creativity to develop ideas that are then collected, put together, reorganized, and synthesized to emerge as valuable goods, practices, services, or procedures from an economic and business point of view (Popadiuk & Choo, 2006). Therefore, innovation depends on creativity. Focusing on the creative process, knowledge is crucial because it is the basis upon which creativity flourishes (Paoloni et al., 2020). As knowledge is the engine of knowledge creation, it is necessary to manage it to capture the tacit knowledge and convert it into explicit knowledge (Nonaka et al., 2000). Accordingly, knowledge management refers to policies and guidelines that foster the identification, dissemination, generation, and institutionalization of knowledge to ensure the proper utilization of the organizational knowledge base, improve knowledge creation, and generate new opportunities for innovation (Andreeva & Kianto, 2012; Davenport & Prusak, 1998; Kianto, 2007; Nonaka & Takeuchi, 1995). New knowledge and novel ideas are generated through deep interactions among employees within the organization. This point of view highlights how knowledge sharing is crucial for this process. Indeed, knowledge sharing is considered a key factor of knowledge management as well as the foundation of organizational knowledge creation (Goswami & Agrawal, 2018; Nonaka & Takeuchi, 1995). Liyanage et al., 2009 have developed a model of knowledge sharing based on the two theories discussed above. The communication and translation process of knowledge sharing encompasses different actors. First of all, knowledge is mainly generated from an individual's brain. According to Zins (2007), knowledge is structured and organized information that has been elaborated inside a cognitive system or is a part of a person's cognitive history. Thus, the individual is one of the main actors in the knowledge sharing process, being

the actor that holds knowledge. Indeed, knowledge is considered to be embedded within individuals, and ideas, insights, and practical know-how possessed by employees help organizations accumulate expertise to increase organizational effectiveness and performance (Gupta & Agarwal, 2023). Therefore, one dimension that influences and nurtures creativity is the human element (Gurteen, 1998).

Moreover, according to Nonaka & Takeuchi (1995), knowledge sharing is a critical stage in the process of knowledge creation defined by the SECI model. Knowledge creation explained by this model involves the conversion of tacit and explicit knowledge. This conversion proceeds with the upward knowledge sharing that starts at the individual level. It progresses to the collective level, where interactions among individuals foster knowledge sharing among teams, reaching the organizational level. This means that transfer occurs at various levels, from individuals to groups, between groups, across groups, and from the group to the organization (Alavi & Leidner, 2001). Hence, teams and groups are other main actors in knowledge sharing. By investigating the processes by which groups integrate information, knowledge creation can be improved (Hinsz et al., 2008).

Furthermore, the SECI process occurs in the "Ba". "Ba" is defined as the specific time–space nexus where tacit knowledge is converted into explicit knowledge (Nonaka et al., 2000). From this concept emerged the idea that knowledge conversion emerges in a "place", such as the organization. However, "Ba" not only refers to the physical place, it could be virtual, mental, or a combination of them that actively promotes interaction for knowledge creation. It doesn't have to stay within the boundary of the organization, but rather it should expand to produce new knowledge, developing the point of view of knowledge creation also as an inter-organizational boundaries process (Nonaka & Konno, 1998; Nonaka & Takeuchi, 1995). Thus, the last actors of the knowledge sharing process are the organizations. A great deal of physical space and

organizational functions and methodologies that facilitate knowledge conversion should be analyzed relative to the creation of knowledge (Konno & Schillaci, 2021).

Therefore, the literature was analyzed by identifying three major variables as factors, barriers, and enablers or solutions respectively to communication and translation, activities that constitute the knowledge sharing process, at the different levels where these variables occur, which are the individual, team, organizational, and inter-organizational level. This concept is summarized in Figure 6.

Thus, having acknowledged that the knowledge sharing process involves a communication and translation process and considering the individuals, teams, and organizations as the main actors in the process, this study aims to make a contribution to the understanding of knowledge sharing by analyzing the factors that influence the knowledge sharing, observing if barriers are generated from them, and which are the potential solutions respectively in the communication and translation process at the individual, team, organizational and inter-organizational levels. A framework of the knowledge sharing model is shown in Figure 7.
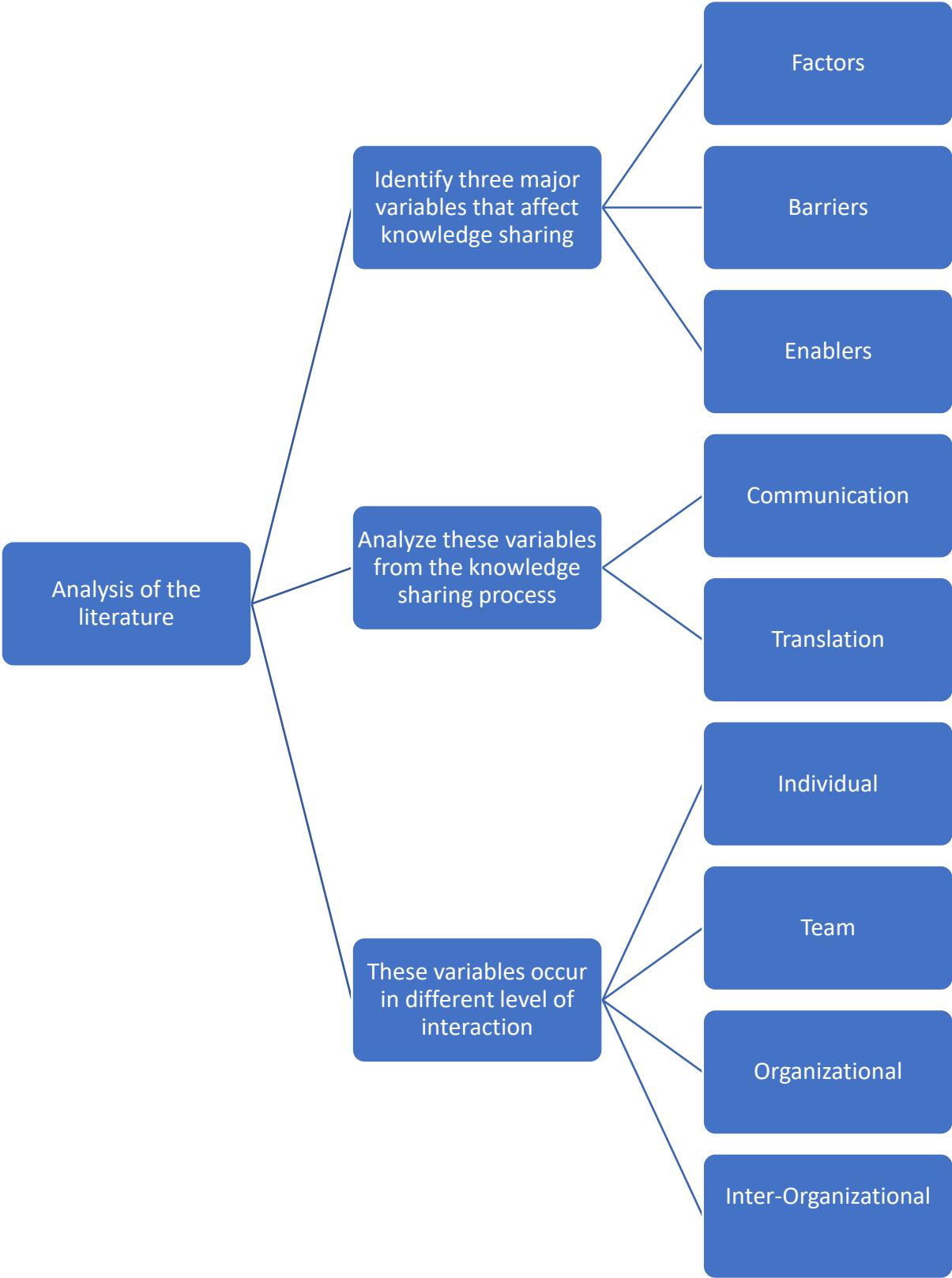
Figure 6 – Analysis of the literature
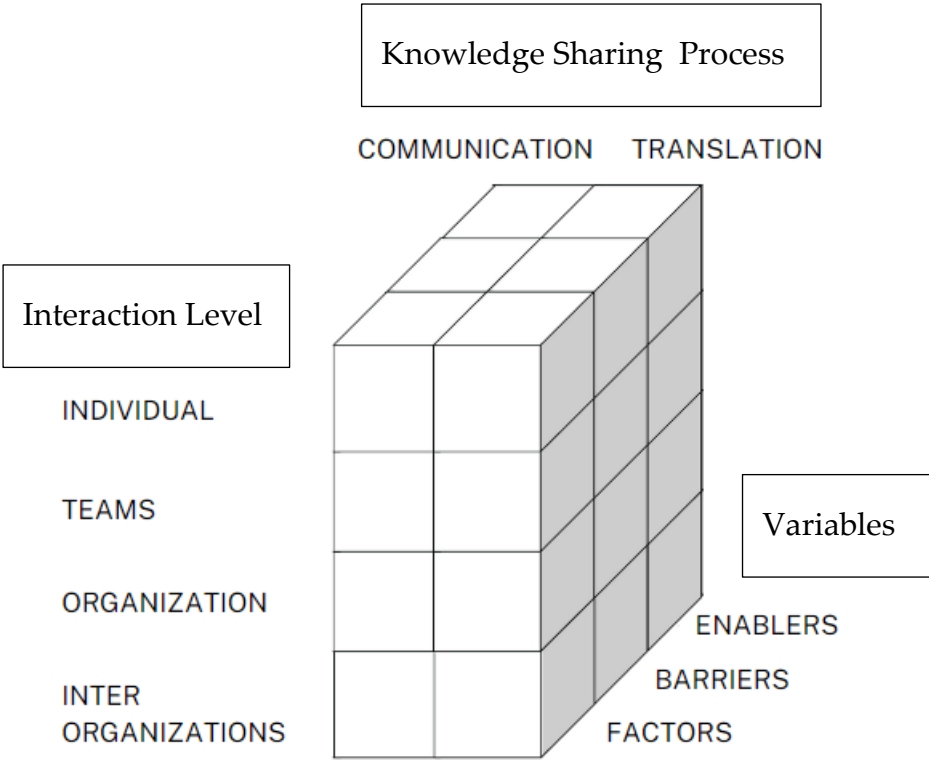
Figure 7 – Framework of the Knowledge Sharing Model

Theoretical Background

3 Methodology

This chapter presents the approach that was used to conduct the systematic literature review. It is divided into four sections. The first section provides a detailed explanation of the choice of keywords and the steps for the definition of the query. In the second section, the search query is presented, together with the number of papers obtained. In the third section, the data extraction form is presented and described. Lastly, the fourth section is focused on data analysis. The process of screening and the classification of the papers and the criteria utilized are described in detail in this last section.

3.1. Search protocol

The study was carried out in the Scopus database using specific keywords to generate a query. The first step was to find the specific keywords to build the query for the systematic literature review.

3.1.1. Keyword definition

In the beginning, the main keywords were "innovation", "creative process" or "creativity", "knowledge", "knowledge management", "framing", "factors" or "barriers" or "enablers" or "solutions", "organization", "knowledge sharing" and

"knowledge transfer". The keywords were selected from relevant articles, as shown in Table 1.

REFERENCES	CITATION	KEYWORDS
Paoloni M, Coluccia. D, Fontana S. & Solimente S. (2020), **Knowledge management, intellectual capital, and entrepreneurship: a structured literature review**. doi:10.1108/JKM-01-2020-0052	54	"Knowledge management" "Innovation"
Lloria, M.B. & Peris-Otrtiz, M. (2014). **Knowledge creation. The ongoing search for strategic renewal**. Doi: 10.1108/IMDS-01-2014-0011	16	"Innovation" "enablers"
Beesley, L.G.A & Cooper, C. (2008). **Defining knowledge management (KM) activities: towards consensus.** Doi: 10.1108/13673270810875859	87	"Knowledge management" "Innovation" "Knowledge transfer"
Gurteen, D. (1998). **Knowledge, Creativity, and Innovation.** Doi: 10.1108/13673279810800744	232	"Creativity"

Wang. S & Noe, R. (2010). **Knowledge sharing: A review and directions for future research.** Doi: 10.1016/j.hrmr.2009.10.001	1754	"Knowledge sharing"
Chen, M. (2006). **Understanding the Benefits and Detriments of Conflict on Team Creativity Process.** Doi: 10.1111/j.1467-8691.2006.00373.x	115	"Creative process" "Knowledge"
Van Burg, E., Berends, H. & Raaij, E.M. (2014). **Framing and Interorganizational Knowledge Transfer: A Process Study of Collaborative Innovation in the Aircraft Industry.** Doi: 10.1111/joms.12055	77	"Framing"
Rhodes, J., Hung, R., Lok, P., Ya-Hui, B & Wu, C.M. (2008) **Factors influencing organizational knowledge transfer: implication for corporate performance.** Doi: 10.1108/13673270810875886	138	"Factors" "Organization"

Table 1 – Selection of keywords extracted from relevant papers

The keywords "creativity" and "creative process" were excluded because the papers obtained were not related to the organizational field. Moreover, together with the keyword "organization", the number of articles was elevated or low. In one case, the words weren't useful to narrow down the field of research and to identify relevant papers, whereas in the other case, the number was not sufficient to carry out a

systematic literature review. Therefore, the two concepts have become a criterion of inclusion or exclusion as it is discussed further. Instead, the words "factors", "barriers" or "enablers" were chosen relative to the objective of the systematic literature review. However, they weren't comprehensive for the analysis. Thus, also these concepts have become a criterion for the screening.

3.1.2. Inclusion and Exclusion Criteria

In defining the query, some of the available filters were used:

-        Refinement by areas of knowledge within Business, Management & Accounting and Social Science;

-        Refinement by type of document where the option "article" and "review" were selected;

-        Refinement by type of source where "journal" was selected;

-        Refinement by language where English was selected.

Some examples of queries are reported in Table 2. In particular, the documents found show the number of papers found without the application of filters, while the refined ones show the number of papers found after the application of the filter listed above.

