

Categorizing the effects of knowledge management practices on SMEs: a literature review

Categorización de los efectos de las prácticas de gestión del conocimiento en las pymes: una revisión de la literatura

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Abstract: Large firms have managed to design robust knowledge management (KM) systems that help to create more effective responses to turbulent environments. On contrary, small and medium-sized enterprises (SMEs), which often suffer from the liability of smallness, usually carry out KM practices in a more informal and less planned manner. The objective of this research is to characterize the effects of KM practices in SMEs. The designed documentary review systematically analyzed 276 publications in journals indexed in Scopus in 2022. The main results suggest a tendency to study the dimensions of KM, such as dynamic technological capability, human capital, and their effects on financial and innovative performance, among others. The findings contribute to the literature by reordering information provided by scientific publications and revealing the dependent, mediating, and moderating variables linked to KM that are currently used by SMEs.

Keywords: Knowledge management; intangible assets; innovation; literature review; SMEs.

Resumen: Debido a la mayor disponibilidad de recursos, las grandes empresas han logrado diseñar robustos sistemas de gestión del conocimiento (GC) útiles para crear respuestas a entornos turbulentos; sin embargo, la pequeña y mediana empresa (PYME), al poseer características especiales y menos recursos, normalmente realizan prácticas de GC de manera más informal y menos planificada, lo que ha dificultado su estudio a pesar de la relevancia ampliamente demostrada de este tipo de empresa para la competitividad. En este sentido, el objetivo es caracterizar los efectos de las prácticas de GC en las PYME. Para esto se diseñó un trabajo de revisión documental que analizó sistemáticamente 276 publicaciones obtenidas de Scopus en 2022. Los principales resultados sugieren una tendencia a estudiar las dimensiones de la GC como la capacidad dinámica tecnológica, capital humano y su efecto en el desempeño financiero e innovador, entre otros. Los resultados constituyen un aporte a la literatura al reordenar la información que se encuentra dispersa y develar las variables dependientes, mediadoras y moderadoras utilizadas actualmente en la GC en PYME.

Palabras clave: Gestión del conocimiento; activos intangibles; innovación; revisión de literatura; PYME.

1. Introduction

Current dynamic and volatile environments require organizations to develop functional dynamic capabilities to be competitive (Barney, 1991; Penrose, 1959; Wernerfelt, 1984). In this context, the use of knowledge, information, and technologies becomes relevant as means to reduce uncertainty and successfully overcome the demands of the environment (Chuan et al., 2017; Gray, 2006; Hassan & Raziq, 2019; Nonaka & Takeuchi, 1995; Väyrynen et al., 2017). According to Mundy (2016), management cannot always establish the optimal combination of tacit and explicit knowledge for value generation during decision-making. In this scenario, KM arises as an answer to the question: What is the most efficient way to manage knowledge in turbulent environments?

On the other hand, it is more feasible for large companies to design robust KM systems than smaller ones (Hutchinson & Quintas, 2008; Rodríguez-Ponce et al., 2010; Xie et al., 2020). The structure of SMEs is usually very flexible because resource scarcity forces their owners and other workers to perform different functions to solve everyday requirements. In this sense, Hall (1979), Pratten (1991), and Velandia et al. (2016) state that in SMEs, discretion exists to act differently from programmed; workers become versatile depending on circumstances. This situation generates an environment rich in new solutions giving place to new uses and configurations of organizational resources and capabilities. However, the same act of living for everyday solutions makes that organizational learning processes take place in a spontaneous, natural, more informal, and less planned way (Xie et al., 2020), leaving aside formal KM processes, which makes their study difficult despite the relevance of SMEs in the economy.

In this sense, SMEs focus on knowledge absorption, knowledge use, and innovation development. However, their informality makes these processes a natural, tacit, and short-term reaction (Tokman, 1992; Velandia et al., 2016). According to Mcadam and Reid (2001), SMEs are less advanced, with a mechanical approach to knowledge and a lack of investment in KM approaches and systems, making it challenging to identify the effects of KM practices in these organizations. From the above, the question arises: What variables are affected by KM practices in the context of SMEs?

When trying to answer this question from the empirical approach of SMEs, it is common to find owners of SMEs, who are usually also managers, narrating the feats they perform in the day-to-day of their positions. Knowledge usually remains tacitly in the memory of individuals, making it difficult to objectively measure the variables related to KM practices, their effects on the organization, and the mediating and moderating variables. Then arises another question: What variables have researchers used when addressing KM in the empirical context of SMEs? Which suggests systematically analyzing the existing literature.

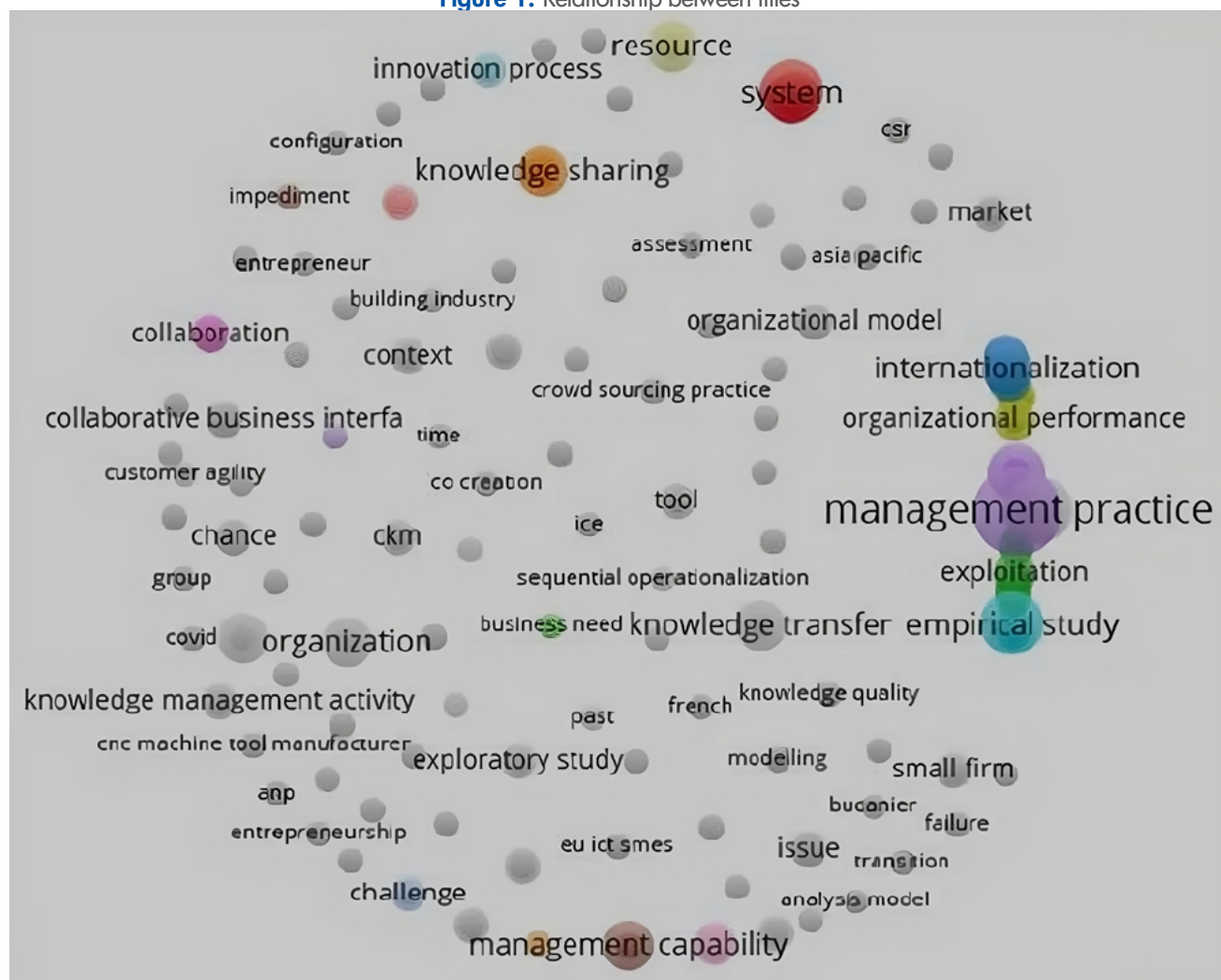
To answer this question, an exhaustive search in the Scopus database was carried out, when is confirmed that the literature on KM in SMEs is fragmented and unrelated, with few comparative studies between countries (Figure 1) (Chaithanapat & Rakthin, 2021; Massaro et al., 2016). The descriptors "Knowledge management" and "SMEs" were used for the search without a time limit. The outcome was 304 documents, of which ten correspond to documentary reviews, which are far from identifying the variables affected by KM, thus leaving a knowledge gap.

