Research Article

Uncovering the Relations between Customer Knowledge Management and Open – Innovation - A Cluster Analysis

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Abstract

The innovation capacities of today's companies are the basis of their adaptability and sustainability. Knowledge, information, and data are increasingly important resources. The ability to attract and internalize external knowledge in the company and the involvement of clients, partners, consumers, and other stakeholders are essentially the basis of open innovation. The present study brings to the attention of the academic and business environments a correlation and connectivity between two insufficiently explored constructs: open innovation and Customer knowledge management. The study is based on a bibliometric analysis that uses the VOSviewer software to analyze the SCOPUS and Web of Science databases. The present research sets an exploratory framework for the two constructs. It creates a map of future research, clearly establishing the connection between the terms and the potential advantages for the business environment. The work starts from the definition and evolutionary understanding of the terms, reaching an exploratory bibliometric analysis that establishes the conceptual intersection points between the terms and finally sets a concluding framework regarding the evolution of relationships. The importance of exploiting external knowledge resources represents the metric force that generated this approach. More than that, the work fills the gap found in the literature regarding the exploitation of the relationship between the two concepts, something also highlighted by the small number of works included in the analysis. This work's contribution expands the academic point of view regarding the existing conceptual relationship between the constructs and the identification of methods and possibilities of exploitation of external knowledge for the benefit of the business environment.

Keywords*: customer knowledge management, open innovation, knowledge, customer, co-creation, firm performance, innovation.*

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Introduction

The current business environment, intensely competitive and in complete change, forces companies to be dynamic, to adapt to change, and to present new competitive advantages. The survival and sustainability of companies are thus determined by their ability to use their resources intelligently to innovate. Internal resources are often insufficiently devoted to innovation processes, forcing companies to look for external sources of knowledge, such as knowledge of customers, partners, competitors, consumers, or other stakeholders, to engage in innovation processes to grow the firm's performance and sustainability. Open Innovation is a critical means of getting ahead of the competition, finding new resources and using them for the company's benefit, conquering new markets, increasing the markets where a company is already present, or using new tools for optimizing the return on investment.

Open innovation processes place the consumer as the central pillar in the survival and development of companies, giving them the role of co-creator of the companies' products and services. This is also promulgated by the current positioning of the consumer in the market. The role of the consumer is not limited to the purchase and use of products. Today, they are actively involved in the process of creating value and creating a competitive advantage. Their opinions and feedback matter enormously in developing and positioning a product. In such a complex and dynamic context, implementing customer knowledge management (CKM) is essential to increase customer involvement and commitment and generate new ideas, information, and knowledge that contribute to the innovation processes in the company. The companies with the most to gain in the current market position consumers at the center of their activity. Understanding customers' needs, desires, and needs determines the sustainable, innovative processes that essentially contribute to the profit and performance of companies. Therefore, open innovation involves the integration of knowledge resources as a critical factor for building company sustainability and must be a top priority of any organization.

Open - Innovation occurs in different contexts and is strictly related to internal knowledge and external knowledge resources attracted and used by the company. Open - innovation means the use and intelligent application of new knowledge to enhance the enterprise's ability to develop new services or products and to create business value and a sustainable competitive advantage. Many studies investigate how companies capitalize on innovation through the research and development process by increasing the product's financial performance, new market opportunities, co-creating customers, or developing strategies to increase intellectual capital (King & Anderson, 2002; Massey & Kyriazis, 2007; Jiming & Holsapple, 2013). Although the importance of customers in the innovation process is not overlooked in the specialized literature, organizational actions and the development of new products often occur without carefully evaluating the impact of the relationship with customers.

The transfer of data, information, and knowledge between people is endless, even if we think about the transfer inside the organization or between customers and the organization. These elements are mainly customer-centric, personalized, and customized, which implies having the means to tailor the content. Using technologies that deliver personalized information and knowledge is a progressive source of data and information. These technologies allow organizations to address many end-users through various channels. If the communication process is performed, the result will bring valuable insight for the organization from the customers. The innovation process's central dilemma is managing knowledge from clients, which involves collecting, transferring, sharing, and using this information in a way adapted to the company's internal resources (Calic et al., 2019). Communication and customer interaction are essential for acquiring customer knowledge and information, and the company must use the collected data appropriately. A communication process based on customer engagement and involvement can stimulate new ideas and new perspectives from customers (Chang & Taylor, 2016).