QUERY	DOCUMENTS FOUND	REFINED SEARCH
("creative process" OR "creativity") AND "knowledge"	14.129	4.796
("creative process" OR "creativity") AND "organization"	9.575	3.842

("creative process" OR "creativity") AND ("factor*" OR "barrier*" OR "enabler*" OR "solution*")	10.924	4.001
"organization" AND ("knowledge management" OR "knowledge transfer" OR "knowledge sharing")	27.081	9.209
("creative process" OR "creativity") AND ("knowledge management" OR "knowledge transfer" OR "knowledge sharing")	273	116
("creative process" OR "creativity") AND ("knowledge management" OR "knowledge transfer" OR "knowledge sharing")	1.410	322
("creative process" OR "creativity") AND ("knowledge	596	255

management" OR "knowledge transfer" OR "knowledge sharing") AND "organization"		

Table 2 – Example of queries together with the number of documents found

After different trials and combinations, the search query for the systematic literature review was defined.

3.2. Search Query

Thus, the query initially found was adjusted into the following one:

["Innovation" AND "Fram*" AND ("Knowledge Management" OR "Knowledge sharing" OR "Knowledge transfer")]

These keywords were chosen to extract relevant papers about knowledge for innovation in the field of knowledge management meant as a problem framing process.

Once the query was defined, 2493 relevant and related articles were found. Using the filters presented above, the results were the following:

-       Refinement by areas of knowledge within Business, Management & Accounting, and Social Science, and 1489 papers were found.

Methodology

\-   Refinement by type of document where the option "article" and "review" were selected, and 1057 papers were found.

\-   Refinement by type of source where "journal" was selected, and 1054 papers were found.

\-   Refinement by language where English was selected, and 1022 papers were found.

Once the search was defined and completed, 1022 papers were selected for further refinement by the filters available on Scopus.

The search query is summarized in Table 3.

Criteria 1: **Innovation**	**TITLE-ABS-KEY** ("innovation") **AND**
Criteria 2: **Creative process**	**TITLE-ABS-KEY** ("fram*") **AND**
Criteria 2: **Knowledge**	**TITLE-ABS-KEY** ("Knowledge managemet" **OR** "Knowledge sharing" **OR** "Knowledge transfer")
Filter 1: **Subject area**	**LIMIT TO** Business, Managemen & Accounting OR Social Sciences
Filter 2: **Source & Doc type**	**Source**: Journals
	Doc type: Article OR Review
Filter 3: **Language**	English

Table 3 – Search query

3.3. Data extraction form

Once the search query was established, the data extraction form was defined. Data extraction is the process of extracting the relevant pieces of information from the documents found in the query. Information was synthesized and organized according to the article information, study information, and concepts.

Relatively at the article information, in addition to the general information, a check of the quality was performed. In particular, only papers within the first quartile or journal considered a gold star, gold, or silver were selected. Instead, regarding the study information, specific characteristics such as the research query, the theory, the methodology, and the level of analysis were determinants. Lastly, several concepts within the papers were researched. These concepts served as a criterion for choosing whether to include or exclude the different articles. The first criterion was to verify if the paper was about knowledge, knowledge management (KM), or KM operations. Then, the second one was to verify if the main topic was about innovation. The third one was to verify if the analysis of value creation was from an organizational point of view. Lastly, the fourth criterion was to verify if the analysis of innovation within an organization was intended as a creative process to generate ideas. As mentioned in the introduction, creativity and innovation are two different concepts. Amabile, 1996 defines creativity as the generation of new ideas that can be applied in various strategic areas of the firm. Innovation, on the other hand, refers to the application and implementation of these ideas to transform them into more concrete and valuable elements from an economic and business perspective (Popadiuk & Choo, 2006). Considering these definitions, it was important to collect papers relative to the creative process instead of the modality of idea implementation.

The data extraction form is summarised in Table 4.

ARTICLE INFO

- ID
- Title
- Keywords
- Author(s)
- Journal
- Years
- Quartile

STUDY INFO

- Research Question
- Theory
- Methodology (Qualitative, Quantitative...)
- Level of Analysis (Micro, Meso, Macro...)

CONCEPTS

- Knowledge, Knowledge Management and Knowledge Management Operations
- Innovation
- Organizational field
- Creative process/framing

Table 4 – Data Extraction Form

3.4. Data analysis

After the data extraction and the screening by title and abstract were performed, a screening by the content was carried out. To classify the articles included, different categories were defined.

Considering the model of analysis discussed above, the knowledge sharing process is based on two theories: the theory of communication and the theory of translation. According to the theory of communication, the process of knowledge transfer has two

main actors: the sender who shares the knowledge, and the receiver who acquires the knowledge. Communication is the process through which people share information with each other to achieve mutual understanding and it is essential for knowledge sharing (Beesley & Cooper, 2008; Gao et al., 2018; Liyanage et al., 2009; Tsai & Zheng, 2021; Zhang et al., 2021). Instead, the theory of translation argues that additional knowledge is required to shape the knowledge transferred. Thus, there is a transformation by adding or deleting knowledge or it can involve different interpretations of the same knowledge (Seaton, 2002). Therefore, two categories were relative to these two theories.

On the other hand, considering the level of interactions, the process of knowledge sharing encompasses different actors. First of all, knowledge is mainly generated from an individual's brain. People generate information by processing data, by adding meaning, understanding, relevance, and purpose. Then, information is transformed into knowledge through personal application, values, and beliefs (Bender & Fish, 2000). According to the SECI model through four specific processes such as socialization, externalization, combination, and internalization (Nonaka, 1994). Moreover, after the SECI model was introduced, the concept of "ba" was proposed. Ba is defined as the specific time–space nexus where tacit knowledge emerges and it is converted into explicit knowledge. 'Ba' refers to the physical, virtual, or mental place that actively promotes simultaneous and spontaneous interaction for knowledge creation (Nonaka et al., 2000). As a result, interactions between individuals, teams or groups, and organizations are just as important as the singular individual in the development of knowledge. Indeed, personal interactions appear to be the most influential ones for the generation of new ideas (Sáenz et al., 2012) and inter-organizational innovation enables companies to boost knowledge levels and facilitate knowledge access (Xie et al., 2016). A firm can increase its knowledge and innovative capacities by utilizing others' skills through the transfer of knowledge within and across firms (Easterby-Smith et al., 2008). Nevertheless, knowledge sharing is a

complex phenomenon and a successful transfer is often not easy to achieve (Gao et al., 2018). Therefore, four categories were relative at the level of interactions such as individual, team, organizational, and inter-organizational.

Last, considering the objective of this systematic literature review, this study aims to make a contribution to the understanding of the knowledge sharing process by analyzing the factors that influence knowledge sharing, observing if barriers are generated from them, and which are the potential solutions at the individual, team, organizational and inter-organizational levels to potentially boost and empower creativity and innovation in organizations. Therefore, three categories were relative to the three elements of analysis such as factors, barriers, and enablers or solutions.

Table 5 reports the number of articles that enter within the respective categories. An article could enter in more than one category. In addition, Table 6 summarizes the paper selection process.

CATEGORY	NUMBER OF ARTICLES
Communication	74
Translation	65
Individual	76
Team	68
Organizational	97
Inter-organizational	38
Factors	48

Barriers	34
Enablers/Solutions	61

Table 5 – Number of articles within the categories

IDENTIFICATION	Definition of the query and literature search in Scopus (n=2493)
REFINEMENT	Business, Management & Accounting and Social Science (n=1489)
	Article and Review (n=1057)
	Journal (n=1054)
	English (n=1022)
SCREENING BY TITLE AND ABSTRACT	Knowledge, Knowledge Manaement or KM operations (n=776)
	Knowledge or KM for Innovation (n=719)
	Organizational field (n=551)
	Problem framing/creative process (n=426)
QUALITY SCREENING	Gold Star, Gold, Silver or Q1 (n=212)
SCREENING BY THE CONTENT	Full text article (n=114)

Table 6 – Summary of the paper selection process

Methodology

4 Results

In this chapter, we will present the results of the systematic literature review. It is divided into two main parts: the first will focus on the theory of communication, while the second one will be dedicated to the theory of translation. These two parts are in turn divided into four sections relative to the level of interactions, which are individual, team, organizational, and inter-organizational. For each level of interaction and each theory the factors, the barriers, and the enablers or solutions are reported.

4.1. Communication

In this section, the factors, barriers, and enablers or solutions related to the knowledge sharing communication process are reported and divided according to the level of interactions in which they occur.

4.1.1. Individual

In this paragraph, the factors, barriers, and enablers or solutions related to the knowledge sharing communication process are reported and analyzed from the individual point of view.

4.1.1.1. Factors

First of all, the **characteristics of knowledge** have a significant impact on the success of knowledge sharing. In particular, the levels of tacitness and complexity of

Results

knowledge have a significant impact on the knowledge stickiness. The term "stickiness" is used to describe the difficulty of transferring information and defines the required effort to transfer it. Stickiness can be attributed to different factors such as the information itself, the way it is encoded, or the characteristics of information seekers or providers (Argote et al., 2003; von Hippel, 1994). To communicate information, individuals need to replicate the knowledge. If the replication is not aligned with the meaning associated with the original knowledge, a casual ambiguity of the knowledge is produced, especially when the factors for the failure are not determined (Szulanski, 1996). Therefore, characteristics of knowledge such as knowledge stickiness may pose some challenges in knowledge replication and hamper knowledge communication. Some of the knowledge produced by the internal cognitive human system is more explicit and so easier to understand and transmit, while other information is more implicit and hence more difficult for individuals to express or externalize. Explicit knowledge is easily recorded, encoded, and stored (Nonaka, 1994). It may also be articulated and transferred in formal and systematic language. Therefore, verbalized and articulated knowledge in a formal language that is simple to transmit among individuals is defined as explicit knowledge. On the other hand, tacit knowledge is personal and context-specific knowledge. Since it is deeply rooted in behavior and commitment, it is difficult to formalize and transmit (Polanyi, 1996).

Considering instead the individuals, **personality** and **cooperative behavior** may influence the dissemination of knowledge. The cooperative behavior is based on the concept of altruism. Employees may share knowledge because they experience joy and satisfaction in helping their colleagues, which depends on people's personality (Gupta & Agarwal, 2023; Wang & Noe, 2010). Knowledge resides in an individual's mind, thus the knowledge holder should have the willingness to exchange information (Erena et al., 2023). However, people are characterized by **self-interest**. The majority of the most successful economic theories affirm that each acts in their own self-interest (Konno &

Schillaci, 2021). Indeed, according to Sung & Choi (2018), organizations should align the interests of the company with those of the employees or hire employees who have the same interests as the company to benefit from this factor. Another factor that influences knowledge sharing is the **usefulness of knowledge**. If employees believe that their knowledge is valuable to others and they can improve their relationship with other workers by sharing the information, they will tend to share the knowledge (Wang & Noe, 2010). Also, **reciprocity** influences knowledge sharing behavior. Individuals expect that people will reciprocate if they share information. Thus, if there is a strong reciprocity, employees are more likely to share knowledge regularly (Nguyen et al., 2022). Lastly, **reputation** is another factor that influences the knowledge exchange. When the level of reputation is high, workers will be constantly committed to sharing knowledge to maintain the high-level position or they will tend to be careful in sharing information to not damage their image. Instead, if the level of reputation is low, this will not encourage individuals to share their thoughts (Arokiasamy et al., 2021).

4.1.1.2. Barriers

Gurteen (1998) argues that two main barriers block an individual from sharing knowledge. First of all, the **fear of "getting it wrong", "failure" or "making fool of oneself"** can lead an individual to not share knowledge. Then, at the beginning **new ideas are contradictory and ill-formed**. Individuals might not share their ideas because they don't recognize their value. However, new ideas should have an opportunity to be nurtured and to be developed before they can be ruled out.

4.1.1.3. Enablers or Solutions

Employee knowledge sharing and innovative behavior are positively influenced by work **commitment** and **motivation.** Under the effect of these factors, the knowledge holder will increase the effort and the quality of the dissemination of knowledge (Kim

Results

& Park, 2017; Mazzucchelli et al., 2019; Ojha et al., 2022; Zhang et al., 2021). For example, curiosity has been considered as a form of motivation. Indeed, individuals found that exploring new things is intrinsically motivating (Basadur & Gelade, 2006; Tsai & Zheng, 2021). Thus, organizations should focus on the motivational force of the employees by providing incentives and fostering an environment that generates a feeling of self-worth (Erena et al., 2023; Li & Hsieh, 2009). When individuals' value is recognized, they develop a better self-perception of skills, increasing the likelihood of sharing knowledge with others. Workers equipped with confidence can share their thoughts without any fear (Rafique & Mahmood, 2018; Wang & Noe, 2010). Thus, **self-efficacy** should be empowered. In particular, self-efficacy is represented by feelings of trust, gratitude personal responsibility, and recognition (Gupta & Agarwal, 2023). **Job and task characteristics** are crucial in enhancing this individual self-efficacy. When tasks are in line with workers' abilities or when jobs require creativity, employees often exhibit higher levels of knowledge self-efficacy, commitment, and motivation (Basadur & Gelade, 2006; Nguyen & Malik, 2020). For example, the level of autonomy, the possibility to perform different tasks, and getting feedback are important characteristics that increase employee commitment and motivation (Martinez, 2015). To achieve the person-job fit, organizations have to balance the job demands and job resources. Job demands represent those job aspects that require physical, emotional, or mental effort from the employees, while job resources refer to the job aspects that are functional to achieve work goals, promote personal growth and development, or reduce job demands (Bakker & Demerouti, 2007). In general, there are different work re-design practices that can improve job quality such as job rotation (rotation of tasks among employees to pursue less repetitiveness and rigidity), job enlargement (increasing the number of tasks assigned to a job), or job enrichment (increasing the level of autonomy and discretional power of individual jobs) (Zhang & Parker, 2019). Another way to achieve person-job fit is the **alignment of interests,** as mentioned before relative to self-interest. Organizations should align the interests of the company

with those of the employees or hire employees who have the same interests as the company to benefit from this factor (Sung & Choi, 2018). In addition, there is a positive correlation between job satisfaction and knowledge sharing. **Job satisfaction** increases motivation, commitment, and, therefore, the willingness of employees to share knowledge. In turn, the more employees are satisfied and encouraged to share information, the greater the impact they could have on the organization's performance (Rafique & Mahmood, 2018; Wang & Noe, 2010).