In this order of ideas, it would be beneficial to characterize the effects of KM practices in SMEs through available literature. The database was refined to 276 documents under exclusion/inclusion criteria. Subsequently, dependent, mediating, and moderating variables related to KM practices in SMEs were identified. This paper presents the theory used for understanding KM in SMEs, subsequently used methodology, and finally, the results. It is relevant to highlight the results suggest a tendency to study the dimensions of KM, such as dynamic technological capability, human capital, and its effect on financial and innovative performance, among others.

The results show the diversity of affected factors for KM in SMEs through 122 open categories defined as dependent variables. Additionally reveals 19 moderating variables and 33 mediators. KM affects organizational capabilities, improves processes, encourages the company to reconfigure itself into a learning organization, influences personnel behavior, drives innovation, and

promotes social development. These results contribute to the existing literature for characterizing variables and rearranging the discussion on the subject. In this sense, the study represents an advance because it offers different results from those of the previous reviews and has practical utility because it presents new, concrete, orderly, and valuable knowledge to support decision-making by managers so that they focus on more precise and consistent organizational variables with the nature of SMEs.

Figure 1: Relationship between titles



Note: own elaboration from VOSviewer

2. Knowledge management

From the resources and capabilities theory (Barney, 1991), the organization is understood as a repository of resources (Penrose, 1959; Wernerfelt, 1984), from whose reconfiguration it is expected that the company will develop competitive advantages manifested in capabilities. When these capabilities help respond to the environment's requirement, it is said that the organization has developed dynamic capabilities, which are rare and difficult to imitate because they occur in a particular context putting the company in a privileged competitive position (Teece et al., 1997). In this scenario, knowledge

is considered relevant because it constitutes a source of new resources used to build new capabilities. In this order of ideas, knowledge affect organizational performance positively (Bueno, 1998; Escobar et al., 2019; Hock-Doepgen et al., 2021; Kmiecik & Michna, 2018).

It is necessary to differentiate organizational learning from KM. Organizational learning is the natural and spontaneous action of learning from everyday activities by acquisition, internalization, exploitation, and transfer of knowledge (Su & Daspit, 2022), and KM is the action of taking responsibility for learning (Velandia et al., 2022). In this sense, KM is defined in literature as a process, capability, method, or tool to manage knowledge (Bueno, 1998; Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995; Sveiby, 1997; Tarí & Garcia, 2009) which implies the technological component and measurement of knowledge (Barney, 1991; López-Zapata et al., 2019; Probst et al., 2001).

There is a vast literature that presents different variables that are affected by KM. One of the most developed perspectives studies the impacts of KM on financial performance. In this line, it is highlighted the studies of Salojärvi et al. (2005), Potjanajaruwit (2021), Khraishi et al. (2022), and Permatasari et al. (2022). In addition, the alternative studies of Alegre et al. (2011), Horvat and Bobek (2017), Lee and Rosdi (2017), Alshanty et al. (2019), Khan et al. (2019), and Bhatti et al. (2020), demonstrate the impact of KM on organizational structure, culture, learning, innovation, knowledge absorption, and adaptation capabilities. Agostini et al. (2020) showed that the core topics that consistently link KM, innovation, and networks are performance, absorptive capacity, strategic alliances, and collaboration between organizations. Additionally, the authors reveal KM's human and social side as an emerging topic.

According to the above, are identified two currents for studying KM. The codification approach understands KM as a structure that facilitates tacit knowledge to become models, policies, or formal routines (Explicit Knowledge) (Nonaka & Takeuchi, 1995; Probst et al., 2001), giving place to intellectual capital (Donate & Sánchez de Pablo, 2015; Sveiby, 1997). However, knowledge is built by persons; hence in the human approach, KM is principally understood as a process based on intuition and experience that generates tacit and not very measurable knowledge, which gives place to risk of leakage (Ditillo, 2012; Nonaka & Takeuchi, 1995) but with the capability of leverage the competitive position (Davenport & Prusak, 1998; Scuotto et al., 2020; Tomasini, 2001; Willis & Tucker, 2001).

Therefore, in an organizational context, the existence of KM informal practices is possible, principally in the context of SMEs. Because they are usually faced with resource shortages, they apply their efforts in cheaper and short-time results (Velandia et al., 2016), nevertheless, in current is feasible for SMEs to access big data and implement KM using affordable technological applications to achieve a competitive advantage (Wang & Wang, 2020).

2.1. Knowledge management in SMEs

SMEs are characterized by being relatively flexible organizations in which the functions associated with the positions are easily adapted to the needs of each situation (Pratten, 1991); they are easily reconfigured (Weaven et al., 2021), easily absorb or adopt business applications (Hardwig, 2020; Martinez-Conesa et al., 2017), manage knowledge humanistically (Desouza & Awazu, 2006) and becoming highly creative, but they tend to manage the knowledge obtained informally (Hutchinson & Quintas, 2008); hence they are in constant danger of losing knowledge (Durst & Wilhelm, 2012).

KM practices application and technological applications improve competitive advantage for SMEs in a dynamic environment (Soto-Acosta et al., 2018); likewise, Marques et al. (2020) demonstrated the reciprocal relationship between the tool used in KM and KM practices; however, only 18% of SMEs are efficient and effective in KM tools use and KM practices (Centobelli et al., 2019).

Durst et al. (2023) affirm that KM research in SMEs is strongly directed toward KM implementation, perception, and knowledge transfer. Although, knowledge identification, knowledge storage, and knowledge utilization should be studied

more. An explanation for this could be the little importance that SMEs managers assign to knowledge storage due to the cost they imply. Giving rise to informal knowledge identification and utilization practices that originate tacit knowledge. (Tokman, 1992; Velandia et al., 2016).

Petrov et al. (2020) support strategy, marketing, and human resource management as the three pillars supporting KM in SMEs in a transition economies context. Furthermore, Wong and Aspinwall (2005) and Nguyen and Mohamed (2011) defined as critical factors management leadership and support, culture, strategy, resources, and other processes and activities whose development is relatively cheaper and generate short-term results. On the other hand, the costliest factors constitute prescriptive limits for KM, such as training and education; human resource management; information technology; motivational aids; organizational infrastructure, and measurement.

Finally, Chaithanapat and Rakthin (2021) assert that customer knowledge management arises when organizations see the significance of customers as a source of organizational knowledge, improving performance. Furthermore, Castagna et al. (2020) found that SMEs have made more intensive use of traditional technologies rather than new technologies, which are relatively cheaper and easier to use. This situation explains SMEs' difficulties when responding to the environment's changes.

2.2. Literature review studies in KM in SMEs

On available literature, some studies carried out a literature review approach about KM in SMEs, which addresses topics such as barriers to KM (Riege, 2005) and the inclusion of cloud-based information systems (Saratchandra & Shrestha, 2022), among others. Still, their objectives differed from characterized variables related to KM in SMEs. Table 1 shows the principal contributions of these studies.