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Even if the consumer and external knowledge are the primary sources of open innovation in the literature, we do not find a relationship between the concepts developed and analyzed. The research focuses primarily on knowledge about customers and less on the knowledge that customers have and the co-creation of knowledge with customers. However, attracting, capturing, and managing this knowledge requires effective in-house developed frameworks and systems. The present study aims to reduce the gap identified in the specialized literature by employing bibliometric analysis, carried out with the help of VOSviewer, based on the results from the SCOPUS and Web of Science databases. The study exposes a map of the conceptual relationship between the constructs and the potential benefits of this relationship for the business environment. The paper's main contribution is to provide an accurate picture of the specialized literature on the development of the relationship between customer knowledge management and open innovation, as well as to analyze the main existing conceptual links. In addition to the exploratory dimension, this paper aims to provide a clear framework for the existing linkages in the literature regarding the concept of customer knowledge management and open innovation and to provide a track for the development of future qualitative research. Thus, the work aims to answer the following questions:

Q1:   What are the links between Customer Knowledge Management and the Open-Innovation process?
Q2:   How does the development of Customer Knowledge Management influence the Open – Innovation process?

The rest of the paper is structured as follows. In the next section, we will highlight from the literature the most important aspects of the concepts under analysis to guide us in developing this study. We will analyze separately the concepts of CKM and OI; following that, in the second part of the paper, we will map the conceptual relationship through the bibliometric analysis; and, finally, we will expose the main points of intersection of the concepts and how in business practice they can be exercised to bring the benefits promised. In the last part, conclusions are drawn, new research directions are drawn, and the main ideas revealed by the research are highlighted.

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Literature Review

Customer Knowledge Management (CKM)

CKM is a subset of KM that focuses on a customer-oriented approach (Chua & Banerjee, 2013), which is the most critical aspect in the development and sustainability of modern businesses. The consumer must be seen as an endless, reliable, and constant source of knowledge. For a developing company, the consumer can provide valuable information and knowledge about products launched on the market. Consumer knowledge is based on their experiences using or testing products; this knowledge, classified in the literature as tacit knowledge, has the most significant innovative potential. CKM is the process that facilitates the attraction, creation, and transfer of this type of knowledge. CKM governs and manages the wealth of knowledge generated through the interaction between the firm and the consumer/customer (Zhang, 2011). A highly debated thing in the literature is the similarity and delicate intersection between the concepts of CKM and customer relationship management (CRM) (Castagna et al., 2020; Zhang, 2011). However, the conceptual similarities are minimal. Gibbert et al. (2002) differentiate the concepts by definition and their purpose and object of work. Suppose CRM focuses on extracting customer data and using them to increase revenue. CKM focuses on attracting, sharing, and expanding knowledge in three directions: knowledge about customers, knowledge from customers, and knowledge for customers. This knowledge can be classified as tacit knowledge or explicit knowledge. Each type of knowledge has a different impact on the company's processes. The perspective on the consumer is thus different for all concepts, whether we are talking about KM, CKM, or CRM. KM sees the consumers as recipients of the company's products and services, and CRM sees consumers as users who must be added to the company's essence of fidelity and loyalty. CKM views consumers as an asset of the company, a resource that influences the company's innovation and sustainability potential (Gibbert et al. (2002). Moreover, CKM focuses on retaining, sharing, transferring, and increasing the flow of knowledge from consumers to the company. (Zhang, 2011; Chua & Banerjee, 2013). Thus, CKM is recognized as a relational process based on exchanging

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knowledge that facilitates a collaborative approach that benefits the parties integrated in the process (du Plessis, 2007; Rowley, 2002; Aghamirian et al., 2015). Furthermore, CKM involves identifying, creating, and operating customer knowledge. Customer knowledge is defined as customer value, experience, and perception due to interactions between the firm and customers (Gebert et al., 2003). CKM has three dimensions: knowledge about customers, knowledge of customers, and knowledge from customers (Gebert et al., 2003). CKM emerges when businesses develop proper leverage and first-hand customer engagement. Organizations that emphasize the importance of CKM will no longer regard their customers as passive recipients of the products or services they provide; instead, they will consider their customers as knowledge partners (Sofianti et al., 2010).