4.1.2. Team

In this paragraph, the factors, barriers, and enablers or solutions related to the knowledge sharing communication process are reported and analyzed from the team's point of view.

4.1.2.1.Factors

A factor that could influence teamwork is **competition**. Competition could increase the willingness to share knowledge among the workers by increasing concentration, commitment, and persistence to the task (Martinez, 2015). On the other hand, if knowledge is seen as a source of superiority and power, this will discourage employees from sharing knowledge. Disclosing unique information could put at risk their competitive position among team members (Narayanan et al., 2020) or could decrease the opportunities to receive positive evaluations and benefit personal gains such as cash bonuses or promotions (Wang & Noe, 2010). Moreover, this perception of knowledge could lead competent employees to consider leaving the organization due to negligence (Pandey et al., 2022). Indeed, the **organizational climate** is a factor that influences team behavior. Knowledge sharing may be hindered by an organizational climate that emphasizes negative competitiveness, while an environment that fosters cooperativeness and learning has a positive effect on the exchange of knowledge

(Schepers & van den Berg, 2007). Support and feedback from colleagues had a positive impact on knowledge sharing behavior (Foss et al., 2013). Another factor that affects knowledge sharing communication is **conflicts**. There are two types of conflicts: task and interpersonal conflicts. Task conflicts lead the opposing actors to a deeper confrontation and a further exchange of information, whereas interpersonal conflicts have generally negative effects. When the moment of brainstorming within a team becomes a moment of point-scoring, knowledge sharing is hindered. Employees can purposely hide knowledge to defend their position and their point of view (Lanke, 2018). Moreover, there is a positive correlation between interpersonal and task conflict. One sort of conflict can breed the other, which means that task conflict may increase interpersonal discord and dissatisfaction (Chen, 2006).

4.1.2.2.Barriers

The major barrier that hampers knowledge communication within a team is **knowledge hiding.** The existing literature has recognized the negative impact of knowledge hiding on team communication and thus on their performance. For example, the minority of status or diversity leads people to hide knowledge. Team members who felt they belonged to a minority due to their gender, marital status, or level of education were less willing to share their thoughts with other colleagues (Wang & Noe, 2010). Instead, if an employee believes their knowledge is useful to others, they may share it, but after a certain point, people who possess unique abilities or valuable knowledge tend to keep their possessions to themselves (Pandey et al., 2022; Arokiasamy et al., 2021). An individual may be reluctant to share knowledge to maintain their distinguished reputation within the team. Sharing unique knowledge could make an employee's position less influential and boost the position of others (Tang et al., 2014). Moreover, knowledge hiders' attitude is influenced by their perceived social norms surrounding the behavior. Organizational culture and climate, the management style of the superiors, as well as the national culture where the team

is located, may all have an impact on how acceptable they consider the behavior to be (Xiong et al., 2021). Knowledge hiding can lead to a lower individual commitment and trust within the team, a moral decoupling such as an individual's different perceptions of performance and morality, and an information asymmetry such as different awareness and different extent of knowledge among teams (Pandey et al., 2022).

4.1.2.3. Enablers or solutions

Rewards have been recommended as a supportive system that can facilitate knowledge sharing by increasing motivation and commitment (Argote et al., 2003; Kaplan & Reed, 2007). In particular, extrinsic rewards are more effective in encouraging employees to share knowledge in private companies, whereas intrinsic reward increases are more effective in public companies (Nguyen & Malik, 2020). Despite the positive influence of incentives on knowledge sharing, the empirical results of studies examining the effects of rewards have been mixed. Some studies reported that extrinsic rewards had a negative effect on attitudes toward knowledge sharing. Goh (2002) affirms that rewarding merely financial success tends to increase negative competitiveness and a lack of collaboration, thus it is suggested that one strategy to promote knowledge sharing is to base awards on more than just financial performance. Moreover, according to Wang & Noe (2010), individuals could be discouraged to share knowledge to receive positive evaluations from human resources and benefit from personal gains such as cash bonuses or promotions.

Instead, the **top management support** covers a positive mediating role in the knowledge sharing behavior. Top management can promote a favorable environment and recognize workers' contributions (Lin, 2014; Arokiasamy et al., 2021). It has an impact on both the quality and quantity of knowledge sharing. When support and encouragement are received by top managers, then knowledge sharing increases among employees. Top management support can develop a positive perception of the usefulness of knowledge exchange and collaboration with each

other (Gupta & Agarwal, 2023) and increase individual commitment and motivation
(Rios-Ballesteros & Fuerst, 2022; Wang & Noe, 2010). Also, **leadership** plays a crucial role
in knowledge sharing because it nurtures motivation and promotes the successful
implementation of knowledge (Erena et al., 2023; Kaplan & Reed, 2007). The leader, as a
role model, has a major influence on individuals. An attitude that reflects the
willingness to freely share information and knowledge creates an environment of
trust and influences attitudes throughout the team (Goh, 2002). Indeed, **trust** is
considered an enabler of knowledge sharing (Beesley & Cooper, 2008; Choo & de
Alvarenga Neto, 2010; Schneckenberg et al., 2015). The fear of failure or "making fool of
oneself" is one of the common barrier to communication and trust alleviate this kind
of fear. Hence, individuals feel confident to share their thoughts or ask for help
(Gurteen, 1998; Maharjan, 2020; Rios-Ballesteros & Fuerst, 2022). Trust also alleviates
concerns relative to misappropriation and misuse of knowledge so it has a positive
impact on the extent of knowledge disclosure (Argote et al., 2003). Thus, trust within
a team is considered essential. Team members who trust each other find intrinsic
satisfaction in helping colleagues, show greater teamwork and commitment,
participate in more knowledge sharing, and perform less counterproductive work
practices such as knowledge hiding (Alshwayat et al., 2021; Käser & Miles, 2002).
However, employees may not share their knowledge even when they trust their
colleagues if there is a strong competition or if they feel that their position could be
compromised (Narayanan et al., 2020). Thus, organizational climate influences the
ability of trust to foster knowledge sharing (Schepers & van den Berg, 2007).

Another enabler of knowledge sharing is the **identification.** Employees who strongly
identify themselves with the team are more motivated to share information for team
pride and benefit (Tang et al., 2014). Also, **task similarity** affects the transfer of
knowledge. The more similar the number of elements across the tasks, the greater the
likelihood of knowledge sharing (Argote & Ingram, 2000). Lastly, a **shared vision**
ensures that everyone is working in a coordinated manner toward the same goals

58

and that they all have the same priorities. Consequently, communication is facilitated (Rios-Ballesteros & Fuerst, 2022).

4.1.3. Organizational

In this paragraph, the factors, barriers, and enablers or solutions related to the knowledge sharing communication process are reported and analyzed from the organizational point of view.

4.1.3.1. Factors

Organizational structure provides several mechanisms through which coordination and collective performance may be realized. These mechanisms such as roles, physical proximity, and spatial separation have a significant impact on knowledge sharing (Jain & Huang, 2022; Kapoor & Aggarwal, 2021). Roles establish social position and expectations, clarifying responsibilities and thereby facilitating coordination and communication with predictability and efficiency (Lee & Edmondson, 2017). However, the formal system may often become overly bureaucratic, making it difficult for employees to interact with one another, support one another, share knowledge, resolve issues and problems, and build trustworthy relationships (Alshwayat et al., 2021). Instead, physical proximity encourages collaboration, communication, and the sharing of tacit information. The physical proximity of the architecture of workplaces may foster communication and knowledge sharing even if workers don't work and interact directly (Dingler & Enkel, 2016; Nonaka, 1994).

The opposing approach is spatial separation, which suggests that different knowledge processes are carried out in distinct organizational units and specialized structures to ensure and facilitate their reconfiguration and realignment (Lichtenthaler & Lichtenthaler, 2009). An example is organizational silos. Separating employees into individual groups and different structures has the opposite effect on physical

59

proximity and a detrimental impact on knowledge sharing. Indeed, the organizational silos work as an invisible barrier between different entities that prevents communication and shared goals within the organization (Oparaocha, 2016). Therefore, organizational silos and managerial hierarchy are organizational features that do not promote knowledge sharing (Kim & Park, 2017; Nonaka, 1994). Within organizations that maintain hierarchical levels and silos, knowledge frequently resides in one area and it is not easy to move to other parts of the organization (Goh, 2002). Also, **centralization** has contrasting effects. Centralization refers to what extent decision-making power is kept completely by top management rather than being distributed to employees at lower levels of the organization. A centralized structure is characterized by an efficient and transparent chain of communication and command since everyone knows who to report to (Foss et al., 2013). On the other hand, recent research has confirmed that a less centralized structure facilitates knowledge sharing by creating an environment that encourages interaction among employees due to the lack of bureaucratic command. According to this perspective, organizations should foster employee engagement by underestimating factors like seniority, status, and position in the organizational hierarchy to encourage knowledge sharing (Wang & Noe, 2010). Moreover, top managers rarely have the full expertise needed to solve organizational problems. Individuals at all organizational levels must share and contribute information and ideas to improve decision-making (Lee & Edmondson, 2017).

Thus, organizational structure has contrasting characteristics that affect knowledge sharing.

4.1.3.2. Barriers

Knowledge loss as a result of resignations by valuable employees and the retirement of the most senior and experienced employees is considered a critical issue within organizations (Holtshouse, 2010). The expertise loss can't be stored and thus shared,

reducing the ability of innovation and contributing to the loss of competitive advantage (Caldas et al., 2015).

4.1.3.3. Enablers or solutions

The literature presents different enablers for organization knowledge communication. For example, recent research confirmed that the process of knowledge sharing from individuals to groups and then to the organization is positively enhanced by **information technological (IT) systems** (Ben Arfi & Hikkerova, 2021; Goh, 2005; Kapoor & Aggarwal, 2021; Lin, 2014; Rhodes et al., 2008; Sáenz et al., 2012). IT systems can significantly increase the deposit, the scale, and the access to information as well as the efficiency of knowledge sharing across the organization, boosting productivity and creativity (Choo & de Alvarenga Neto, 2010; Narayanan et al., 2020). Indeed, this technical support may reduce the psychological and physical efforts associated with knowledge sharing, which can improve workers' capacities and possibilities for knowledge exchange and activation (Sung & Choi, 2018). Thus, IT systems support collaboration, coordination, and communication processes.

As mentioned before in team enablers, a **shared vision** among the members of an organization promotes knowledge sharing. Having acquired a common context and understanding, communication is facilitated because people are empowered to make proper judgments and to act with a common goal and purpose (Kaplan & Reed, 2007; Sáenz et al., 2009). Then, if an organization does not have an appropriate culture, knowledge sharing processes will be very challenging and limited. **Organizational culture** is considered as an underlying enabler that influences employees to share ideals, norms, and convictions that shape their behaviors and attitudes within an organization (Arokiasamy et al., 2021; Goh, 2005; Kapoor & Aggarwal, 2021; Oparaocha, 2016). Middle management could be a key factor in organizational sharing culture. Middle managers practice collaboration and knowledge sharing between the senior level and operational level, becoming role models for employees (Alshwayat et

61

al., 2021). In general, organizations should cultivate a culture that prioritizes sharing to facilitate knowledge flows. Employees will be able to generate new ideas or insights when the culture supports knowledge sharing (Erena et al., 2023; Gupta & Agarwal, 2023; Lin, 2014; Rhodes et al., 2008). According to Tseng (2010), the types of culture that are more appropriate to promote knowledge sharing are adhocracy and clan cultures. Adhocracy culture emphasizes entrepreneurship, creativity, adaptability, goal achievement, productivity, and efficiency, whereas clan culture emphasizes participation, teamwork, and cohesiveness, reflecting internally oriented and value for informal governance systems. The latter fosters greater development of tacit knowledge and facilitates knowledge sharing among employees due to its high levels of trust and low levels of conflict. This type of working environment allows people to collaborate directly, teach each other, and share experiences. On the other hand, hierarchy culture promotes order, uniformity, efficiency, and control, reflecting internally oriented and formalized values. This culture tends to create a form of localized information, discouraging employees from exchanging knowledge. Therefore, a hierarchy culture is not appropriate to improve knowledge sharing.

Relatively to the organizational structure that influences knowledge communication, a characteristic of the organizational structure that is associated with knowledge sharing is **flexibility**. There is a positive relationship between structure flexibility and better information sharing (Rhodes et al., 2008). In fact, compared to large companies, small and medium-sized organizations tend to be more innovative due to better internal flexibility, communication, and management structures (Zelaya-Zamora & Senoo, 2013). Instead, **new forms of organizations** could be a solution to the contrasting characteristics observed above. Many scholars have discussed the drawbacks of the managerial hierarchy as a form of organization. By exploring viable substitutes, three categories were created. Each of them entails a variety of subjects, perspectives, levels of analysis, and methodological approaches. The three categories were defined as post-bureaucratic organizations, humanistic management, and

organizational democracy (Lee & Edmondson, 2017). Post-bureaucratic organizations emphasize less-hierarchical management. Organizations should be more flexible and responsive to survive in a new post-industrial environment in which creative process and innovation serve as the key drivers of success. Humanistic management, instead, emphasizes participation among employees through empowerment programs or self-managed teams to improve individual experience at work. By empowering and fostering the employees' participation, organizations increase job satisfaction, motivation, and organizational commitment, which are indeed individual communication enablers that have been described in the previous section. Last, organizational democracy tends to improve the relationship between labor and management. This third category is characterized by democracy, which involves giving workers more influence and decision authority over their work and work environment, and a democratic culture described as an atmosphere of full and free communication regardless of rank or power is crucial.