Table 1: Principal contributions of literature review on KM studies in SMEs context

Autor	Title	Contributions
(Durst et al., 2023)	Knowledge management in SMEs: a follow-up literature review	The authors confirm that implementation areas of KM, perception of KM, and knowledge transfer are topics widely studied. In that sense, it is possible to deduce that identification, creation, exploitation, and measurement knowledge should be learned better.
(Saratchandra and Shrestha, 2022)	The role of cloud computing in knowledge management for small and medium enterprises: a systematic literature review	The study addresses the role of cloud-based KM systems (C-KMS) in SMEs. They found that adopting C-KMS provides an economical and strong foundation to manage knowledge, improve the availability, and codify knowledge in SMEs
(Sartori et al., 2020)	Specificities of SMEs relevant to knowledge management: A systematic literature review	The results show consolidation of state of the art about KM in SMEs making easier its practical application
(Massaro et al., 2016)	Knowledge management in small and medium enterprises: a structured literature review	The authors say research in KM in the SMEs context is fragmented and not related; with few comparative studies, and some countries are few linked to research
(Grace, 2009)	Wikis as a knowledge management tool	The study addresses the usefulness of wikis and their possible role in the process of management and exchange of knowledge among SMEs
(Valkokari and Helander, 2007)	Knowledge management in different types of strategic SME networks	The study presents a characterization of the strategic networks of SMEs and their challenges in KM. Share knowledge is a strategy that influences the cooperation and outcomes that firms can achieve
(Riege, 2005)	Three-dozen knowledge-sharing barriers managers must consider	The review offers a catalog of barriers SMEs must overcome to exchange knowledge. Furthermore, the author identified that organizations and implementation processes are unique and different

Source: Data taken from Scopus.

In the literature that uses a review or a bibliometric approach, it is possible to identify a tendency to reorganize results to become them more accessible for managers. Massaro et al. (2016) confirm that different forms of understanding the concept of SMEs make the comparison between results difficult. Furthermore, Durst et al. (2023) found that some areas of KM are less studied than others. Additionally, many variables associated with KM are challenging to characterize in the literature. In this order of ideas, it is convenient to contribute to these advancements by describing the variables related to KM in the SMEs context.

3. Methodology

Qualitative, descriptive, and documentary research was conducted (Guirao-Goris et al., 2008; Peña & Pirela, 2007). The dependent, mediating, and moderating variables used in KM studies in SMEs were revealed through systematic analysis. With the specialized tool for delimiting topics, "Browse by topic" of Science Direct, several search descriptors were used to define the best related to the issue of interest through the keywords declared by the different authors. This action made it possible to identify "Knowledge management" and "SMEs" as the ones that yielded the most consistent results with the study's objective.

The first articles were downloaded and analyzed in Scopus in June 2020, which were analyzed and categorized in initial exploration work. Subsequently, in May 2022, an update of the download was carried out, which yielded 1592 documents. Both downloads were delimited to "Business, Management and Accounting" and "Economics, Econometrics, and Finance." This work resulted in 304 papers defined as the database to work with. Table 2 shows the types of documents that make up the initial sample. Authors such as Durst stand out for the number of publications, with seven papers. Adam, Heaving, Soto-Acosta, and Wong with four documents each, thus becoming the most representative. However, among the most cited highlight Riege, Desouza, Awazu, Durst, Bruns, Edvardsson, Alegre, Sengupta, Lapiedra, Mcadam, and Reid, to mention only those with more than 200 citations.

Table 2: Types of documents in KM in SMEs

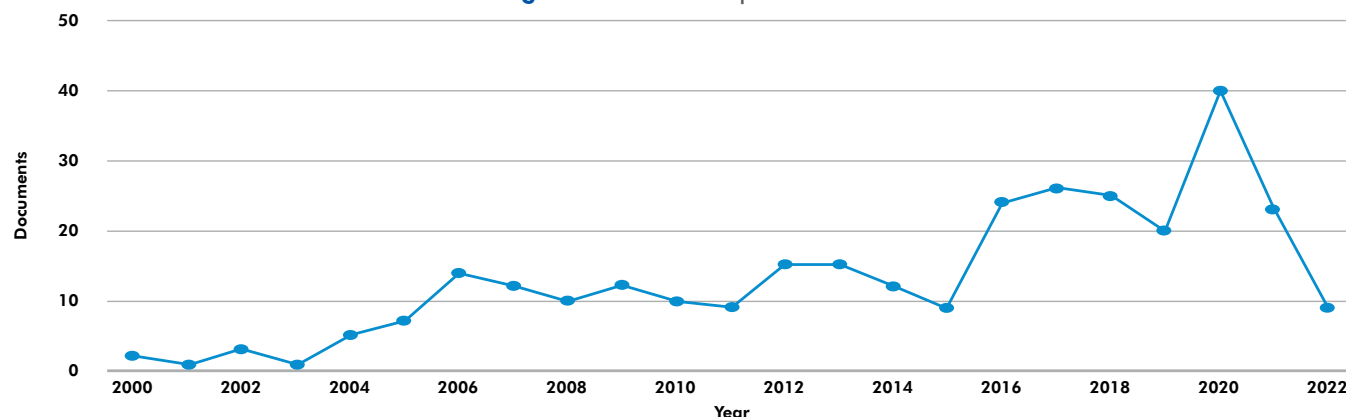
Document Type	Quantity	Percentage
Articles	201	66,1 %
Conferences papers	43	14,1 %
Books chapters	39	12,8 %
Reviews	14	4,6 %
Books	6	2,0 %
Conferences reviews	1	0,4 %
Total	304	100,0%

Note. Data taken from Scopus.

These documents were carefully analyzed, and 28 were eliminated, using as exclusion criteria: duplicate documents, reviews, letters from editors, and unrelated topics. This operation resulted in 276 documents that were rigorously analyzed with the help of analysis perches and analysis logs. In a rigorous categorization process, the variables used by the researchers were identified, giving rise to 122 open categories for the dependent variables, 33 mediators, and 19 moderators, which were grouped according to their common characteristics to make emerge general concepts for achieving the research's objective (Packer, 2013; Rodríguez et al., 1999). Scopus was used because it integrates about 95% of the articles that enter other databases such as Web of Science (WOS), Science Direct, and others (Cañedo et al., 2010; Velandia & Escobar, 2019).

All selected articles are written in English, and from 2006 publications had a significant rise, remaining relatively constant until 2016; an upward trend was observed, showing that they gradually gained more space in high-impact journals, becoming an essential source of knowledge (Figure 2). 100% of the studies are published in journals whose publishers are from Asia, Australia, Europe, and the United States and correspond to studies that used populations from the same territories. Latin America is at a disadvantage in this regard

Figure 2: Behavior of publications



Note: Data taken from Scopus.

4. Dependent variables in KM studies in SMEs

Once the categories were closed, ten dependent variables were defined that synthesize the 122 open categories, which, considering the approaches of Penrose (1959); Wernerfelt (1984); Barney (1991); Nonaka and Takeuchi (1995); Teece et al. (1997); Sveiby (1997); Bueno (1998); Probst et al. (2001); Gray (2006); Donate and Sánchez de Pablo, (2015); Väyrynen et al. (2017); Chuan et al. (2017); Kmiecik and Michna (2018); Escobar et al. (2019); Hassan and Raziq (2019), and Hock-Doepgen et al. (2021) condense critical factors of competitive success. The emerging categories are summarized in Table 3; their behavior is described individually, and the analysis perches are presented.

The "Performance" variable refers to the aspects researchers used to measure sustainable, economic, business, productive, exporting, and innovative performance, among others (Bueno, 1998; Escobar et al., 2019; Hock-Doepgen et al., 2021; Kmiecik & Michna, 2018). The most cited authors are Alegre et al. (2011), with 223, and Soto-Acosta et al. (2018), with 127 citations. In 2020 there was a peak in the number of publications that far exceeded previous years. Likewise, the "innovation" variable refers to aspects such as innovative work behavior, relocated innovations, frugal innovation, green innovation, and efficiency in the innovation model, among others (Alegre et al., 2011; Alshanty et al., 2019; Chuan et al., 2017; Hock-Doepgen et al., 2021; Khraishi et al., 2022). Along these lines, highlight the studies of Martinez-Conesa et al. (2017) with 178 citations.

On the other hand, in the "Reconfiguration in learning organizations" variable, topics such as transfer, creation, integration, capture, and knowledge management, among others, are considered representative of the organizational decision to become a learning organization (Davenport & Prusak, 1998; Hall, 1979; Pratten, 1991; López-Zapata et al., 2019; McAdam & Reid, 2001; Mundy, 2016; Su et al., 2022; Tarí & García, 2009; Velandia et al., 2022; Xie et al., 2020). The most influential studies are those of Wong and Aspinwall (2005), with 331 citations. Regarding the "Improvement of processes" variable, it is observed that the most significant number of publications was in 2018 (Davenport & Prusak, 1998; Riege, 2005; Saratchandra & Shrestha, 2022; Scuotto et al., 2020; Soto-Acosta et al., 2018; Tomasini, 2001; Willis & Tucker, 2001).