Therefore, to understand the concept of CKM, we must look at the concept as an integrated part of knowledge management (KM), which focuses on the collection and storage of data, information, and knowledge about, for, and from customers, sharing them at the organization level so that they can be used promptly in company development and innovation of processes and services. CKM centers around the interaction and mutual knowledge exchange between the customer and the organization. CKM can be presented as a strategic method that increases the value felt by customers and creates new competitive advantages. By using knowledge resources in the networking process, CKM creates new knowledge flows, increases consumer confidence, and makes them co-creators of products and services in the market (Wang, 2006).

Thus, CKM must be perceived as an ecosystem of interactions focused on transferring and absorbing knowledge between consumers and companies. Figure 1 graphically represents this process and highlights the parties' advantages.
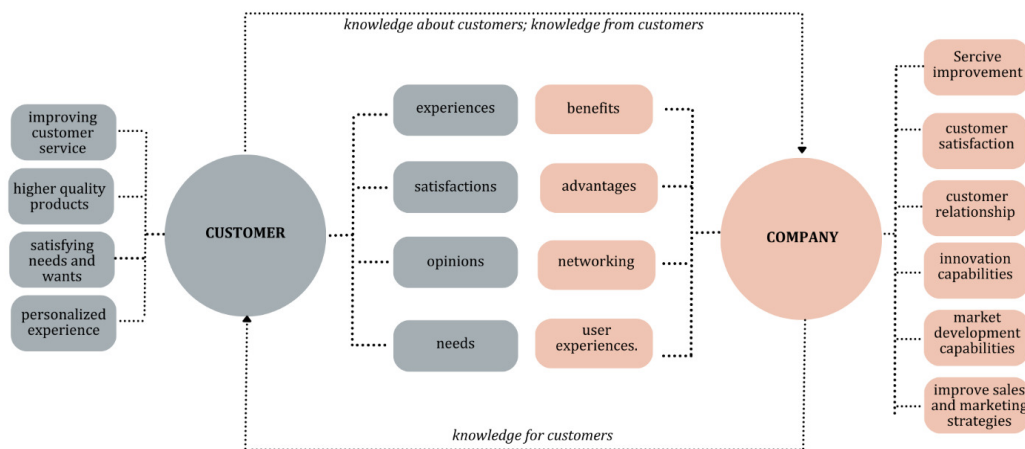

Figure 1: CKM process graphic representation.

Source: reinterpretation from: Camară, A. B. (2024).

The potential benefits of CKM processes extend beyond the company, having the potential to impact the market itself and the way it engages with consumers. Companies can deliver services and products tailored to unique customer needs and improve service operations. Moreover, existing technologies facilitate the development of innovative knowledge-sharing platforms and procedures between companies and their customers.

The CKM process can use consumer behaviors, whether implicit or explicit, declarative or factual. Despite technological and research advances in using CKM processes for innovation, businesses are still in the early stages of utilizing the vast potential of customer knowledge accumulated in

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digital environments (Zhang, 2011). Although there is a growing awareness of the value of customer knowledge for innovation, efforts to implement these types of CKM systems are minimal. Those organizations that focus on customers for product improvement and output coordination adopt an approach known as external knowledge absorption (Dimitrova et al., 2009; Zhang, 2011). Consequently, every organization must accumulate customer expertise and integrate it with the team's ability to learn new things in the competitive business environment.

Open Innovation (OI)

More and more managers have been directed toward actively applying OI strategies to ensure competitive practices and increased organizational performance. This innovative concept involves change practices that penetrate the leadership level to the company's resources and knowledge management. This is reflected in the organization's dedicated and assumed commitment to promote innovation by attracting external sources of knowledge throughout the innovative process (Dobni et al., 2022).

The application and implementation of OI processes involve pacts on the part of the leaders to establish innovation objectives and the implementation of a strategic model oriented towards the part of the leadership. Organizational resources must be cultivated and oriented towards practices that cultivate employee creativity and communication skills and connect employees with organizational objectives, as well as external communication skills that increase the practice of transferring and attracting new information and knowledge. Therefore, OI forces companies to restructure and reevaluate their management strategies, creating new business models to harness collective creativity, including internal and external knowledge (Chesbrough, 2006). The formalization of innovation processes ensures a structured progression from idea to market, increasing the performance and success of innovative processes. Organizations implementing these typologies and practices position themselves for new development perspectives, obtain new competitive advantages, and increase organizational performance (Dobni et al., 2022; Nguyen et al., 2021; Oumlil et al., 2020). Extending the OI approach, Chesbrough (2010) introduced

the concept of open-service innovation, emphasizing its imperative adoption for Western firms. He provided a framework consisting of four fundamental activities: thinking of a business as an open service business, co-creating innovations, using OI to accelerate and deepen service innovations, and transforming the entire business model.