Lastly, relative to the knowledge loss, having an effective **knowledge retention plan** could be a solution. Caldas et al., (2015) propose a detailed experiential knowledge-retention management model with the aim to maintain collective knowledge. The goal of the experiential knowledge-retention management (EKRM) model is to solve the practical issues that organizations face in reducing the risks related to experiential knowledge loss. The model acts as a guide that assists the user in determining the risks of experiential knowledge loss within their organization, guides the user(s) in selecting the proper knowledge-transfer strategy, and assists the user(s) in overcoming challenges that are frequently encountered when putting an experimental knowledge-retention program into action. The model is composed of five phases:

1. Preparation stage, which consists of formalizing and applying the program across the organization.

2. Assessment stage, which is used to help identify where risks exist across specific company areas, and within those specific company areas, which individuals present the greatest risk.

3. The planning stage, which consists in looking at the specific company area assessed in the previous stage and maximizing the effectiveness of knowledge-retention efforts. Hence, this stage involves characterizing the transfer environment and selecting the proper knowledge transfer strategy.

4. Execution stage.

5. Monitoring stage as a mean to review the efficacy of the program.

Retaining knowledge has several advantages such as preserving or improving operational effectiveness, decreasing the likelihood of crucial errors, fostering innovation, and enabling the pursuit of growth strategies.

4.1.4. Inter-organizational

In this paragraph, the factors, barriers, and enablers or solutions related to the knowledge sharing communication process are reported and analyzed from the inter-organizational point of view.

4.1.4.1. Factors

Different cultures and **different knowledge** have a significant impact on knowledge sharing (Argote et al., 2003; Duan et al., 2021; Tseng, 2010). Working with new people from different organizational backgrounds or a different national culture could bring new insights and generate novel opportunities (Fayard et al., 2016). On the other hand, the main organizational culture could have an inertial reaction and reject new and innovative practices, especially if they are incompatible with the organizational values employees are committed to. Indeed, besides national cultures, also **organizational culture** influences the communication process. In general, organizations should

64

cultivate a culture that prioritizes sharing to facilitate knowledge flows. Employees will be able to generate new ideas or insights when the culture supports knowledge sharing (Erena et al., 2023; Gupta & Agarwal, 2023; Lin, 2014; Rhodes et al., 2008). According to Tseng (2010), the types of culture that are more appropriate to promote knowledge sharing are adhocracy and clan cultures. Adhocracy culture emphasizes entrepreneurship, creativity, adaptability, goal achievement, productivity, and efficiency, whereas clan culture emphasizes participation, teamwork, and cohesiveness, reflecting internally oriented and value for informal governance systems. The latter fosters greater development of tacit knowledge and facilitates knowledge sharing among employees due to its high levels of trust and low levels of conflict. This type of working environment allows people to collaborate directly, teach each other, and share experiences. On the other hand, hierarchy culture promotes order, uniformity, efficiency, and control, reflecting internally oriented and formalized values. This culture tends to create a form of localized information, discouraging employees to exchange knowledge. Therefore, the distance of culture and expertise can make daily communication more difficult, complicating knowledge sharing across national boundaries (Easterby-Smith et al., 2008). A valuable organizational culture can lower the negative impact of different cultures and knowledge and facilitate knowledge sharing among organizations (Alassaf et al., 2020). Moreover, introducing new people within a team could compromise the performance. By working together, the team improves performance by acquiring transactive memory. The term "transactive memory" refers to a database that is created within a team to collectively encode, store, retrieve, and communicate information and knowledge across different domains (Aggarwal & Woolleyb, 2019). Team members know who is competent at which task and with which tools, facilitating the exchanging of thoughts and ideas and teamwork (Argote & Ingram, 2000). By introducing new workers, this transactive memory cannot be fully utilized but has to be created once again. Therefore, having different organizational and national cultures have also a negative impact (Leal-

Rodríguez et al., 2013; Rios-Ballesteros & Fuerst, 2022; Wang & Noe, 2010). As in teams, **conflicts** influence also communication at the inter-organizational level. There are two types of conflicts: task and interpersonal conflicts. Moreover, there is a positive correlation between interpersonal and task conflict. One sort of conflict can breed the other, which means that task conflict may result in an increase in interpersonal discord and dissatisfaction. At the team level, task conflicts lead the opposing actors to a deeper confrontation, delving into the issue and developing a more comprehensive understanding of the problem, whereas interpersonal conflicts have generally negative effects. When the moment of brainstorming within a team becomes a moment of point-scoring, knowledge sharing is hindered (Chen, 2006; Lanke, 2018). Instead, in the organizational context, task conflicts foster once again exchange of information (Mu et al., 2021) while the negative impact of interpersonal conflicts can be strengthened by the organizational culture. People from different organizations have different values and expertise, thus the main organization could have an inertial reaction and refuse to collaborate and communicate, especially if their values are incompatible with the other organization (Fayard et al., 2016).

4.1.4.2. Barriers

Geographical dispersion increases the complexity that must be managed in inter-organizational knowledge sharing. Geographical distance hinders the ability and speed of information exchange. Employees must rely on intermediaries or virtual communication instead of face-to-face interaction, which hinders the speed of transfer and may alter the real meaning of the information exchanged. Adding to this the unfamiliar cultures of different nations, the difficulty of communicating and exchanging knowledge further increases (Rios-Ballesteros & Fuerst, 2022). Also, **power** acts as a barrier to knowledge sharing. To gain benefits from cooperation, firms need to contribute by sharing their valuable resources with each other. However, organizations could be motivated to prevent unintentional knowledge transfer due to

a fear of losing power (Zhang et al., 2019). Taking into consideration the theory of communication within inter-organization collaboration, one organization will represent the donor whereas the other will represent the recipient. Usually, there is a power asymmetry between the two actors, with the former having a superior position and having knowledge to share. While the donor could perceive the risk of inadvertent knowledge transfer and of the erosion of its competitive advantage, on the other hand, the recipient may run the risk that the received knowledge is not valuable or not of good quality (Easterby-Smith et al., 2008). Furthermore, the **structure of the inter-organizational collaboration** can strengthen this power asymmetry. Structures such as franchising, licensing, and joint ventures vary in the amount of equity investment and partner interaction, presenting different situations of power distribution where knowledge sharing occurs (Oparaocha, 2016).

4.1.4.3. Enablers or solutions

Socialization is considered by the literature to be the main enabler of knowledge sharing across organizations. By making people spend time together and helping them understand the different backgrounds which they come from, socialization helps collaborating partners feel more connected to each other. The process of getting to know and understand each other takes time, but socialization allows to lower the knowledge sharing barriers and gradually open and deepen the exchange (Lichtenthaler & Lichtenthaler, 2009; X. Zhang et al., 2021). Mentioned as an enabler within a team, **trust** facilitates knowledge sharing by creating a sense of security. Thus, the knowledge holder may be motivated to share information with the knowledge receiver (Wang & Noe, 2010). Therefore, socialization could help workers overcome the negative impact of cultural differences, geographical distances (Rios-Ballesteros & Fuerst, 2022), and the introduction of new people within the organization (Jain & Huang, 2022). Socialization across industry boundaries could be promoted by different social mechanisms such as personal interaction, shared social experiences, daily

business activities, or physical proximity. Personal interaction is the key factor of socialization. In the context of cooperation, personal interaction does not always have a clear goal or follow an established agenda, unlike planned shared social experiences or joint activities. Random personal interactions can happen before organizations intend to collaborate and result to a certain understanding of the partner's industry background. They may help to predict what knowledge might be valuable and a collaboration can be started in accordance with that knowledge. Instead, shared social experience, in addition to connecting people, could offer a further chance to interact with others and spread knowledge separately from daily business activities. Last, the physical proximity of the architecture of workplaces may also contribute to socialization. Physical proximity can be also a component of implemented shared social experiences or cooperative activities. Socialization can be developed even if workers don't interact directly (Dingler & Enkel, 2016; Nonaka, 1994).

4.1.5. Summary

In the table below the factors, barriers, and enablers or solutions of the communication process at the individual, team, organizational, and inter-organizational level are summarized.

COMMUNICATION	Factors	Barriers	Enablers/Solutions
Individual	**Characteristics of knowledge** such as the levels of tacitness and	The **fear of "getting it wrong", "failure"** or	Under the effect of **commitment** and **motivation**, the knowledge holder

| | complexity of knowledge determine the knowledge stickiness. The term "stickiness" is used to describe the difficulty of transferring information and defines the required effort to transfer it (Szulanski, 1996; von Hippel, 1994). | **"making fool of oneself"** can lead an individual to not share knowledge. Then, at the beginning **new ideas are contradictory and ill-formed.** Individuals might not share their ideas because they don't recognize their value (Gurteen, 1998). | will increase the effort and the quality of the dissemination of knowledge (Kim & Park, 2017; Mazzucchelli et al., 2019; Ojha et al., 2022; Zhang et al., 2021). |
| | The **cooperative behavior** is based on the concept of altruism. Employees may share knowledge because they experience joy | | Self-efficacy is represented by the feeling of trust, gratitude personal responsibility, and recognition (Gupta & Agarwal, 2023). When individuals' value is recognized, they develop a better self-perception of skills, increasing the likelihood of sharing knowledge with others. |

	and satisfaction in helping their colleagues, which depends on people's **personality** (Gupta & Agarwal, 2023; Wang & Noe, 2010). The majority of the most successful economic theories affirm that each acts in their own **self-interest** (Konno & Schillaci, 2021). If employees believe that their **knowledge is useful** for others and they can improve their		Workers equipped with confidence can share their thoughts without any fear (Rafique & Mahmood, 2018; Wang & Noe, 2010). When **task characteristics** are in line with workers' abilities or when **job characteristics** require creativity, employees often exhibit higher levels of knowledge self-efficacy, commitment, and motivation (Basadur & Gelade, 2006; Nguyen & Malik, 2020).

	relationship with other workers by sharing the information, they will tend to share the knowledge (Wang & Noe, 2010). Individuals have **reciprocity** expectations such as people will reciprocate if they share information. Thus, if there is a strong reciprocity, employees are more likely to share knowledge regularly (Nguyen et al., 2022).		Another way to achieve person-job fit is the **alignment of interests.** Organizations should align the interests of the company with those of the employees or hire employees who have the same interests as the company to benefit from this factor (Sung & Choi, 2018). There is a positive correlation between **job satisfaction** and knowledge sharing. The more employees are satisfied and encouraged to

	When the level of **reputation** is high, workers will be constantly committed to sharing knowledge to maintain the high-level position or they will tend to be careful in sharing information to not damage their image. Instead, if the level of reputation is low, this will not encourage individuals to share their thoughts (Arokiasamy et al., 2021).		share information, the greater the impact they could have on the organization's performance (Rafique & Mahmood, 2018; Wang & Noe, 2010).
Team	**Competition** could increase	The major barrier that hampers	**Rewards** have been

	the willingness to share knowledge among the workers by increasing concentration and persistence in the task (Martinez, 2015). On the other hand, if knowledge is seen as a source of superiority and power, this will discourage employees from sharing knowledge (Narayanan et al., 2020; Wang & Noe, 2010). Knowledge sharing may be hindered by an **organizational**	knowledge communication within a team is **knowledge hiding**, which refers to people hiding knowledge (Pandey et al., 2022).	recommended as a supportive system that can facilitate knowledge sharing (Argote et al., 2003; Kaplan & Reed, 2007). Despite the positive influence of incentives on knowledge sharing, the empirical results of studies examining the effects of rewards have been mixed. Some studies reported that extrinsic rewards had a negative effect on attitudes toward knowledge sharing (Goh, 2005; Wang & Noe, 2010). The **top management**

| | climate that emphasizes negative competitiveness, while an environment that fosters cooperativeness and learning has a positive effect on the exchange of knowledge (Foss et al., 2013; Schepers & van den Berg, 2007). | | support as support and encouragement by senior employees cover a positive mediating role in the knowledge sharing behaviour (Gupta & Agarwal, 2023; Lin, 2014;. Arokiasamy et al., 2021; Rios-Ballesteros & Fuerst, 2022). |
| | There are two types of conflicts: task and interpersonal conflicts. Task conflicts lead the opposing actors to a deeper confrontation that leads to a | | Leadership has a major influence on individuals. An attitude that reflects the willingness to freely share information and knowledge creates an environment of trust and influences attitudes |

| | further exchange of information, whereas interpersonal conflicts have generally negative effects. Moreover, there is a positive correlation between interpersonal and task conflict (Chen, 2006). | | throughout the team (Erena et al., 2023; Goh, 2002; Kaplan & Reed, 2007).

Trust as a feeling of safety and reliability towards someone is considered an enabler of knowledge sharing (Beesley & Cooper, 2008; Choo & de Alvarenga Neto, 2010; Schneckenberg et al., 2015).

Identification is considered as the level at which employees identify themselves with the team influencing the |

			motivation to share information for team pride and benefit (Tang et al., 2014).
			The more the **task similarity** is high, the greater the likelihood of knowledge sharing (Argote & Ingram, 2000).
			A **shared vision** ensures that everyone is working in a coordinated manner toward the same goals and that they all have the same priorities (Rios-Ballesteros & Fuerst, 2022).

Results

Organization	Organizational structure	Knowledge loss	Information technological (IT) systems
	provides several mechanisms through which coordination and collective performance may be realized. These mechanisms such as roles, physical proximity, and spatial separation have a significant impact on knowledge sharing (Jain & Huang, 2022; Kapoor & Aggarwal, 2021).

Centralization refers to what extent decision-making power is | as a result of resignations by valuable employees and the retirement of the most senior and experienced employees is considered a critical issue within organizations (Holtshouse, 2010). | systems as technological support can significantly increase the deposit, the scale, and the access to information as well as the efficiency of knowledge sharing across the organization, boosting productivity and creativity (Choo & de Alvarenga Neto, 2010; Narayanan et al., 2020).