In this line, [Basly \(2007\)](#) stands out with 80 citations. This area involves elements such as internationalization strategies, misalignment between knowledge and KM systems, access to international purchases, and empowerment of the organization.

Table 3: Variables affected by KM in SMEs

Emerging categories (KM dependent variables)	Number of categories
Performances	22
Innovation	22
Reconfiguration in learning organizations	19
Processes improvement	13
Behavioral	10
Organizational transformation	10
Social development	9
Organizational capabilities	8
Management	5
Convergence	4
Total	122

Note. Data taken from Scopus.

There are some aspects related to the company's culture, information assimilation, knowledge absorption, communication, technologies (ICT), employee commitment, and empowerment of individuals, among others, that can be grouped into a category that is related to the "Behavioral" ([Alegre et al., 2011](#); [Alshanty et al., 2019](#); [Bhatti et al., 2020](#); [Desouza & Awazu, 2006](#); [Horvat & Bobek, 2017](#); [Khan et al., 2019](#); [Lee and Rosdi, 2017](#); [Nguyen & Mohamed, 2011](#); [Wong & Aspinwall, 2005](#)). In this line, the study of [Grace \(2009\)](#) stands out. This publication has 150 citations. The years 2017 and 2018 have the highest number of publications.

There are factors related to organizational transformation by the demands of the environment, for example, preparation for internationalization, knowledge of internationalization, strategic renewal, and adoption of electronic commerce in the supply chain, among others, giving place to the "Organizational transformation" category ([Castagna et al., 2020](#); [Chaithanapat & Rakthin, 2021](#); [Grace, 2009](#); [Riege, 2005](#); [Wang & Wang, 2020](#)). The number of publications in this line is not so abundant, revealing a line available. The most representative study is that of [Villar et al. \(2014\)](#). The paper has 149 citations.

The "Social development" category has the lowest number of publications (9 articles), which address aspects such as economic growth, quality of life in the regions, sustainability, growth of women entrepreneurs, and strategic entrepreneurship, among others related to the human and social side of KM ([Agostini et al., 2020](#); [Petrov et al., 2020](#)). This line of work does not present publications between 2009 and 2015 and has only one published article per year. It is deduced that these little visible lines constitute an opportunity to formulate news studies in SMEs from a different approach, which can be innovative and profitable. The study of [Singh and Kumar \(2020\)](#) is highlighted with 23 citations.

From resources and capabilities current ([Barney, 1991](#); [Ditillo, 2012](#); [Durst & Wilhelm, 2012](#); [Hardwig, 2020](#); [Hutchinson & Quintas, 2008](#); [Martinez-Conesa et al., 2017](#); [Penrose, 1959](#); [Pratten, 1991](#); [Teece et al., 1997](#); [Weaven et al., 2021](#); [Wernerfelt, 1984](#)), the "Organizational capabilities" category has been defined, made up of the dimensions: dynamic capabilities, survival, and growth, technological innovation capability, brand capabilities, absorption capability, and innovation capability, among others. In this line, highlight the study of [Yao et al. \(2020\)](#) with 24 citations.

Studies located in the "Management" category are made up of decision-making, sense of opportunity, owner of the SMEs, and risk management ([Chaithanapat & Rakthin, 2021](#); [Desouza & Awazu, 2006](#); [Khraishi et al., 2022](#); [Permatasari et al.,](#)

2022; Potjanajaruwit, 2021; Salojärvi et al., 2005; Velandia et al., 2016). The low production in this category suggests that researchers have paid little attention to aspects concerns related to managers, which opens the door to a fertile perspective of study with the potential to improve the conditions of SMEs in general significantly. The study by Wee and Chua (2013) is the only one cited and has 118 citations.

Finally, the category named “Convergence” is made up of knowledge exchange, transparent interoperability, platforms that induce networks and conversations, and a stable and long-term business network strategy (Castagna et al., 2020; Saratchandra & Shrestha, 2022; Valkokari & Helander, 2007; Wang & Wang, 2020). The little scientific production in this line demonstrates the need for studies on how ICTs contribute to the consolidation of common information banks as a strategy to increase available information for SMEs. This perspective opens questions such as: Does publicizing KM information generate competitive benefits or disadvantages by revealing sensitive organizational information? Are the companies that use these platforms ethical when sharing and using the information? Likewise, this group's most representative study (37 citations) comprises Soto-Acosta et al. (2014).

Below are the analysis perches that contain the complete relationships between the closed and open categories linked by the previous theories. Table 4 includes the most widely represented approach in the literature, in which researchers study the effect of KM on organizational performance dimensions. The high production in this category can be explained by the various options to measure performance, going beyond the financial sphere by including qualitative indicators.

Table 4: Effects of KM on performance

Open category	Previous theory	Emerging categories
Company performance	(Alegre et al., 2011; Alshanty et al., 2019;	Performance
Economic performance	Bhatti et al., 2020; Escobar et al., 2019;	
KM performance	Horvat & Bobek, 2017; Khan et al., 2019;	
Export performance	Khraishi et al., 2022; Lee & Rosdi, 2017;	
Financial and non-financial performance	Permatasari et al., 2022; Potjanajaruwit, 2021; Salojärvi et al., 2005)	
Innovative performance		
Sustainable performance		
Quality		
Competitiveness		
Economic consequences		
Competitive strategy		
Exploration and exploitation in performance		
Pandemic (response)		
Productivity		
Superior performance		
Cost-effectiveness		
Response to the environment		
Marketing results		
Key results		
Customer satisfaction		
Solutions		
Competitive advantages		

Note. Own elaboration based on Scopus.

Table 5 refers to the effects of KM on the actions and performance of innovation. As SMEs are companies that naturally stimulate creativity (Hutchinson & Quintas, 2008; Rodríguez-Ponce et al., 2010), this approach is especially relevant when revealing categories for performance such as: “Frugal innovation,” “Green innovation,” or “Delocalized innovations.” On the other hand, the closed category “Actions” refers to the actions of innovation, such as flexibility, efficiency, or implementation.

Thanks to their typically organic structure, where human resources become relevant, SMEs have a high capability for reconfiguration, adaptation, and evolution. In this sense, the study of the effect of KM on the ability to become true learning companies is approached from “Learning processes,” “Personnel,” “Management,” and “Knowledge” (Table 6).

On the other hand, the effects of KM on process improvement are addressed from an ex-ante approach when it refers to its activity, emphasizing the presence of elements such as: “Participation in public tenders” or “Access to international purchases,” for instance. And an ex-post approach when referring to results such as “Value creation” or “Business excellence,” among other elements of Table 7.

Table 5: Effects of KM on innovation

Open category	Previous theory	Closed category	Emerging categories
Open innovation	(Alegre et al., 2011; Alshanty et al., 2019; Chuan et al., 2017; Hock-Doepgen et al., 2021; Khraishi et al., 2022)	Performance	Innovation
Employee innovation			
Innovation of processes and products			
Innovation of products, processes, and management systems			
Innovation in business model			
Frugal innovation			
Radical innovation			
Green innovation			
Offshore innovations			
Innovation quality			
Performance of new products	Actions		
Industrial design performance			
Coherence of the strategic configuration of innovation			
Effectiveness in innovation strategy			
Innovation expectations			
Flexibility for product innovation			
Imperfections of the innovation process			
Innovative work behavior			
Innovation implementation			
Innovation speed			
Manage complex product development activities			
Innovation front end			

Note. Own elaboration based on Scopus.

Table 6: Effects on the ability to reconfigure in learning organizations

Open category	Previous theory	Closed category	Emerging categories
Information access	(Desouza & Awazu, 2006; Hardwig, 2020; Mundy, 2016; Pratten, 1991; Weaven et al., 2021)	Learning process	Reconfigure themselves into learning organizations
Body of knowledge			
Active learning			
Organizational learning			
Knowledge creation			
Creation of intellectual property			
Creation, transfer, and integration of knowledge			
A central repository of information			
Corporate reports			
Adopt KM		Human resource	
Knowledge transfer			
Allocation of R and D resources		Management	
Capturing and managing intellectual capital			
Control the management of knowledge resources			
Motivations for managing intangible assets			
Decision support system			
Explicit knowledge	Knowledge		
Tacit knowledge			
Knowledge retention			

Note. Own elaboration based on Scopus.