Felin and Zenger (2013) contributed a framework delineating four categories of OI governance forms: markets, partnerships, contests and tournaments, and user or community innovation. They discussed how each governance form comprises communication channels for knowledge sharing, incentives, and property rights to appropriate innovation value. OI proves to be a transformative force that shapes business structures and changes their orientation to leadership, organizational culture, and resources. The fundamental requirement imposed by OI processes is opening the innovation process to sources external to the organization (Chesbrough, 2010). OI encourages collaboration with all types of partners external to organizational boundaries, from users to competitors and other partners, including universities, researchers, and consultants, while leveraging the knowledge and experience of their clients, thereby accessing a collective source of wisdom (Dobni et al., 2022; Felin & Zenger, 2013).

The Lead-User concept, introduced by Von Hippel (2005), stands out as a prime example of customer integration. This concept is part of the OI paradigm, which involves the active incorporation of consumers in the innovation process (Dobni et al., 2022). Over time, as the number of user innovations and corporate openness processes increased, Von Hippel referred to this phenomenon as Democratizing Innovation (Von Hippel, 2005).

In Stefan Lindegaard's view, OI must be perceived as a two-way process, input-output. In the entry stage, OI involves attracting external technologies and resources, knowledge, and information for development. In the output stage, the process licenses, sells, and transfers knowledge, studies, and technologies (Lindegaard, 2010).

OI has two fields of reference for attracting new knowledge resources: internally and externally. Organizations must learn to leverage and enhance

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knowledge and ideas internal to the organization. At the same time, they must develop ways to capture and create the flow of knowledge external to the organization. External knowledge sources have more significant innovative potential, being

unlimited and vast. Figure 5 illustrates how external and internal data sources, information, and knowledge influence the OI process at each stage.
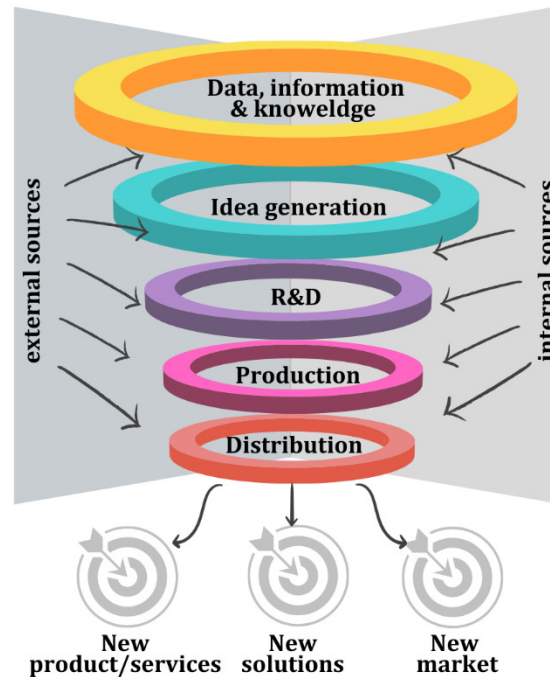

Figure 2: OI process

Source: author's research

The OI model revolves around the seamless integration of external and internal resources throughout the innovation process – from ideation to research and development and finally to distribution. The fundamental premise of OI resides in the fact that external knowledge resources can influence the company's innovative processes at all stages of this process, either during the research stage or later in the development phase, even if the idea originates from internal sources. However, the storage of external knowledge can be used in further optimizations or the development and initiation of new innovative processes.

OI is classified into Outside-in Innovation, Inside-out Innovation, and Coupled Innovation. Coupled Innovation is the approach that can generate the highest performance, as it includes partnerships based on trust between organizations that exchange knowledge, share resources and expertise, or co-create initiatives with customers

to develop customized solutions. (Chesbrough et al., 2014; Enkel et al., 2009).