A **shared vision** among the members of an organization promotes knowledge |

	kept completely by top management rather than being distributed to employees at lower levels of the organization (Foss et al., 2013).		sharing. Having acquired a common context and understanding, communication is facilitated because people are empowered to make proper judgments and to act with a common goal and purpose (Kaplan & Reed, 2007; Sáenz et al., 2009). **Organizational culture** is considered as an underlying enabler that influences employees to share ideals, norms, and convictions that shape their behaviors and

			attitudes within an organization (Arokiasamy et al., 2021; Goh, 2005; Kapoor & Aggarwal, 2021; Oparaocha, 2016). **New forms of organizations** such as post-bureaucratic organizations, humanistic management, and organizational democracy could be a solution to the contrasting characteristics of the organizational structure (Lee & Edmondson, 2017). Relatively to the knowledge loss, having an effective

			knowledge retention plan could be a solution. Caldas et al., (2015) proposed a detailed experiential knowledge-retention management model with the aim to maintain collective knowledge.
Inter-organizational	**Different national and organizational cultures** as different organizational and national cultures and **different knowledge** as different expertise have a significant	**Geographical dispersion** as the physical distance among organizations increases the complexity that must be managed in inter-organizational knowledge sharing because	**Socialization** understood as making people spend time together and helping them understand the different backgrounds which they come from, is considered by the literature to be the main

impact on knowledge sharing (Argote et al., 2003; Duan et al., 2021; Tseng, 2010).	hinders the ability and speed of information exchange (Rios-Ballesteros & Fuerst, 2022).	enabler of knowledge sharing across organizations (Lichtenthaler & Lichtenthaler, 2009; Zhang et al., 2021).
Task conflicts foster the exchange of information (Mu et al., 2021) while the negative impact of **interpersonal conflicts** can be strengthened by the organizational culture. People from different organizations have different values and expertise, thus the main organization	Organizations could be motivated to prevent unintentional knowledge transfer due to a fear of losing **power** (Zhang et al., 2019). The **structure of inter-organizational collaboration** can strengthen the power asymmetry	

	could have an inertial reaction and refuse to collaborate and communicate, especially if their values are incompatible with the other organization (Fayard et al., 2016).	(Oparaocha, 2016).	

Table 7 – Communication factors, barriers, and enablers or solutions

4.2. Translation

In this section, the factors, barriers, and enablers or solutions related to the knowledge sharing translation process are reported and divided according to the level of interactions in which they occur.

4.2.1. Individual

In this paragraph, the factors, barriers, and enablers or solutions related to the knowledge sharing translation process are reported and analyzed from the individual point of view.

4.2.1.1.Factors

The main factor that influences the knowledge translation is the **cognitive style**. Cognitive styles refer to how individuals acquire, organize, and process information, thus they influence how people interpret knowledge (Aggarwal & Woolleyb, 2019). Gurteen (1998) introduced the difference between paradigms and mental models. Paradigms such as theories, beliefs, values, and principles represent the way an individual thinks. They can be considered as a rigorous tacit infrastructure of ideas that influence not just individuals' thinking and actions but also how people perceive the world. They work at the subconscious level. Mental models, instead, are conscious. They are not real but they are an approximation of reality such as scientific models. Thus, mental models are useful tools for understanding situations and making predictions. One model can be helpful in one context, but in another one, a different model could be more appropriate. When people use their mental models, they place some limits on their interpretations. They might only employ one or two models depending on the circumstances. However, things are more complicated. A single model cannot be used to describe them all. In a world that is changing quickly, a broader collection of models is needed, also according to the different circumstances. Then, **characteristics of knowledge** have a significant impact on the process of communication as well as the process of translation. Knowledge characteristics not only affect the ability to transfer information but also the rate at which it will be assimilated and how much is retained (Argote et al., 2003; Easterby-Smith et al., 2008). To communicate a piece of information, individuals need to replicate the knowledge. If the replication is not aligned with the meaning associated with the original knowledge, a casual ambiguity of the knowledge is produced, especially when the factors for the failure are not determined (Szulanski, 1996). Casual ambiguity represents the distortion of the knowledge and can be also a result of a wrong or reluctant understanding of the information. Employees may become frustrated or

refuse to complete the knowledge translation when the knowledge is considered too difficult to absorb, which eventually leads to poor knowledge sharing performance (Li & Hsieh, 2009). People are more inclined to react to information that they are familiar with because it requires less effort to decode it (Baer et al., 2013). Moreover, emotions are underpinned by values, attitudes, and belief systems. From this point of view, positive or negative emotional responses as well as the degree to which information it aligns or misaligns with values, attitudes, and beliefs can compromise the meanings that might be assigned to the information received (Beesley, 2005). This process of attribution might occur without the individual being aware of how or why these associations have developed (Beesley & Cooper, 2008).

4.2.1.2.Barriers

The main barrier to knowledge translation is the human **bounded rationality.** Bounded rationality is a characteristic of human rationality and refers to the limited knowledge and cognitive capacity, which makes knowledge acquisition, accumulation, and application challenging activities (Simon, 1955, 1957). Indeed, people frequently detect the most evident or sensitive information, which leads to an inaccurate or excessively simplistic translation. Moreover, group debates go often beyond the capacity of the human mind. During moments of confrontation, the tendency is to simplify the knowledge to fit it into human memory rather than increasing memory (Baer et al., 2013). Furthermore, individuals may not be able to identify opportunities to innovate independently. Employees can reject their ideas if they consider them not valuable or they might fear failure, therefore they may need input from other colleagues (Ojha et al., 2022).

4.2.1.3.Enablers or solutions

Motivation and **commitment** empower knowledge translation. Employees who are emotionally committed pay more attention and are more curious, improving

knowledge translation and therefore creativity (Martinez, 2015; Tsai & Zheng, 2021). Then, there are **knowledge-creating practices** that enable individuals to be more thoughtful and to cross different knowledge boundaries. A knowledge boundary represents the limit of the individual knowledge base in relation to a different domain of knowledge. They are not static but they can change through learning and new information processing, which is the aim of the knowledge-creating practices (Hawkins & Rezazade , 2012). The most simple one is the "see and take" practice, which consists of looking deliberately for solutions such as information-seeking and observation. Information seeking involves the direct research of specific information to improve knowledge translation, whereas observation refers to the acquiring of knowledge by looking at how other people operate to stimulate the individual mind. Another knowledge-creating practice is critical reflection. To deepen the understanding, reflecting on past or current activities, experiences, or event within the context allow one to consider different perspectives, question the previous assumptions, and reimagine the solution (Rigg et al., 2021). The most common practice is peer exploration, which involves reflecting by sharing ideas, insights, questions, or experiences with other people. Employees bring together unique perspectives and opinions, which can stimulate new insights through new combinations of knowledge (Chen, 2006; Jain & Huang, 2022). The dialogue can stimulate idea generation as well as improve knowledge translation by reducing potential cognitive biases or casual ambiguity. The confrontation among people could decrease or mitigate the influence or biases by revealing each other's paradigms and comparing them (Baer et al., 2013; Ojha et al., 2022). In contrast, the group might accentuate the influence of bias if the bias is prevalent among individuals, resulting in knowledge translation that reflects a greater error (Hinsz et al., 2008). Moreover, people tend to interact with each other in the wrong way. Individuals usually discuss with the intent to reply rather than to understand or to hold their positions and argue in favor of their views to convince

others (Gurteen, 1998). The peer exploration as team working is further analyzed in the following paragraph.

4.2.2. Team

In this paragraph, the factors, barriers, and enablers or solutions related to the knowledge sharing translation process are reported and analyzed from the point of view of a team.

4.2.2.1. Factors

The main factors that influence the knowledge translation within a team are the **different cognitive styles.** Different cognitive styles involve diverse knowledge, backgrounds, and information processing. This variety will give more input to employees improving their thinking and creativity (Choo & de Alvarenga Neto, 2010). Moreover, this diversity in team composition facilitates the identification of different knowledge (Aggarwal & Woolleyb, 2019). On the other hand, different cognitive structures might cause the team's inability to understand each other and thus to recombine the different information (Baer et al., 2013; Sun et al., 2020). Cognitive styles are in turn influenced by **knowledge boundaries.** A knowledge boundary represents the limit of the individual knowledge base in relation to a different domain of knowledge. They are not static but they can adjust through learning and processing of new information (Hawkins & Rezazade, 2012). An individual's knowledge base significantly affects how people interpret knowledge by determining what information is important and thus what information should be integrated into the existing knowledge base. Therefore, knowledge boundaries can negatively influence knowledge translation and transformation if people are unable to process and integrate the new information (Carlile, 2002; Rigg et al., 2021). Furthermore, in the absence of trust, discussion can turn into conflicts, which are both factors that once

again influence the knowledge translation. For example, if an employee doesn't trust a colleague, he can doubt the information or reject it automatically. On the other hand, **trust** can reduce the concern about the veracity and usefulness of the knowledge (Argote et al., 2003; Lloria & Peris-Ortiz, 2014; Wang & Noe, 2010). Also, **conflicts** have a significant impact on information processing. There are two types of conflicts: task and interpersonal conflicts. Task conflicts lead the opposing actors to a deeper confrontation, delving into the issue and developing a more comprehensive understanding of the problem, whereas interpersonal conflicts have generally negative effects. When the moment of brainstorming within a team becomes a moment of point-scoring, knowledge sharing is hindered. Moreover, there is a positive correlation between interpersonal and task conflict. One sort of conflict can breed the other, which means that task conflict may result in an increase in interpersonal discord and dissatisfaction (Chen, 2006). From the translation point of view, conflicts lead employees to further analyze the problem, which can foster the development and translation of new insights (Todorova et al., 2014). Other studies, instead, argue that conflicts can interfere with cognitive flexibility and thinking. Especially with interpersonal conflicts, individuals could refuse or fail the knowledge translation (Baer et al., 2013; Chen, 2006). As mentioned before, negative emotions can undermine the meaning associated with the information (Beesley, 2005; Beesley & Cooper, 2008).

4.2.2.2. Barriers

Different cognitive styles and knowledge boundaries can generate different knowledge translations, reducing the strategic consensus and shared interpretation among employees (Aggarwal & Woolleyb, 2019; Carlile, 2002). This problem is described by the concept of **representational gap**. A representational gap refers to the differences that occur between employee's interpretation of knowledge (Sun et al., 2020). The difference in cognitive styles and expertise creates different problem representations, which makes it difficult and costly to translate and recombine

information. Having different representations, the communication will result in misunderstandings and poor knowledge integration. Therefore, the potential for improving critical thinking and creativity may not always be realized (Baer et al., 2013).

4.2.2.3. Enablers or solutions

To prevent the representational gap, the need to manage and span knowledge across boundaries is crucial. For example, individuals could establish a relationship between new knowledge and their knowledge base. Understanding how new knowledge and current knowledge are related and defining what gaps they fill could help the knowledge integration. Also removing the context that links knowledge to a particular field can abstract the information and make it more generic, facilitating the integration across different domains (Sherif, 2006). Therefore, organizations should introduce processes or methods for learning about the differences and dependencies at a boundary to translate and integrate the knowledge properly (Carlile, 2002). Hawkins & Rezazade (2012) proposed different **knowledge boundary spanning.** The process of spanning is often described as multi-actor, emergent, and iterative, requiring the adoption of a variety of mechanisms to deal with the difficulties caused by cognitive boundaries. An example could be the use of boundary objects as a common system through which knowledge can be represented, acquired, and transformed. Then, boundary practices such as routines could be a method to develop shared knowledge, especially tacit knowledge. A similar mechanism is the boundary discourse. Boundary discourse is based on the construction of content that results from the dynamic process of discovering and articulating ideas. Then, this content is used to cross the knowledge boundary. Although boundary practice and discourse have a similar conceptual foundation, the former deals with group behavior, while the latter is concerned with the explicit content that is communicated when knowledge boundaries are crossed. Another method that can facilitate knowledge translation is **sketching.** In knowledge

creation contexts, sketching gives individuals the opportunity to integrate their views and experiences on joint frameworks. Equipping employees with pens and paper allows them to increase their knowledge of dialogues with visible means, facilitating interaction and turn-taking and increasing vividness and memorability. The usage of sketching can be utilized also with remote teams by transforming analog sketches into digital ones that can be further annotated, electronically stored, shared, and retrieved and thus professionally documented (Pfister & Eppler, 2012).

4.2.3. Organizational

In this paragraph, the factors, barriers, and enablers or solutions related to the knowledge sharing translation process are reported and analyzed from the organizational point of view.

4.2.3.1.Factors

The main factor that influences organizational knowledge translation is the concept of **business relevance.** Since innovation is defined as new ideas that have been successfully commercialized as a product or implemented as a process, the relevant context is the market. Therefore, organizational knowledge has to be integrated with the market demands so that the idea generated can have real success (Popadiuk & Choo, 2006). If the generated ideas lack a solid connection to business goals, they could never make it to market (Graham & Pizzo, 1996). On the other hand, introducing the business value before the innovation stage can hinder creativity. Knowledge translation is constrained by goals, objectives, appraisals, and what is or what is not allowable. This type of management could be counterproductive in the area of translation and creativity (Gurteen, 1998).

4.2.3.2.Barriers

The main barrier in organizational translation is the **contrast between the fluidity of creativity and institutional rigidity.** On one side, ideation processes are frequently unstructured, informal, diversified, and occasionally chaotic. Knowledge emerges and grows from individual intuition, personal networks, and random encounters that don't follow standard mechanisms. Classic innovation procedures, on the other side, are structured, formal, controlled, and measured. They are mainly directed by hierarchy toward value creation and actualization, while knowledge is clearly defined in reports and databases. Organizations are continuously balancing between freedom and control to achieve proper knowledge translation and to improve creativity as well as to pursue operating efficiencies to succeed in the marketplace. If the organization is too fluid, the creative process will lack a clear connection to organizational objectives. As a result, a lot of concepts will be never commercialized. On the other hand, excessive formality hampers the initiative and open translation required to develop distinctive opportunities. Therefore, these opposing characteristics of the creative process and institutional rigidity make it difficult to pursue the maximum potential of knowledge translation and thus of the creative process (Bagaria et al., 2022; Graham & Pizzo, 1996).