Table 7: Effects on the quality of the processes

Open category	Previous theory	Closed category	Emerging categories
Save of time and money	(Alshanty et al., 2019; Bhatti et al., 2020; Horvat & Bobek, 2017; Khan et al., 2019; Lee & Rosdi, 2017)	Performance	Process improvement
Value creation			
Empowerment of the organization			
Business excellence			
Degree of internationalization			
Business proactivity			
Access to international purchases		Processes	
Favorable attitudes of SMEs			
Misalignment between knowledge and KM systems			
Internationalization strategies			
Integrated operations			
Participation in public tenders			
Design delivery times			

Note. Own elaboration based on Scopus.

Table 8 shows the studies that address the effect of KM on behavior focus on individuals and organizations. The former refers to variables such as "Knowledge governance acceptance" and "Commitment of individuals." The latter refers to aspects of the organizational culture that materialize because of KM, which helps educate staff, reduce barriers to managing knowledge, and reduce the probability of leakage.

Table 9 presents the variables used to analyze KM's effect on the company's capabilities. They give rise to the emerging category "Organizational capabilities," which combines all the elements the company uses to respond to the environment and acquire competitive advantages.

Table 10 brings together the effects that KM has on the emerging categories of "Organizational transformation," "Social development," "Convergence," and "Management" of SMEs. The first refers to the use of flexibility and the ability to absorb technologies and use them to create competitive advantages, thus, allowing export activities and administrative reconfigurations, among others.

The second refers to elements of general interest; that aim at social benefit or the development of the economy. Under the shadow of this category are variables such as "Growth of women entrepreneurs," "Quality of life in the regions," or "Sustainability," which make the emerging category "Social development" take on a shade of justice and emancipation.

In the "Convergence" category are grouped the variables refer to actions and elements aimed at sharing knowledge that is affected by KM activities in SMEs. The implementation of "Platforms that induce networks and conversations" is highlighted, which seeks to improve competitiveness for a group of companies by constituting a storage site for shared knowledge and creating channels that increase the capability of absorption, transfer, and transformation from tacit knowledge to explicit and socially available knowledge.

Finally, the emerging category "Management" groups those variables affected by the KM related to business administration. KM affects how managers manage risks, interact with employees, make decisions, and see opportunities. This category is compliant for flexibility, ease of reconfiguration, commitment-based HR practices, and informal knowledge management of SMEs.

Table 8: Effects of KM on the behavior of individuals and organizations

Open category	Previous theory	Closed category	Emerging categories	
Knowledge governance acceptance	(Bueno, 1998; Davenport & Prusak, 1998; Desouza & Awazu, 2006; Donate & Sánchez de Pablo, 2015; DiIillo, 2012; Durst & Wilhelm, 2012; Riege, 2005; Scuotto et al., 2020; Tomasini, 2001; Willis & Tucker, 2001)	Human resource	Behavioral	
Assimilation and exploitation in internationalization				
Assimilation of ICT KM				
Commitment				
Empowerment of individuals				
Worker productivity				
Learning culture			Business	
Culture of trust				
Culture of knowledge				
Human resources management				

Note. Own elaboration based on Scopus.

Table 9: Effects on organizational capabilities

Open category	Previous theory	Emerging categories
Absorption capability	(Barney, 1991; Hardwig, 2020; Penrose, 1959; Pratten, 1991; Teece et al., 1997; Weaven et al., 2021; Wernerfelt, 1984)	Organizational capabilities
Ability to grow		
Innovation capability		
Survivability		
Brand capabilities		
Dynamic capabilities		
Intellectual capital		
Technological flexibility		

Note. Own elaboration based on Scopus.

Table 10: Effects of KM in organizational transformation, social development, convergence, and direction.

Open category	Previous theory	Emerging categories
Adoption of electronic commerce in the supply chain	(Chuan et al., 2017; Desouza & Awazu, 2006; Gray, 2006; Hardwig, 2020; Hassan & Raziq, 2019; Hutchinson & Quintas, 2008; Nonaka & Takeuchi, 1995; Pratten, 1991; Tokman, 1992; Väyrynen et al., 2017; Weaven et al., 2021)	Organizational transformation
Blockchain		
Business behavior		
Knowledge of internationalization		
Design of production systems		
Export		
Level of knowledge of internationalization		
Preparation for internationalization		
Strategic renewal		
Electronic commerce systems		Social development
Quality of life of the regions		
Growth of businesswomen		
Economic growth		
Business growth		
Strategic entrepreneurship		
Successful supply chain implementation		Convergen
Importance for SMEs		
Framework for internationalization		
Sustainability		Management
Stable and long-term business network strategy		
Knowledge sharing		
Transparent interoperability		
Platforms that induce networks and conversations		
Manage risks		
Open interaction with employees	Management	
SMEs owner		
Sense of opportunity		
Decision making		

Note. Own elaboration based on Scopus.

4.1. Variables that mediate the effect of KM in SMEs

The review also identified mediating variables between KM and the dependent variables specified in the previous section. First, the "Organizational characteristics," from the perspectives of its resources, capabilities, and operations, constitute mediating elements. Likewise, the business model and commercial processes are variables affected by KM and serve as mediations in the search for competitive advantages. Second, the "Innovation capabilities" is divided into the organization's actions to innovate and the innovations achieved. Regarding the first, it is evident that the constitution of innovation networks, intermediaries, and the innovation climate mediate between KM and the development of competitive advantages. And as for the innovations achieved, product development, innovation, and ambidextrous innovation make up the mediating elements (Table 11).

Likewise, Table 12 groups the emerging categories "Dynamic technology capability," "Human capital," and "knowledge creation and flow". The authors who approach their studies with these variables consider that technologies, individuals, and those elements of KM more used in SMEs, like knowledge creation or organizational learning (Durst et al., 2023), play a mediator role.

Table 11: Organization's characteristics and innovation capability as mediators of the KM effect

Open category	Closed category	Previous theory	Emerging categories
Knowledge sources	Resource	(Agostini et al., 2020; Barney, 1991; Desouza & Awazu, 2006; Durst & Wilhelm, 2012; Hardwig, 2020; Hutchinson & Quintas, 2008; Martinez-Conesa et al., 2017; Penrose, 1959; Pratten, 1991; Teece et al., 1997; Weaven et al., 2021; Wernerfelt, 1984)	Organization characteristics
Structural capital			
Open innovation	Capability		
Business capabilities			
Dynamic capabilities			
Knowledge of internationalization			
Quality competitive ability			
Functional flexibility	Operations		
Collaboration			
Innovation culture			
Interaction with knowledge assets			
Internet technology SMEs	Business models		
Export marketing	Business processes		
Strategic business orientation			
Customer KM			
Marketing orientation			
Customer immersion			
Innovation networks	Innovation actions		Innovation capability
Innovation intermediaries			
Innovation Climate			
Development of innovations	Innovations		
Product innovation			
Ambidextrous Innovation			

Note. Own elaboration based on Scopus.

4.2. Moderating variables of the effect of KM in SMEs

Table 13 highlights the “Organizational characteristics” category that intervenes as moderating variables based on resources, capabilities, operations, business models, and context. That the financial and systematic basis presents a negative moderation could be consistent with the natural condition of this type of organization since the lower availability of resources induces managers to assign more excellent value to spontaneous, natural, informal, and less planned KM practices.

In addition, the "Human capital" category was identified as a moderating factor of KM success in SMEs. Table 14 and consistent with the previous theory, aspects related to the personnel attitude towards innovation, technological orientation, predominant management philosophy, and ability to tolerate risks are mentioned as moderating variables.