Methodology

The present analysis is based on a combined database (SCOPUS and WoS) selected and extracted according to the keyword criterion. The data included in the analysis comprise the works that record the keywords specific to the concepts (CKM and OI) either mentioned by the author or indexed in the database. This keyword criterion was established to ensure a clear, comprehensive, and sufficiently specific database to achieve objectives and draw conclusions. Thus, the extracted data allow the analysis of the trends highlighted in the available literature and the potential connections between the constructs. In this note, Table 3 highlights the database selection criteria.

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Table 3: Research protocol and characteristics and types

Search Criteria	First analyses
Search expressions	CKM AND OI
Search database	Web of Science & Scopus
Search Within	Keywords
Search fields	All fields;
Type of publications	All types of publications indexed
Subject Areas	All subject areas included
Timespan	2000 - January 2024
Language	English
Techniques for the Bibliometric Study	Research field charting
Software for bibliometric research	VOSviewer

Source: author's research

The selection criteria were chosen to ensure a database balance between generality and specificity. We emphasize the impossibility of analyzing all published works, limiting ourselves only to English-written studies. However, the extracted database ensures the integrity of the data, allowing relevant results for the research, which answers the research questions.

The first step in data extraction was the individual analysis of each construct to identify its evolutionary course and analyze the attention given by researchers and the business environment to the concepts (represented in Table 4). This analysis stage shows a significant increase in the interest in concepts and their conceptual development.

Table 4: Key constructs: CKM and OI

Construct & Keywords	The year of the first paper in SCOPUS	The year of the first paper in WoS	Number of research papers between 2000 and 2024 in SCOPUS	Number of research papers between 2000 and 2024 in WoS
Customer Knowledge Management	2000	1997	2241	380
Open-Innovation	2000	1993	7660	3886

Source: author's research

We can see in Table 4 that the concepts of CKM and OI are still in the first stages of development and can be considered relatively new concepts both in the academic environment and in business

practice. Examining the year of the first paper, the concept of CKM dates back to 1962 in SCOPUS and 1990 in WoS, while OI dates to the 2000s in SCOPUS and 1993 in WoS. Although the

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appearance of the concepts dates early in the databases, the upward trajectory of the academic interest given to the concepts is registered late, after 2000 in SCOPUS and 2004 in WoS. The relatively small number of papers developed on each concept further narrows the base of combining the two keywords. Thus, the base included in the bibliometric analysis includes only 29 works.

Step 2 of the methodology includes selecting the database according to the search criteria explained in Table 1. Thus, Table 5 presents the database's results, showing details such as the first year of appearance on WoS and SCOPUS and the total number of publications to date on both platforms. This information serves as a baseline data set for our further analysis.

Table 5: Data extracted from Scopus and Web of Science

Researched Labels	The First Year of Appearance on WoS	The First Year of Appearance on Scopus	Total Number of Publications to Date—on WoS	Total Number of Publications to Date—on Scopus	Total number of publications included in the analysis
Knowledge Dynamics AND Open-Innovation	2006	2006	7	22	29

Source: author's research

After bases were extracted from SCOPUS and WoS, the final database generated a finite data set of 29 papers that met the selected criteria. The methodology thus included three steps: data collection, a strategic and controlled combination, and meticulous refinement of the final database. In the next stage of the study, by including the data in the VOSviewer software, strategic connections and conclusions regarding the two concepts of KD and OI will be highlighted. The perspectives derived from the bibliometric analysis will contribute to achieving the paper's objectives and understanding the term connection

and the possible implications they could have in business practice.

Results and Discussions

The present bibliometric analysis illustrates the relation between CKM and OI by a single cluster that respects the established criteria. The stronger link connection from these clusters and the strong concurrence are for the following terms: OI, KM, innovation, customer knowledge, and sale.
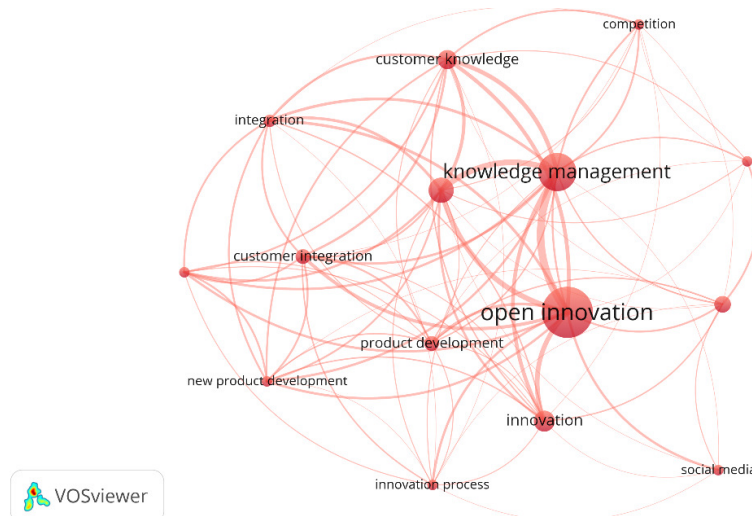
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Figure 3: Bibliometric Analysis: CKM and OI