4.2.3.3.Enablers or solutions

From the reading and analysis of the articles found by the search query, no organizational translation enablers or solutions were identified.

4.2.4. Inter-organizational

In this paragraph, the factors, barriers, and enablers or solutions related to the knowledge sharing translation process are reported and analyzed from the inter-organizational point of view.

4.2.4.1.Factors

The ability of an organization to explore external knowledge is defined as **absorptive capacity.** (Easterby-Smith et al., 2008; Lichtenthaler & Lichtenthaler, 2009). In particular, there is a differentiation between potential and realized absorptive capacity. Potential absorptive capacity is discussed at the inter-organizational level, whereas realized absorptive capacity is at the intraorganizational level. The former includes effort expended for the acquisition and the assimilation of external knowledge. The latter, instead, refers to knowledge transformation and exploitation as new insights or combinations of existing knowledge with new knowledge. Organizations can be able to acquire and assimilate knowledge but might not be able to transform and exploit the knowledge for profit generation (Yeoh, 2009; Zahra & George, 2002). Therefore, the absorptive capacity of an organization significantly influences knowledge translation. As in the communication process, the main factors that influence the knowledge translation are the **different cultures** and **different knowledge.** Employees from different organizations have different knowledge, backgrounds, cultures, and ways of working. This knowledge diversity as well as the variety of cognitive styles gives more raw materials to employees improving their critical thinking and creativity (Choo & de Alvarenga Neto, 2010). On the other hand, the distance between culture and knowledge could cause differences in how people process, interpret, and make use of knowledge as well as daily communication (Easterby-Smith et al., 2008). Considering that accessing new knowledge is the basic aim of inter-organizational relationships, the success of collaboration depends on knowledge acquisition and assimilation (Meier, 2011), activities that can be hampered

by the different characteristics of expertise. Indeed, the knowledge base compatibility as the degree of similarity between the knowledge among the organizations is considered an indicator of knowledge assimilation. The higher the degree of compatible knowledge base, the easier will be the assimilation (Ho & Ganesan, 2013). Considering the concept of knowledge boundary as the limit of the individual knowledge base in relation to a different domain of knowledge (Hawkins & Rezazade M., 2012), the variety of knowledge strengthens the impact related to this notion. An individual's knowledge base significantly affects how people interpret knowledge by determining what information is important and thus what information should be integrated into the existing knowledge base. Therefore, knowledge boundaries can negatively influence knowledge translation and transformation if people are unable to process and integrate the new information (Carlile, 2002; Rigg et al., 2021), a situation that can be amplified between unfamiliar domains of expertise. Also, **organizational culture** has an impact on the translation process. As mentioned before, the main organizational culture can lead employees to have an inertial reaction and reject new practices and innovative insights, especially if they are incompatible with organizational values (Easterby-Smith et al., 2008). On the other hand, if organizations cultivate a culture that prioritizes sharing, it will facilitate knowledge translation. According to Tseng (2010), the types of cultures that are more appropriate to promote knowledge sharing are adhocracy and clan cultures. Adhocracy culture emphasizes entrepreneurship, creativity, adaptability, goal achievement, productivity, and efficiency, whereas clan culture emphasizes participation, teamwork, and cohesiveness, reflecting internally oriented and value for informal governance systems. The latter fosters greater development of tacit knowledge and facilitates knowledge sharing among employees due to its high levels of trust and low levels of conflict. This type of working environment allows people to collaborate directly, teach each other, and share experiences. On the other hand, hierarchy culture promotes order, uniformity, efficiency, and control, reflecting internally oriented and formalized

values. This culture tends to create a form of localized information, discouraging employees to exchange knowledge. Knowledge acquisition and assimilation are related to employees' acceptance or resistance to the use of external knowledge, thus a sharing culture can mitigate this issue (Alassaf et al., 2020). As in teams, **conflicts** have a significant impact at the inter-organizational level. As we analyzed in the previous paragraph, conflicts may foster creativity and benefit performance outcomes, whereas conflicts on personal issues may induce negative emotions and damage performance. There are two types of conflicts: task and interpersonal conflicts. Task conflicts lead the opposing actors to a deeper confrontation, delving into the issue and developing a more comprehensive understanding of the problem, whereas interpersonal conflicts have generally negative effects. When the moment of brainstorming within a team becomes a moment of point-scoring, knowledge sharing is hindered. Moreover, there is a positive correlation between interpersonal and task conflict. One sort of conflict can breed the other, which means that task conflict may result in an increase in interpersonal discord and dissatisfaction (Chen, 2006). Previously in the intra-organizational team context, conflict is proven to foster information or knowledge acquisition. Conflicts lead employees to further analyze the problem, which can foster the development and translation of new insights (Todorova et al., 2014). Other studies, instead, argue that conflicts can interfere with cognitive flexibility and thinking (Baer et al., 2013; Chen, 2006). Especially with interpersonal conflicts, individuals could refuse or fail the knowledge translation. Negative emotions can undermine the meaning associated (Beesley, 2005; Beesley & Cooper, 2008). In inter-organizational contexts, the effects of conflict are amplified. Compared to the team analysis, inter-organizational collaboration may reveal different challenges such as tacitness and ambiguity of knowledge. By further analyzing the problem and fostering critical thinking, task conflict helps the firm to reduce the tacitness of the knowledge acquired, and in turn reduces the ambiguity of knowledge acquired (Mu et al., 2021). Tacitness and ambiguity of knowledge as main barriers to inter-

93

organizational translation are further analyzed in the next paragraph. Also, the negative impact of task conflict is amplified. People from different organizations have different values and expertise, thus the main organization could have an inertial reaction and reject innovative insights (Fayard et al., 2016).

4.2.4.2. Barriers

As analyzed in the previous paragraph, having different knowledge could have some drawbacks and hamper the knowledge translation. The main barriers that can interfere with inter-organization projects or collaborations are the **tacitness** of a partner's knowledge and the **ambiguity** that could arise during the sharing (Mu et al., 2021). Knowledge tacitness refers to the degree to which that knowledge or expertise of an organization is deeply rooted in contexts, historical experiences, or implicit routines and assumptions. This characteristic influences the ability to transfer that knowledge and the rate at which it will be assimilated (Argote et al., 2003). Instead, the ambiguity of knowledge is related to the inability to understand the partner's knowledge such as the distortion of the knowledge or a wrong or reluctant understanding of the links between cause and effect of the knowledge and thus of the source of the partner's competitive advantage. The more tacit or ambiguous the acquisition and the assimilation of the new knowledge, the less likely that the knowledge can be exploited or capitalized (Easterby-Smith et al., 2008; Simonin, 2004).

4.2.4.3. Enablers or solutions

The ability of a company to effectively transfer and absorb knowledge is influenced by collaborative integration as well as organizational knowledge diversity. The degree to which the knowledge held by a company is dispersed across different areas is crucial (Serino et al., 2020). If knowledge is shared without taking into account the context of the application, the goal of knowledge translation may be lost. Thus, translating knowledge entails adapting it to the requirements and goals of a particular business.

Results

Given the evidence presented above, tight connections among individuals, agents, and teams will become increasingly important in companies. This shows that **networks** support this close connection between and across entities and enable businesses to efficiently produce and coordinate acquired knowledge (Connell et al., 2014; Seaton, 2002; Zhang et al., 2021). An integrated network and a diverse knowledge base might favor the process of collaborative knowledge translation. In particular, there are various factors including network size, network tie strength, network centrality, and network heterogeneity that determine the level of knowledge sharing performance (Xie et al., 2016). These characteristics are defined as follows:

- Network size is the number of partners such as enterprises, universities, research institutions, intermediaries, and government departments in an innovative network (Hemphälä & Magnusson, 2012).

- Network tie strength refers to the nature of a relational contact such as a combination of the amount of time, emotional intensity, intimacy, and reciprocal services associated with the tie (Granovetter, 1973).

- Network centrality refers to an actor's position in a network. Actors centrally located in a network are in an advantageous position to monitor the flow of information and have the consequent advantage of having large numbers of contacts who are willing and able to provide them with important opportunities and resources (Mehra et al., 2006)

- Network heterogeneity refers to differences in the knowledge, technology, ability, and size of members in the network (Bohlmann et al., 2010).

The combination of high network tie strength, high network heterogeneity, and low network size results in better knowledge sharing performance. From an inter-organizational network perspective, also inter-cluster relationships could be a method to share knowledge and learning (Connell et al., 2014). **Clusters** are geographical concentrations of firms and institutions interlinked in a given area or a specific sector

of activity, including industries and other essential entities for competitiveness. They are described as cooperation and collaboration networks that provide significant opportunities to stimulate economic development and strengthen competitive advantage (Porter, 1998). Therefore, inter-clustering allows the spread of knowledge and learning and the benefit of synergies through the creation of informal cooperation networks (Franco & Esteves, 2020). Another mechanism to strengthen individual connections between different organizations is through **socialization** (Drewniak & Karaszewski, 2020; Mazzucchelli et al., 2019; Oparaocha, 2016). By making people spend time together and helping them understand the different backgrounds which they come from, socialization helps collaborating partners feel more connected to each other. This connectedness allows partners to exchange the most relevant knowledge and more sensitive details, which contributes to an accelerated transfer of foreign knowledge in a more industry-specific manner. People can understand what knowledge is relevant for the other organization, how to structure it and what is the relationship between the different expertise. Although knowledge sharing might be challenging at first, socialization allows a better knowledge translation, and thus a better knowledge sharing originated from foreign industries (Sáenz et al., 2012). When practices enable socialization to a comprehensive integration of the partner and to create a distinct identity and shared vision together, independent from their industrial origin, the organizations can exploit even more the extensive combination of their knowledge and innovation (Dingler & Enkel, 2016). By fostering network and socialization, organizations are also promoting **trust.** At the beginning of an inter-organizational collaboration, workers don't know the employees of the other organization, therefore they don't trust each other. The absence of trust could negatively influence the knowledge translation. For example, if an employee doesn't trust a colleague, he can doubt the information or reject it automatically (Lloria & Peris-Ortiz, 2014). Trust is considered the foundation of any collaborative effort, including knowledge sharing and innovation between businesses (Connell et al., 2014; Wang &

Noe, 2010). Other examples of enablers of knowledge translation are **task partitioning** and **task iteration.** Task partitioning consists of dividing knowledge into sub-problems and drawing on only one problem after solving another one. Task iteration, instead, refers to a trial and error process that allows to further analyze and scrutinize the knowledge. These practices help especially with knowledge stickiness. As mentioned before, the levels of tacitness and complexity of knowledge have a significant impact on knowledge stickiness. The term "stickiness" is used to describe the difficulty of transferring a piece of information and defines the required effort to transfer it. Stickiness can be attributed to different factors such as the information itself, the way it is encoded, and the characteristics of information seekers or providers (Li & Hsieh, 2009; Szulanski, 1996; von Hippel, 1994). People can deal with knowledge stickiness by learning from the lessons of previous knowledge transfers and by doing.

4.2.5. Summary

In the table below the factors, barriers, and enablers or solutions of the translation process at the individual, team, organizational, and inter-organizational level are summarized.

TRANSLATION	Factors	Barriers	Enablers/Solutions
Individual	**Cognitive styles** refer to how individuals acquire, organize, and process information, thus	**Bounded rationality** is a characteristic of human rationality and refers to the limited knowledge	**Motivation** and **commitment** empower knowledge translation. Employees who

	they influence how people interpret knowledge (Aggarwal & Woolleyb, 2019). **Characteristics of knowledge** such as the levels of tacitness and complexity of knowledge determine the knowledge stickiness. The term "stickiness" is used to describe the difficulty of transferring information and affect the rate at which it will be assimilated and how much is retained (Argote et	and cognitive capacity, which makes knowledge acquisition, accumulation, and application challenging activities (Simon, 1955, 1957).	are emotionally committed pay more attention and are more curious, improving knowledge translation and therefore creativity (Martinez, 2015; Tsai & Zheng, 2021). There are **knowledge creating-practices** that enable individuals to be more thoughtful and to cross different knowledge boundaries such as information seeking, observation, and peer exploration (Chen, 2006; Jain &

	al., 2003; Easterby-Smith et al., 2008).		Huang, 2022; Rigg et al., 2021).
Team	**Different cognitive styles** involve diverse knowledge, backgrounds, and information processing (Aggarwal & Woolleyb, 2019). A **knowledge boundary** represents the limit of the individual knowledge base in relation to a different domain of knowledge. They are not static but they can adjust through learning	A **representational gap** refers to the differences that occur between employee's interpretation of knowledge (Sun et al., 2020).	**Knowledge boundary spanning** is often described as multi-actor, emergent, and iterative, requiring the adoption of a variety of mechanisms to deal with the difficulties caused by a cognitive boundary (Hawkins & Rezazade, 2012). **Sketching** gives individuals the opportunity to integrate their views and

| | and processing of new information (Hawkins & Rezazade, 2012).

In the absence of **trust**, discussion can turn into conflicts, which are both factors that once again influence the knowledge translation. For example, if an employee doesn't trust a colleague, he can doubt the information or reject it automatically. On the other hand, trust can reduce the concern about the veracity and usefulness of the knowledge | | experiences on joint frameworks (Pfister & Eppler, 2012). |

	(Argote et al., 2003; Lloria & Peris-Ortiz, 2014; Wang & Noe, 2010). **Conflicts** can interfere with cognitive flexibility and thinking as well as foster the development and translation of new insights (Baer et al., 2013; Chen, 2006; Todorova et al., 2014).		
Organizational	**Business relevance** refers to the fact that organizational knowledge has to be integrated with the market demands so that	The **contrast between the fluidity of creativity and institutional rigidity** refers to the fact that ideation processes	No organizational translation enablers or solutions were identified.

	the idea generated could have real success (Popadiuk & Choo, 2006).	are frequently unstructured, informal, diversified, and occasionally chaotic whereas classic innovation procedures are structured, formal, controlled, and measured (Bagaria et al., 2022; Graham & Pizzo, 1996).	
Inter-organizations	The ability of an organization to explore external knowledge is defined as **absorptive capacity** (Easterby-Smith et al., 2008; Lichtenthaler & Lichtenthaler, 2009).	**Knowledge tacitness** refers to the degree to which that knowledge or expertise of an organization is deeply rooted in contexts, historical experiences, or implicit routines and assumptions. This characteristic	**Networks** support close connections between and across entities and enable businesses to efficiently produce and coordinate acquired knowledge (Connell et al., 2014; Seaton, 2002; Zhang et al., 2021).