Table 12: Technology, human capital, and knowledge as mediators of KM in SMEs

Open category	Previous theory	Emerging categories
TIC	(Bueno, 1998; Chuan et al., 2017; Davenport & Prusak, 1998; Difillo, 2012; Gray, 2006; Hassan & Raziq, 2019; Nonaka & Takeuchi, 1995; Petrov et al., 2020; Scuotto et al., 2020; Sveiby, 1997; Tomasini, 2001; Väyrynen et al., 2017; Willis & Tucker, 2001).	Dynamic technology capability
Platforms		
Web 2.0 technologies		
Human factor		Human capital
Promotion of confidence and motivation		
Independence orientation		
Knowledge transfer		Knowledge creation and flow
Knowledge sharing		
Organizational learning		
Knowledge creation process		

Note. Own elaboration based on Scopus.

Table 13: Moderating organizational characteristics of the effect of KM in SMEs

Open category	Previous theory	Closed category	Emerging categories
Tacit knowledge	(Desouza & Awazu, 2006; Durst & Wilhelm, 2012; Hall, 1979; Hardwig, 2020; Hutchinson & Quintas, 2008; Martinez-Conesa et al., 2017; McAdam & Reid, 2001; Pratten, 1991; Rodríguez-Ponce et al., 2010; Tokman, 1992; Velandia et al., 2016; Wang & Wang, 2020; Weaven et al., 2021; Xie et al., 2020)	Resource	Organizational characteristics
Absorption capability			
Financial and systematic basis (-)		Capability	
Organizational Facilitators			
Competitive intensity			
KM operation		Operations	
Frequency of investments in research and development		Business models	
Industry			
Size			
Family business		Context	
Age			
National culture			
Adoption barriers (-)			

Note. Own elaboration based on Scopus.

Table 14: Human capital as a moderator of the effect of KM in SMEs

Open category	Previous theory	Emerging categories
Employee education level	(Desouza & Awazu, 2006; Hutchinson & Quintas, 2008; Pratten, 1991; Tokman, 1992; Velandia, et al., 2022)	Human capital
Risk-taking tolerance		
Attitude to innovate		
Technology orientation		
Predominant management philosophy		
Ability to perceive the market		

Note. Own elaboration based on Scopus.

5. Contributions and repercussions

Previous literature demonstrates the main areas of study in KM for SMEs (Durst & Wilhelm 2012; Durst et al., 2023; Grace, 2009; Riege, 2005; Saratchandra & Shrestha, 2022; Sartori et al., 2020; Valkokari & Helander, 2007). However, there is no evidence of the characterization of affected variables by KM in SMEs. In that sense, this research contributes to the existing literature for this characterization and rearranges the discussion on the subject, which was dispersed. In addition, it contributes to close the knowledge gap indicated by Massaro et al. (2016). In this sense, the study represents an advance because it offers different results from previous reviews.

Competitive advantages are a series of varied elements, sometimes invisible, with great potential to improve competitiveness (Barney, 1991; Penrose, 1959; Wernerfelt, 1984). In the SMEs context, where informality and short-term approach predominate, identifying elements affected by KM is even more complex. The results show the diversity affected factors through 122 open categories defined as dependent variables, which are consistent and complement the results of Salojärvi et al. (2005), Alegre et al. (2011), Horvat and Bobek (2017), Lee and Rosdi (2017), Alshanty et al. (2019), Khan et al. (2019), Bhatti et al. (2020), Potjanjaruwit (2021), Khraishi, et al. (2022) and Permatasari et al. (2022).

There is consensus in the literature with respect to the effect of KM on performance; however, there is no clarity about the variables that affect this relationship. Consequently, the study additionally reveals 19 moderating variables and 33 mediators, which constitutes a relevant contribution to the theory. In addition, it has practical utility because it presents new, concrete, orderly, and useful knowledge to support decision-making so that managers focus their efforts on more precise and consistent organizational variables with the nature of SMEs.

In coherence with Marques et al. (2020), it was possible to show that KM activities affect organizational capabilities, contribute to improving processes, and encourage the company to reconfigure itself into a learning organization. In addition, through it, it can influence the behavior of managers or workers, improve company performance, drive innovation, and promote social development. It highlights the studies that use, as a dependent variable, the existence of points of convergence of knowledge for SMEs.

This is relevant for two reasons. The first is the characteristics of SMEs, which generally promote that the knowledge created and absorbed remains tacitly in the company. The second refers to the scarcity of resources and the little interest of managers in activities that require high investments, whose results are perceived in the long term. In this sense, a public technological platform, perhaps subsidized, would constitute a point of convergence of knowledge that would tend to make tacit knowledge explicit and would promote its transfer, improving the efficient and effective KM use and KM practice (Centobelli et al., 2019). However, disclosing information to others could also mean a loss of competitive advantage, especially if they are their competitors.

A relevant finding is to have identified “Dynamic technological capability,” “Human capital,” and “Knowledge creation and flow” variables since this suggests that the style of use of KM in the SMEs context is heterogeneous and focuses on human, technological and pragmatic variables, which is consistent with Wong and Aspinwall (2005); Nguyen and Mohamed (2011); Petrov et al. (2020) and Durs et al., (2023). These variables function as mediators and are closely related to the results presented in Table 8, where variables associated with the behavior of individuals and companies are shown.

In SMEs, as in any other type of organization, some factors condition the success of KM practices. However, although the results reveal that SMEs have two groups of variables focused on characteristics of the company and human capital, in these organizations, categories such as “Financial and systematic basis” show a negative effect on the impact of KM, which is consistent with the approaches of Hutchinson and Quintas (2008); Rodríguez-Ponce et al. (2010) and Xie et al. (2020), who state that the KM process is informal and less planned compared to larger companies. In this context, variables such as “Frugal innovation” and “Innovation front end” take on relevance because the first is a type of innovation that arises from scarce resources. The second corresponds to the more diffuse part of the innovation in which the results can hardly be glimpsed clearly, however necessary as an initial process. Given the characteristics of SMEs, these categories deserve more in-depth studies that give managers better management elements.

Viewed globally, the categories “Performances”, “Innovation,” and “Reconfiguration in learning organizations” contain 51% of the total of the resulting open categories, from which it can be deduced that these are mature lines of research. Likewise, closed categories such as “Processes improvement”, “Behavioral”, “Organizational transformation”, “Social development” and “Organizational capabilities” prove to be at an intermediate point when compared to the rest. For their part, closed categories such as “Management” and “Convergence” suggest emerging lines of research. These results complement the finding presented by Durst et al. (2023).

However, as a limitation of this research, it is pointed out that the database used (Scopus), despite broadly covering the scientific publications considered to be of quality, revealed substantial publications in Europe and the United States of America (USA), leaving out the studies that they have been developed in the Latin American context, which would generate results that are more consistent with the business reality of the region. Based on this, similar research using databases such as Redalyc is recommended. Another limitation is the number of articles employed in the systematic revision due to the study only considering areas of “Business, Management and Accounting” and “Economics, Econometrics, and Finance” discriminating other areas that possibly contain relevant papers which reveal critical variables. Finally, when using a document design, the limitations of the revised articles are inherited.

References

- Agostini, L., Nosella, A., Sarala, R., Spender, J. & Wegner, D. (2020). Tracing the evolution of the literature on knowledge management in inter-organizational contexts: a bibliometric analysis. *Journal of Knowledge Management*, 24(2), 463-490. <https://doi.org/10.1108/JKM-07-2019-0382>
- Alegre, J., Sengupta, K. & Lapiedra, R. (2011). Knowledge management and innovation performance in a high-tech SMEs industry. *International Small Business Journal*, 31(4), 454-470. <https://doi.org/10.1177/0266242611417472>
- Alshanty, A., Ibrahim, B. & Alwashdeh, M. (2019). The effect of market-sensing capability on knowledge creation process and innovation evidence from smes in jordan. *Management Science Letters*, 9(5), 727-736. <https://doi.org/10.5267/j.msl.2019.1.016>
- Basly, S. (2007). The internationalization of family sme an organizational learning and knowledge development perspective. *Baltic Journal of Management*, 2(2), 154-180. <https://doi.org/10.1108/17465260710750973>.
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120. <https://doi.org/10.1177/014920639101700108>
- Bhatti, A., Rehman, S. & Rumman, J. (2020). Organizational capabilities mediates between organizational culture, entrepreneurial orientation, and organizational performance of smes in pakistan. *Entrepreneurial Business and Economics Review*, 8(4), 85-103. <https://doi.org/10.15678/EBER.2020.080405>
- Bueno, E. (1998). El capital intangible como clave estratégica en la competencia actual. *Boletín de Estudios Económicos*, 53(164), 205-229.