	Different national and organizational cultures as different organizational and national cultures and **different knowledge** as different expertise cause differences in how people process, interpret, and make use of knowledge (Easterby-Smith et al., 2008). There are two types of **conflicts**: task and interpersonal conflicts. Task conflicts lead the opposing actors to a deeper	influences the ability to transfer that knowledge and the rate at which it will be assimilated (Argote et al., 2003). The **ambiguity of knowledge** is related to the inability to understand the partner's knowledge such as the distortion of the knowledge or a wrong or reluctant understanding of the links between cause and effect of the knowledge and thus of the source of the partner's	**Clusters** are geographical concentrations of firms and institutions interlinked in a given area or a specific sector of activity, including industries and other essential entities for competitiveness. They are described as cooperation and collaboration networks that provide significant opportunities to stimulate economic development and strengthen competitive advantage (Porter, 1998).

	confrontation that leads to a further exchange of information, whereas interpersonal conflicts have generally negative effects. Moreover, there is a positive correlation between interpersonal and task conflict (Chen, 2006). In inter-organizational contexts, the effects of conflict are amplified (Fayard et al., 2016; Mu et al., 2021).	competitive advantage (Easterby-Smith et al., 2008; Simonin, 2004).	**Socialization**, as making people spend time together and helping them understand the different backgrounds which they come from, helps collaborating partners to understand what knowledge is relevant for the other organization, how to structure it and what is the relationship between the different expertise (Drewniak & Karaszewski, 2020; Mazzucchelli et al., 2019).

			Trust is considered the foundation of any collaborative effort, including knowledge sharing and innovation between businesses (Connell et al., 2014; Wang & Noe, 2010).
			Task partitioning consists of dividing knowledge into sub-problems and drawing on only one problem after solving another one (Li & Hsieh, 2009).
			Task iteration refers to a trial and error process that allows further analysis and scrutiny of the

			knowledge (Li & Hsieh, 2009). Employees will be able to generate new ideas or insights when the **culture** supports knowledge sharing (Erena et al., 2023; Gupta & Agarwal, 2023; Lin, 2014; Rhodes et al., 2008).

Table 8 – Translation factors, barriers, and enablers or solutions

5 Conclusion

This chapter aims to summarize and discuss the results previously presented. Then, theoretical contributions together with future research directions and managerial contributions are presented.

5.1. Discussion

This paragraph aims at summarizing and discussing the variables presented in Chapter 4. In particular, the variables are discussed and divided into four sections: widely discussed variables that influence the whole knowledge sharing process as they have an impact on both communication and translation, widely discussed variables that influence only one activity among communication and translation, poorly discussed variables that influence only one activity among communication and translation and variables which results are mixed and confused. Poorly discussed variables that affect the whole knowledge sharing as they have an impact on both communication and translation are not discussed because they were not identified in this systematic literature review.

Conclusion

5.1.1. Widely discussed variables that influence the whole knowledge sharing process

Some variables have an impact on the whole knowledge sharing process. For example, at the individual level, factors such as **characteristics of knowledge** and enablers such as **motivation and commitment** influence both the communication and translation process. To communicate information, individuals need to replicate the knowledge. The levels of tacitness and complexity of knowledge have a significant impact on knowledge stickiness, which describes the difficulty of transferring a piece of information and defines the required effort to communicate it (Argote et al., 2003; von Hippel, 1994). A casual ambiguity of the knowledge transferred can be produced if the replication is not aligned with the meaning associated with the original knowledge, compromising the translation (Szulanski, 1996). Moreover, individuals may become frustrated or refuse to complete the knowledge translation when the knowledge is considered too difficult to absorb (Li & Hsieh, 2009). Besides the individual level, characteristics of knowledge such as tacitness and ambiguity of knowledge influence also the inter-organizational context. In particular, they act as translation barriers and are strengthened by the different organizational expertise (Mu et al., 2021).

Instead, motivation and commitment encourage people to communicate and translate knowledge. They can be strengthened by individual communication enablers such as job and task characteristics (Basadur & Gelade, 2006; Nguyen & Malik, 2020) and job satisfaction (Rafique & Mahmood, 2018), by team communication factors such as competition (Martinez, 2015), by team communication enablers such as top management support and leadership (Rios-Ballesteros & Fuerst, 2022; Wang & Noe, 2010), trust (Alshwayat et al., 2021; Käser & Miles, 2002), team identification (Tang et al., 2014), extrinsic and especially intrinsic rewards (Nguyen & Malik, 2020) and by organizational communication enablers such as new forms of organization (Lee & Edmondson, 2017) and organizational culture (Tseng, 2010).

Conclusion

Another variable that has an impact on both the communication and translation process at team and inter-organizational levels is **conflicts.** There are two types of conflicts: task and interpersonal conflicts. There is also a positive correlation between interpersonal and task conflict. One sort of conflict can breed the other, which means that task conflict may result in an increase in interpersonal discord and dissatisfaction. At the team level, task conflicts foster the exchange of information and thus improve task understanding. On the other hand, interpersonal conflicts have generally negative effects. When the moment of brainstorming within a team becomes a moment of point-scoring, knowledge sharing is hindered. Employees can purposely hide knowledge to defend their position and their point of view, leading to poor knowledge translation performance (Chen, 2006). Indeed, interpersonal conflicts can cause knowledge hiding, which is a team communication barrier (Lanke, 2018). Instead, in the inter-organizational context, task conflicts reduce the tacitness and ambiguity of knowledge and lower the negative impact of different knowledge thanks to a higher exchange of information (Mu et al., 2021), while interpersonal conflicts can be strengthened by organizational culture. People with different values and expertise can have an inertial reaction by refusing to collaborate and translate new knowledge and innovative insights (Fayard et al., 2016). An enabler that mitigates knowledge hiding is trust (Alshwayat et al., 2021; Käser & Miles, 2002), but it can reduce also the concern about the veracity and the usefulness of the knowledge (Argote et al., 2003; Lloria & Peris-Ortiz, 2014; Wang & Noe, 2010), leading to a poor knowledge translation.

Focusing on **trust**, it is another variable that influences both communication and translation at the team and inter-organizational levels. In particular, trust fosters communication at the team level because it alleviates concerns relative to misappropriation of knowledge and the fear of "failure" or "making fool of oneself", which is an individual communication barrier (Gurteen, 1998; Rios-Ballesteros & Fuerst, 2022). It is important to underline that the ability of the trust to foster knowledge sharing depends also on the organizational climate. Trust can be cultivated
109

Conclusion

in an organizational climate that fosters cooperativeness and not negative competitiveness (Schepers & van den Berg, 2007). Moreover, trust strengthens cooperative behavior, which is an individual communication enabler (Alshwayat et al., 2021; Gupta & Agarwal, 2023). Instead, in the translation process, as mentioned above, trust can reduce conflicts or reduce concern about the veracity of knowledge (Argote et al., 2003; Lloria & Peris-Ortiz, 2014; Wang & Noe, 2010). Considering the inter-organizational context, trust foster communication by creating a sense of security (Wang & Noe, 2010), so people feel confident to share knowledge. Moreover, if an employee doesn't trust a colleague, he can doubt the information or reject it automatically (Lloria & Peris-Ortiz, 2014). Therefore, trust improves also the translation process.

Then, also **different national and organizational cultures** and **different knowledge** influence both communication and translation. Employees from different organizations have different knowledge, backgrounds, cultures, and ways of working. This knowledge diversity gives more raw materials to employees improving their critical thinking and creativity (Choo & de Alvarenga Neto, 2010). On the other hand, team translation factors such as different cognitive styles and knowledge boundaries strengthen the difficulty of translation. Cognitive styles refer to how individuals acquire, organize, and process information, thus they influence how people interpret knowledge (Aggarwal & Woolleyb, 2019). The distance between culture and knowledge could cause further differences in how people process, interpret, and make use of knowledge as well as daily communication (Easterby-Smith et al., 2008). Then, knowledge base compatibility as the degree of similarity between the knowledge among the organizations is considered an indicator of knowledge assimilation. The higher the degree of compatible knowledge base, the easier will be the assimilation (Ho & Ganesan, 2013). Considering the concept of knowledge boundary as the limit of the individual knowledge base in relation to a different domain of knowledge (Hawkins & Rezazad, 2012), the variety of knowledge strengthens the negative impact

110

Conclusion

related to this notion. Also, characteristics of knowledge such as tacitness and ambiguity of knowledge hamper the knowledge translation. However, task conflicts, task partitioning, and task iteration are considered enablers that help individuals address knowledge stickiness (Mu et al., 2021). Moreover, new people within a team could compromise the performance. By working together, the team improves performance by acquiring transactive memory. The term "transactive memory" refers to a database that is created within a team to collectively encode, store, retrieve, and communicate information and knowledge across different domains (Aggarwal & Woolleyb, 2019). Team members know who is competent at which task and with which tools, facilitating the exchanging of thoughts and ideas and teamwork (Argote & Ingram, 2000). By introducing new workers, this transactive memory cannot be fully utilized but has to be created once again. Lastly, if organizations don't cultivate a culture of sharing, employees can have an inertial reaction by refusing to collaborate and to translate new knowledge, strengthening the negative impact of conflicts (Fayard et al., 2016).

Again at the inter-organizational level, **socialization** influences both communication and translation. Socialization is considered by the literature to be the main enabler of knowledge sharing across organizations. By making people spend time together and helping them understand the different backgrounds which they come from, socialization helps collaborating partners feel more connected to each other (Lichtenthaler & Lichtenthaler, 2009; Zhang et al., 2021). Socialization promotes communication through different social mechanisms such as personal interaction, shared social experiences, daily business activities, or physical proximity (Dingler & Enkel, 2016; Nonaka, 1994). This kind of socialization allows partners to exchange the most relevant knowledge and more sensitive details, which contributes to an accelerated transfer of foreign knowledge in a more industry-specific manner. People can understand what knowledge is relevant for the other organization, how to structure it and what is the relationship between the different expertise (Sáenz et al.,

111

2012), improving the translation process. In addition, socialization fosters trust, which is considered the foundation of any collaborative effort and it is fundamental in inter-organizational collaborations. Since people don't know each other, trust fosters communication by creating a sense of security (Wang & Noe, 2010), so people feel confident to share knowledge. Moreover, also the translation process is enhanced. If an employee doesn't trust a colleague, he can doubt the information or reject it automatically (Lloria & Peris-Ortiz, 2014).

5.1.2. Widely discussed variables that influence only communication or only translation

Besides the variables that have an impact on the whole knowledge sharing process, some variables influence only one activity among communication and translation, and that has been widely discussed. For example, at the individual communication level, the fact that individuals act in their own **self-interest** (Konno & Schillaci, 2021) can be solved by aligning the interests of the company with those of the employees or hiring employees who have the same interests as the company to benefit from this factor (Sung & Choi, 2018). Instead, the **usefulness of knowledge** can strengthen knowledge hiding. If an employee believes that his knowledge is useful to others, they may share it, but after a certain point, people who possess unique abilities or valuable knowledge tend to keep their possessions to themselves (Pandey et al., 2022; Arokiasamy et al., 2021). On the other hand, organizations can develop a positive perception of the usefulness of knowledge exchange through **top management support** and **leadership** (Gupta & Agarwal, 2023).

Then, regarding the individual communication barriers, the **fear of "getting wrong", "failure" and "making fool of oneself"** can be reduced by trust (Gurteen, 1998; Rios-Ballesteros & Fuerst, 2022), which in turn is enabled by a positive **organizational climate** (Schepers & van den Berg, 2007).

Conclusion

Last, **self-efficacy** is the feeling of trust, gratitude, and personal responsibility and recognition (Gupta & Agarwal, 2023) to foster knowledge communication. This feeling can be in turn empowered by **job and task characteristics** as well as **job satisfaction** (Basadur & Gelade, 2006; Nguyen & Malik, 2020; Rafique & Mahmood, 2018). Instead, communication at the organizational level is influenced by **organizational structure** and **centralization**. Although they characterize organizations by efficient and transparent chain of command and roles, the formal system and centralization may often become overly bureaucratic, making it difficult for employees to interact with one another, support one another, share knowledge, resolve issues and problems, and build trustworthy relationships (Alshwayat et al., 2021; Foss et al., 2013; Jain & Huang, 2022; Kapoor & Aggarwal, 2021). This contrast can be solved through **flexibility, new forms of organization,** and **organizational culture**. There is a positive relationship between structure flexibility and better information sharing (Rhodes et al., 2008). Then, many scholars have discussed about the drawbacks of the managerial hierarchy as a form of organization. By exploring viable substitutes, three categories were created. Each of them entails a variety of subjects, perspectives, levels of analysis, and methodological approaches. The three categories were defined as post-bureaucratic organizations, humanistic management, and organizational democracy (Lee & Edmondson, 2017). Moreover, adhocracy and clan culture are considered the most appropriate cultures for knowledge sharing and for a less hierarchical form of organization (Tseng, 2010).

Moving on to the inter-organizational communication barriers, **geographical dispersion** as the complexity of knowledge sharing given from physical distance among organizations can be addressed by socialization. Geographical distance hinders the ability and speed of information exchange. Employees must rely on intermediaries or virtual communication instead of face-to-face interaction, which hinders the speed of transfer and may alter the real meaning of the information exchanged. Adding to this the unfamiliar cultures of different nations, the difficulty of communicating and

113

exchanging knowledge further increases (Rios-Ballesteros & Fuerst, 2022). By making people spend time together, socialization helps collaborating partners feel more connected to each other. The process of getting to know and understand each other takes time, but socialization allows to lower the geographical distance barriers and to gradually open and deepen the exchange (Lichtenthaler & Lichtenthaler, 2009; X. Zhang et al., 2021). Instead, **the fear of losing power** can be reduced by trust and therefore socialization. Trust can reduce concerns relative to misappropriation and misuse of knowledge so it has a positive impact on the extent of knowledge disclosure (Argote et al., 2003).

Regarding instead the translation at the team level, the negative effects of the **representational gap** defined as the differences that occur between employees' interpretation of the knowledge (Sun et al., 2020) can be reduced by **knowledge boundary spanning** and **sketching**. Spanning mechanisms are processes or methods for learning about the differences and dependencies at a boundary to translate and integrate knowledge properly (Carlile, 2002). On the other hand, sketching gives individuals the opportunity to integrate their views and experiences on joint frameworks (Pfister & Eppler, 2012).

5.1.3. Poorly discussed variables that influence only communication or only translation

While the variables discussed above are widely examined, other ones could be further analyzed. For example, at the individual communication level, **reciprocity** and **reputation** are factors that influence individual communication. Individuals have the expectation that people will reciprocate if they share information. Thus, if there is a strong reciprocity, employees are more likely to share knowledge regularly (Nguyen et al., 2022). However, no specific effects and correlations with knowledge hiding as well as enablers were identified. Instead, when the level of reputation is high, workers will be constantly committed to sharing knowledge to maintain the high-level position

or they will tend to be careful in sharing information to not damage their image, practicing knowledge hiding (Tang et al., 2014). While, if the level of reputation is low, this will not encourage individuals to share their thoughts (Raj A. Arokiasamy et al., 2021). Also, in this case, no enablers related to this individual communication barrier were identified.

Then, no enablers were identified related to the fact **that new ideas are characterized by contradictions** and they often lead individuals to discard them immediately without sharing and developing them.

Moving on to the organizational communication level, although a method to retain experiential knowledge that can be lost as a result of employees' retirement was proposed by Caldas et al. (2015), the results of the validation of this **knowledge retention plan** are not available. This validation process required the application of all the steps of the proposed model in many organizations and the assessment of its impact. For these reasons, the result of the validation has not been included in the relative study. Last, at the organizational translation level, no enablers related to the concept of **business relevance** and the **contrast between creativity fluidity and institutional rigidity** were found. In particular, business relevance refers to the integration between organizational knowledge and market context to make ideas that can be implemented successfully (Graham & Pizzo, 1996; Popadiuk & Choo, 2006). On the other hand, ideation processes are frequently unstructured, informal, diversified, and occasionally chaotic while innovation procedures are structured, formal, controlled, and measured (Bagaria et al., 2022). These two variables hinder creativity. Business relevance constrains creativity and knowledge by business goals, objectives, and what is allowable and what is not. Instead, the difference between the creation and innovation process prevents the pursuit of the maximum potential of knowledge translation and thus of the creative process. No enablers or solutions were found to address these barriers to knowledge translation and thus knowledge creation.

5.1.4. Variables with mixed and confused results

Besides the variables widely discussed and the ones that need further examination, there are variables with mixed and confused results. For example, **competition** could increase the willingness to share knowledge among the workers by increasing concentration and persistence in the task (Martinez, 2015). On the other hand, if knowledge is seen as a source of superiority and power, this will discourage employees from sharing knowledge. Disclosing unique information could put at risk their competitive position among team members (Narayanan et al., 2020) or could decrease the opportunities to receive positive evaluations and benefit personal gains such as cash bonuses or promotions (Wang & Noe, 2010). Moreover, Schepers & van den Berg (2007) argue that knowledge sharing may be hindered by an organizational climate that emphasizes negative competitiveness. The characteristics that make competition a negative or positive factor have not been identified. In addition, the results of **rewards** are confusing. In particular, extrinsic rewards are more effective in encouraging employees to share knowledge in private companies, whereas intrinsic reward increases are more effective in public companies (Nguyen & Malik, 2020). On the other hand, some studies reported that extrinsic rewards had a negative effect on attitudes toward knowledge sharing. Goh (2002) affirms that rewarding merely financial success tends to increase negative competitiveness and a lack of collaboration, thus it is suggested that one strategy to promote knowledge sharing is to base awards on more than just financial performance. Moreover, according to Wang & Noe (2010), individuals could be discouraged to share knowledge to receive positive evaluations from human resources and benefit from personal gains such as cash bonuses or promotions. Therefore, the effect of rewards, especially extrinsic ones, should be further examined.

5.2. Theoretical contributions

Although this study brings a holistic and multi-level vision of factors, barriers, and enablers of knowledge sharing, this systematic literature review also contributes to the literature by raising several demands for further research.

A first step for future research could be to deepen the investigation of poorly discussed variables. As discussed in the previous section, some variables have not been examined enough. For example, reciprocity and reputation are two individual factors that influence the communication process. Individuals have the expectation that people will reciprocate if they share information (Nguyen et al., 2022), while reputation can lead people to constantly share knowledge to maintain their image or to be careful in exchanging information to not damage it (Arokiasamy et al., 2021; Tang et al., 2014). However, no enablers related to reciprocity and reputation were identified. Moreover, no correlations have been found between reciprocity and knowledge hiding, which is a team communication barrier.

In addition, the contradictory nature of new ideas is considered an individual communication barrier because it leads people to not recognize a nascent idea's value and to not share it (Gurteen, 1998). Also in this case, no enablers related to this individual barrier were found.

Instead, moving to the organizational communication level, the results of the implementation of the knowledge retention plan proposed by Caldas et al. (2015) as a solution to knowledge loss due to employee retirement are not available. Therefore, the validity of this solution is not established. Further research should be carried out to validate the knowledge retention plan or to find another potential solution to experiential knowledge loss.

Lastly, no enablers or solutions were found at the organizational translation level. Business relevance and the difference between creation and innovation procedures

117

Conclusion

pose some barriers to knowledge creation. Business goals and objectives are integrated with organizational knowledge and constrain knowledge creation, (Graham & Pizzo, 1996; Popadiuk & Choo, 2006) while the rigidity of innovation procedures hampers the fluidity of creativity (Bagaria et al., 2022). Scholars should investigate how organizations can overcome these obstacles and improve knowledge creation.

Secondly, further research should be carried out to investigate the confused and mixed results related to competition and rewards. Competition is a factor that influences communication at the team level. Some studies argue that competition can improve commitment to the task and thus improve knowledge sharing (Martinez, 2015), whereas others affirm that competition can lead employees to hide knowledge to maintain their competitive position (Narayanan et al., 2020; Schepers & van den Berg, 2007). Future research can investigate the dynamics that shape positive or negative competitiveness. On the other hand, also the effects of rewards are not clear. Some scholars argue that both extrinsic and intrinsic rewards encourage employees to share knowledge (Nguyen & Malik, 2020). On the other hand, others argue that extrinsic rewards can increase negative competitiveness and individuals could be discouraged to collaborate to benefit from positive evaluations, cash bonuses, and promotions (S. C. Goh, 2002; Wang & Noe, 2010). Further research should delve into the effects, especially extrinsic ones, to clarify these mixed results.

Last, from the systematic literature review arose a repetition among individual and team variables and inter-organizational variables. For example, individual factors such as characteristics of knowledge such as tacitness and ambiguity of knowledge influence the inter-organizational context. In particular, they act as translation barriers and are strengthened by the different organizational expertise (Mu et al., 2021). Instead, team factors such as conflicts, cognitive styles, and knowledge boundaries influence inter-organizational collaboration. Within teams, task conflicts foster knowledge exchange while interpersonal conflicts have generally negative effects

Conclusion

because employees tend to hide knowledge and defend their position (Chen, 2006; Lanke, 2018). Instead, in the inter-organizational context, these effects are amplified. The positive impact is greater because task conflicts not only foster the exchange of information but also lower barriers generated by the different expertise such as tacitness and ambiguity of knowledge and enhance the knowledge translation (Mu et al., 2021). In turn, the negative impact of interpersonal conflicts is greater because it is strengthened by the different organizational cultures and values (Fayard et al., 2016). Also, the effects of cognitive styles and knowledge boundaries are amplified. At the team level, different cognitive styles give more raw materials to employees and improve critical thinking as well as obstacle knowledge translation due to different ways of thinking and information processing (Aggarwal & Woolleyb, 2019; Baer et al., 2013). A knowledge boundary, instead, represents the limit of the individual knowledge base in relation to a different domain of knowledge. They are not static but they can adjust through learning and processing of new information. An individual's knowledge base significantly affects how people interpret knowledge by determining what information is important and thus what information should be integrated into the existing knowledge base. Therefore, knowledge boundaries can negatively influence knowledge translation and transformation if people are unable to process and integrate the new information (Carlile, 2002; Rigg et al., 2021). At the inter-organizational level, the impact of cognitive style and knowledge boundaries variety is strengthened by the different knowledge and expertise. The diversity in raw material, ways of thinking, and knowledge base will be not only at the individual level but also in the domain of expertise (Choo & de Alvarenga Neto, 2010; Easterby-Smith et al., 2008; Hawkins & Rezazade, 2012). Lastly, another variable that influences both team and inter-organizational context is trust. At the team level, trust fosters cooperative behavior (Alshwayat et al., 2021; Gupta & Agarwal, 2023) and communication because it alleviates concerns relative to the misappropriation of knowledge and the fear of "failure" or "making fool of oneself" (Gurteen, 1998; Rios-

119

Ballesteros & Fuerst, 2022) as well as reduces conflicts and concern about the veracity of knowledge, which can lead to a poor knowledge translation (Argote et al., 2003; Lloria & Peris-Ortiz, 2014). Instead, in the inter-organizational context, trust impact is greater because it doesn't have drawbacks. Since employees among different organizations don't know each other and trust is considered the foundation of any collaborative effort, trust allows inter-organizational collaboration to happen (Connell et al., 2014). Indeed, trust fosters communication by creating a sense of security (Wang & Noe, 2010) and employees don't reject new knowledge automatically (Lloria & Peris-Ortiz, 2014). As presented above, some variables that influence individual and team levels influence also the inter-organizational context. Moreover, the effects of these variables, whether they are positive or negative, seem to be amplified among organizations. Future research should investigate whether arguments from one domain can be applied to others, explore the relationship between individuals and teams and inter-organizational collaborations, and examine why effects of variables are amplified in the inter-organizational context.

5.3. Managerial implications

This systematic literature review proposed a holistic and multi-level vision of factors, barriers, and enablers or solutions of knowledge sharing. This study discussed the impact of different factors on knowledge sharing, how barriers hamper this process, and which are the enablers or solutions that can foster knowledge sharing and also address the barriers and negative effects of factors. These variables were examined at the different levels of interactions they occur and respectively from the communication and translation point of view, which are the activities involved in the knowledge sharing process (Liyanage et al., 2009; Nonaka et al., 2000; Nonaka & Takeuchi, 1995). The conceptual framework proposed helps managers to have a comprehensive picture

Conclusion

of the analyzed variables and to manage them. Indeed, this study can help managers analyze and choose specific combinations of enablers according to the factors and barriers that are present in the organization. Moreover, managers can do so according to the type of knowledge sharing process and to the level of interaction that needs to be addressed. For example, at the individual level, organizations can benefit from the fact that individuals acts in their own self-interest (Konno & Schillaci, 2021) by aligning the interests of the company with those of the employees or hire employees who have the same interests as the company in order to benefit from this factor (Sung & Choi, 2018). Organizations can also address individual factors at team level. For example, organizations can develop a positive perception about the usefulness of knowledge exchange by top management support and leadership and foster cooperative behaviour by cultivating trust among employees (Gupta & Agarwal, 2023). If an organization want to start a collaboration with another organizations, negative impact generated by the difference among national and organizational culture as well as expertise variety and barriers such as tacitness and ambiguity of knowledge (Fayard et al., 2016; Mu et al., 2021) can be addressed by socialization and trust. These enablers can be promoted by different social mechanisms such as personal interaction, shared social experiences, daily business activities, or physical proximity (Dingler & Enkel, 2016; Nonaka, 1994). At the organizational level, also an appropriate organizational culture such as adhocracy and clan ones can lower the negative impact of different cultures and knowledge and facilitate knowledge sharing among organizations (Alassaf et al., 2020). In addition, organizations can strengthen enablers or solutions with other enablers or solutions thanks to the different correlations that have arisen in this study. For example, organization can strengthen individual commitment and motivation from different levels. At the individual level, organizations can improve job and task characteristics and foster job satisfaction. When tasks are in line with workers' abilities or when jobs require creativity, employees often exhibit higher levels of commitment and motivation (Basadur & Gelade, 2006; Nguyen & Malik, 2020). In

Conclusion

addition, there is a positive correlation between job satisfaction and knowledge sharing. Jon satisfaction increases motivation, commitment, and, therefore, the willingness of employees to share knowledge (Rafique & Mahmood, 2018; Wang & Noe, 2010). Instead, at team level, top management support as well as trust can improve individual commitment and motivation (Alshwayat et al., 2021; Rios-Ballesteros & Fuerst, 2022). Also team identification strengthen motivation and commitment because employees who strongly identify themselves with the team are more motivated for team pride and benefit (Tang et al., 2014). Organizations can also support commitment and motivation thorugh rewards, being aware of the mixed results (Goh, 2005; Nguyen & Malik, 2020; Wang & Noe, 2010).

Therefore, this systematic literature review help managers and organizations to be more aware of factors and barriers that occur at the different level of interaction and which enablers can lower negative impact and improve knowledge sharing. Moreover, the different correlation that have arisen in this study help managers and organizations to take decision more consciously. Being aware of the advantages and disadvantages of the different variables, organization can combine them based on their relationship in order to lower negative impacts or reinforce positive ones.

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List of Figures

List of Tables