- Cañedo, R., Rodríguez, R. & Montejo, M. (2010). Scopus: la mayor base de datos de literatura científica arbitrada al alcance de los países subdesarrollados. *Revista Cubana de Información en Ciencias de la Salud*, 21(3), 270-282.
- Castagna, F., Centobelli, P., Cerchione, R., Esposito, E., Oropallo, E. & Passaro, R. (2020). Customer knowledge management in SMEs facing digital transformation. *Sustainability*, 12(9), 3899. <https://doi.org/10.3390/su12093899>
- Centobelli, P., Cerchione, R. & Esposito, E. (2019). Efficiency and effectiveness of knowledge management systems in SMEs. *Production Planning and Control*, 30(9), 779-791. <https://doi.org/10.1080/09537287.2019.1582818>
- Chaithanapat, P. & Rakthin, S. (2021). Customer knowledge management in SMEs: Review and research agenda. *Knowledge and Process Management*, 28(1), 71-89. <https://doi.org/10.1002/kpm.1653>
- Chuan, C., Zhen-Gang, Z. & He, S. (2017). The Effect of Organizational Learning and Knowledge Management Innovation on SMEs' Technological Capability. *Eurasia Journal of Mathematics, Science and Technology Education*, 8(13), 5475-5487. <https://doi.org/10.12973/eurasia.2017.00842a>
- Davenport, T. & Prusak, L. (1998). *Working Knowledge: How Organizations Manage What They Know*. Harvard Business Press.
- Desouza, K. & Awazu, Y. (2006). Engaging tensions of knowledge management control. *Singapore Management Review*, 28(1), 1-13.
- Ditillo, A. (2012). Designing management control systems to foster knowledge transfer in knowledge-intensive firms: a network-based approach. *European Accounting Review*, 21(3), 425-450. <https://doi.org/10.1080/09638180.2012.661939>
- Donate, M. & Sánchez de Pablo, J. (2015). The role of knowledge-oriented leadership in knowledge management practices and innovation. *Journal of Business Research*, 68(2), 360-370. <https://doi.org/10.1016/j.jbusres.2014.06.022>
- Durst, S. & Wilhelm, S. (2012). Knowledge management and succession planning in SMEs. *Journal of Knowledge Management*, 16(4), 637-649. <https://doi.org/10.1108/13673271211246194>
- Durst, S., Edvardsson, I. & Foli, S. (2023). Knowledge Management in SMEs: a follow-up literature review. *Journal of Knowledge Management*, 27(11), 25-58. <https://doi.org/10.1108/JKM-04-2022-0325>
- Escobar, A., Velandia, G., Hernández, L., Navarro, E., Crissien, T. and Silva, J. (2019). Factorial analysis in the intellectual capital's dimensions on micro, small, and medium-sized export enterprises. *Procedia Computer Science*, (160), 567-572. <https://doi.org/10.1016/j.procs.2019.11.046>
- Grace, T. (2009). Wikis as a knowledge management tool. *Journal of Knowledge Management*, 13(4), 64-74. <https://doi.org/10.1108/13673270910971833>
- Gray, C. (2006). Absorptive capacity, knowledge management and innovation in entrepreneurial small firms. *International Journal of Entrepreneurial Behavior & Research*, 12(6), 345-360. <https://doi.org/10.1108/13552550610710144>
- Guirao-Goris, J., Olmedo, Á. & Ferrer, E. (2008). El artículo de revisión. *Revista Iberoamericana de Enfermería Comunitaria*, 1(1), 1-25.
- Hall, R. (1979). *Organizaciones: estructura y procesos*. Dossat -Prentice Hall.
- Hardwig, T. (2020). Software-supported collaboration in small- and medium-sized enterprises. *Measuring Business Excellence*, 24(1), 1-23. <https://doi.org/10.1108/MBE-11-2018-0098>
- Hassan, N. & Raziq, A. (2019). Effects of knowledge management practices on innovation in SMEs. *Management Science Letters*, 9(7), 997-1008. [10.5267/j.msl.2019.4.005](https://doi.org/10.5267/j.msl.2019.4.005)
- Hock-Doepgen, M., Clauss, T., Kraus, S. & Cheng, C. (2021). Knowledge management capabilities and organizational risk-taking for business model innovation in SMEs. *Journal of Business Research*, 130, 683-697. <https://doi.org/10.1016/j.jbusres.2019.12.001>
- Horvat, J. & Bobek, S. (2017). *Organizational environment factors affecting knowledge management: Research study in software companies*. Apple Academic Press.
- Hutchinson, V. & Quintas, P. (2008). Do SMEs do knowledge management?: Or simply manage what they know? *International Small Business Journal*, 26(2), 131-154. <https://doi.org/10.1177/0266242607086571>
- Khan, N., Li, S., Khan, S. & Anwar, M. (2019). Entrepreneurial orientation, intellectual capital, IT capability, and performance. *Human Systems Management*, 38(3), 297-312. <https://doi.org/10.3233/HSM-180393>
- Khraishi, A., Paulraj, A., Huq, F. & Seepana, C. (2022). Knowledge management in offshoring innovation by SMEs: Role of internal knowledge creation capability, absorptive capacity and formal knowledge-sharing routines. *Supply Chain Management*, 28(2), 405-422. <https://doi.org/10.1108/SCM-05-2021-0256>
- Kmieciak, R. & Michna, A. (2018). Knowledge management orientation, innovativeness, and competitive intensity: evidence from Polish SMEs. *Knowledge Management Research and Practice*, 16(4), 559-572. <https://doi.org/10.1080/14778238.2018.1514997>

- Lee, J. & Rosdi, I. W. (2017). *A framework for knowledge-driven innovation in small and medium enterprises. Proceedings of the 5th International Conference on Innovation and Entrepreneurship*. ICIE 2017.
- López-Zapata, E., López-Moros, G. & Agudelo-Muñoz, S. (2019). Relationship between competitive strategies and types of organizational learning in colombian companies. *Informacion Tecnologica*, 30(5), 191-202. <https://doi.org/10.4067/S0718-07642019000500191>
- Marques, E., Gobbo, J., Fukunaga, F., Cerchione, R. & Centobelli, P. (2020). Use of knowledge management systems: analysis of the strategies of Brazilian small and medium enterprises. *Journal of Knowledge Management*, 24(2), 369-394. <https://doi.org/10.1108/JKM-06-2019-0334>
- Martinez-Conesa, I., Soto-Acosta, P. & Carayannis, E. (2017). On the path towards open innovation: assessing the role of knowledge management capability and environmental dynamism in SMEs. *Journal of Knowledge Management*, 21(3), 553-570. <https://doi.org/10.1108/JKM-09-2016-0403>
- Massaro, M., Handley, K., Bagnoli, C. & Dumay, J. (2016). Knowledge management in small and medium enterprises: a structured literature review. *Journal of Knowledge Management*, 20(2), 258-291. <https://doi.org/10.1108/JKM-08-2015-0320>
- McAdam, R. & Reid, R. (2001). SME and large organisation perceptions of knowledge management: comparisons and contrasts. *Journal of Knowledge Management*, 5(3), 231-241. <https://doi.org/10.1108/13673270110400870>
- Mundy, J. (2016). Creating dynamic tensions through a balanced use of management control systems. *Accounting, Organizations and Society*, 35(5), 499-523. <https://doi.org/10.1016/j.aos.2009.10.005>
- Nguyen, N. & Mohamed, S. (2011). Leadership behaviors, organizational culture and knowledge management practices: An empirical investigation. *Journal of Management Development*, 30(2), 206-221. <https://doi.org/10.1108/02621711111105786>
- Nonaka, I. & Takeuchi, H. (1995). *The knowledge creation company*. Oxford University Press.
- Packer, M. (2013). *La ciencia de la investigación cualitativa*. Ediciones Uniandes.
- Penrose, E. (1959). *The Theory of the growth of the firm basic*. Basic Blackwell.
- Peña, T. & Pirela, J. (2007). La complejidad del análisis documental. *Información, Cultura y Sociedad*, (16), 55-81. <https://doi.org/10.34096/ics.i16.869>
- Permatasari, A., Dhewanto, W. & Dellyana, D. (2022). The role of traditional knowledge-based dynamic capabilities to improve the sustainable performance of weaving craft in Indonesia. *Journal of Enterprising Communities*, 17(3), 664-683. [10.1108/JEC-11-2021-0156](https://doi.org/10.1108/JEC-11-2021-0156)
- Petrov, V., Čelić, Đ., Uzelac, Z. & Drašković, Z. (2020). Three pillars of knowledge management in SMEs: evidence from Serbia. *International Entrepreneurship and Management Journal*, 16(2), 417-438. <https://doi.org/10.1007/s11365-018-00557-2>
- Potjanajaruwit, P. (2021). TQM knowledge management and analysis of smes in thailand. *Polish Journal of Management Studies*, 24(2), 386-397. <https://doi.org/10.17512/pjms.2021.24.2.24>
- Pratten, C. (1991). *The Competitiveness of Small Firms*. Cambridge University Press.
- Probst, G., Raub, S. & Romhardt, K. (2001). *Administre el conocimiento: los pilares del éxito*. Pearson Educación.
- Riege, A. (2005). Three-dozen knowledge-sharing barriers managers must consider. *Journal of Knowledge Management*, 9(3), 18-35. <https://doi.org/10.1108/13673270510602746>
- Rodríguez, G., Gil, J. & García, E. (1999). *Metodología de la investigación cualitativa*. Ediciones Aljibe.
- Rodríguez-Ponce, E., Pedraja-Rejas, L., Delgado, M. & Rodríguez-Ponce, J. (2010). Gestión del conocimiento, liderazgo, diseño e implementación de la estrategia: un estudio empírico en pequeñas y medianas empresas. *Ingeniare. Revista chilena de ingeniería*, 18(3), 373-382. <https://doi.org/10.4067/S0718-33052010000300011>
- Salojärvi, S., Furu, P. & Sveiby, K. (2005). Knowledge management and growth in Finnish SMEs. *Journal of Knowledge Management*, 9(2), 103-122. <https://doi.org/10.1108/13673270510590254>
- Saratchandra, M. & Shrestha, A. (2022). The role of cloud computing in knowledge management for small and medium enterprises: a systematic literature review. *Journal of Knowledge Management*, 26(10), 2668-2698. <https://doi.org/10.1108/JKM-06-2021-0421>
- Sartori, J., Frederico, G., Duarte, M. & Mendes, R. (2020). Specificities of SMEs relevant to knowledge management: A systematic literature review. *International Journal of Business Excellence*, 22(1), 83-97. <https://doi.org/https://doi.org/10.1504/IJBEX.2020.109212>
- Scuotto, V., Garcia-Perez, A., Nespole, C. & Messeni, A. (2020). A repositioning organizational knowledge dynamics by functional upgrading and downgrading strategy in global value chain. *Journal of International Management*, 26(4), 100795. <https://doi.org/10.1016/j.intman.2020.100795>

- Singh, R. & Kumar, R. (2020). Strategic issues in supply chain management of indian SMEs due to globalization: An empirical study. *Benchmarking*, 27(3), 913-932. <https://doi.org/10.1108/BIJ-09-2019-0429>
- Soto-Acosta, P., Perez-Gonzalez, D. & Popa, S. (2014). Determinants of web 2.0 technologies for knowledge sharing in SMEs. *Service Business*, 8(3), 425-438. <https://doi.org/10.1007/s11628-014-0247-9>
- Soto-Acosta, P., Popa, S. & Martinez-Conesa, I. (2018). Information technology, knowledge management and environmental dynamism as drivers of innovation ambidexterity: a study in SMEs. *Journal of Knowledge Management*, 22(4), 824-849. <https://doi.org/10.1108/JKM-10-2017-0448>
- Su, E. & Daspit, J. (2022). Knowledge management in family firms: a systematic review, integrated insights and future research opportunities. *Journal of Knowledge Management*, 26(2), 291-325. <https://doi.org/10.1108/JKM-08-2020-0658>
- Sveiby, K. (1997). *The new organizational wealth*. Berrett-Koehler Publishers, Inc.
- Tarí, J. & García, M. (2009). Dimensiones de la gestión del conocimiento y la gestión de la calidad: Una revisión de la literatura. *Investigaciones Europeas de Dirección y Economía de la Empresa*, 15(3), 135-148. [https://doi.org/10.1016/S1135-2523\(12\)60105-1](https://doi.org/10.1016/S1135-2523(12)60105-1)
- Teece, D., Pisano, G. & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533. https://doi.org/10.1142/9789812834478_0002
- Tokman, V. (1992). *The Informal Sector in Latin America: From Underground to Legal*. Lynne Rienner.
- Tomasini, A. (2001). *Teoría del conocimiento clásica y epistemología wittgensteiniana*. Plaza y Valdez.
- Valkokari, K. & Helander, N. (2007). Knowledge management in different types of strategic SME networks. *Management Research News*, 30(8), 597-608. <https://doi.org/10.1108/01409170710773724>
- Väyrynen, H., Helander, N. & Vasell, T. (2017). Knowledge management for open innovation: comparing research results between smes and large companies. *International Journal of Innovation Management*, 21(5), 1740004. <https://doi.org/10.1142/S1363919617400047>
- Velandia, G. & Escobar, A. (2019). Investigación en auditoría forense: Revisión de publicaciones SCOPUS 1976-2018. *Revista Criminalidad*, 61 (13), 279-298.
- Velandia, G., Hernandez, L., Portillo, R., Alvear, L. & Crissien, T. (2016). Rasgos de la administración de la microempresa en Barranquilla Colombia. *Espacios*, 37(9), 7-22.
- Velandia, G., Escobar, A., Navarro, E., Logreira, C., Archibold, W., Recuay, C., García, D. & Hernández, R. (2022). Knowledge Management: Effects on Innovation in Micro, Small, and Medium-Sized Export Enterprises. *Lecture Notes in Computer Science*, (13293), 160-171. https://doi.org/10.1007/978-3-031-10539-5_12
- Villar, C., Alegre, J. & Pla-Barber, J. (2014). Exploring the role of knowledge management practices on exports: A dynamic capabilities view. *International Business Review*, 23(1), 38-44. <https://doi.org/10.1016/j.ibusrev.2013.08.008>
- Wang, S. & Wang, H. (2020). Big data for small and medium-sized enterprises (SME): a knowledge management model. *Journal of Knowledge Management*, 24(4), 881-897. <https://doi.org/10.1108/JKM-02-2020-0081>
- Weaven, S., Quach, S., Thaichon, P., Frazer, L., Billot, K. & Grace, D. (2021). Surviving an economic downturn: Dynamic capabilities of SMEs. *Journal of Business Research*, (128), 109-123. <https://doi.org/10.1016/j.jbusres.2021.02.009>
- Wee, J. & Chua, A. (2013). The peculiarities of knowledge management processes in SMEs: The case of singapore. *Journal of Knowledge Management*, 17(6), 958-972. <https://doi.org/10.1108/JKM-04-2013-0163>
- Wernerfelt, B. (1984). A Resource-Based View of the Firm. *Strategic Management Journal*, 5(2), 171-180.
- Willis, E. & Tucker, G. (2001). Using Constructionism to Teach Constructivism: Modeling Hands-On Technology Integration in a Preservice Teacher Technology Course. *Journal of Computing in Teacher Education*, 17(2), 4-7.
- Wong, K. & Aspinwall, E. (2005). An empirical study of the important factors for knowledge-management adoption in the SME sector. *Journal of Knowledge Management*, 9(3), 64-82. <https://doi.org/10.1108/13673270510602773>
- Xie, L., Dirani, K., Beyerlein, M. & Qiu, S. (2020). Learning culture in a Chinese SME: the unique role of work-family enrichment. *European Journal of Training and Development*, 44((2-3)), 141-158. <https://doi.org/10.1108/EJTD-06-2019-0085>
- Yao, J., Crupi, A., Di Minin, A. & Zhang, X. (2020). Knowledge sharing and technological innovation capabilities of chinese software SMEs. *Journal of Knowledge Management*, 24(3), 607-634. <https://doi.org/10.1108/JKM-08-2019-0445> ■