Source: author's research

The analysis indicates a substantial connection between OI and CKM. However, it identifies connections between OI and related CKM terms, such as customer integration, customer knowledge, co-creation, customers, social media, and product development. These first findings strengthen our conviction of a dependency between the concepts under analysis. The analysis of customer connections highlights the importance of integrating customer input into innovation processes. We can also deduce as a first finding from this graph that both OI and CKM share an expected outcome, such as *new product development* and customer integration.

Table 6. Cluster 1 for the Third Analysis - CKM and OI

Keyword	Cluster	Occurrences	Link	Link strength
competition		5	10	19
customer integration		7	13	43
customer knowledge		9	12	51
customer knowledge management		8	11	24
inbound open innovation		5	7	14
innovation	**Cluster 1 – open – innovation**	10	12	43
innovation process		5	11	21
integration		6	10	38
knowledge management		18	13	77
new product development		5	10	34
open innovation		24	13	88
product development		7	11	30
sales		12	13	59
social media		5	6	11

Source: author's research

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Another central theme in this cluster is KM, which exhibits a link strength of 77. This underscores its pervasive influence in the interconnected landscape of OI. KM focuses on the actions and abilities of an organization to use knowledge resources to develop and implement coordinated knowledge exchange processes that produce new knowledge synergies (Bahar & Bahri, 2016). CKM exhibits also have a strong connection and link strength in the landscape of the present bibliometric analysis. Therefore, it is strongly connected with sales, social media, competition, inbound open innovation, co-creation, new product development, and innovation processes. Through the three basic process archetypes (outside-inside, inside-outside, and coupled), the OI paradigm involves using and applying external knowledge drawn through collaborative processes from suppliers, customers, and other sources and the company's internal knowledge within research and development activities. This knowledge generates new products, market ideas, competitive advantages, customer acquisition strategies, etc. Thus, the relationship between OI and CKM is centered on external knowledge. CKM comes with a design to attract and use knowledge from consumers, for and about consumers with different innovative potentials.

The present bibliometric analysis underlines again the importance of customer knowledge in enhancing the OI process. Customers can play a role as co-creators in service businesses. They suggested that OI is like a system that gathers and integrates customer knowledge to generate new ideas and adjust product or service specifications. When customers are involved in service design through OI, it creates an open atmosphere that fosters the generation of new service ideas (Piller et al., 2004). Customer knowledge transfer is crucial to KM, CKM, and OI and has attracted significant scholarly attention. Lack of knowledge is a significant barrier to innovation. Efficient knowledge transfer processes can help companies acquire the relevant knowledge needed for service innovation.

When exploring the relationship between CKM and OI, it is essential to highlight the fact that the strategic management of the innovation process must access knowledge *from* customers (knowledge that resides in customers regarding their experiences, views, opinions, feelings, and desires), which denotes a more significant innovative potential than knowledge *about*

customers. Organizations must focus their communication on customer knowledge to attract this type of knowledge. This type of knowledge delivered to customers must reveal valuable information so that they can tap into those critical points regarding their wants, needs, and pain points to facilitate knowledge sharing. Customer knowledge has less innovative potential. These are found in democratic notions that sales teams can discern and statistically highlight.

Therefore, communication is also one of the critical factors for increasing employee innovation, both externally and internally; communication is important for open innovation processes (De Jong & Den Hartog, 2007). When we talk about attracting external knowledge and including the consumer as a co-creator in the business, ideas for development and innovation are generated only when there is a fair knowledge exchange between the organization and the external environment. This involves developing an open and transparent communication process based on trust and sharing experiences, ideas, feelings, and satisfaction. The development of a communication process that facilitates the exchange of knowledge both within the organization and beyond its borders is very beneficial for open innovation processes. The importance of using CKM in communicating with customers to exchange knowledge and create new knowledge synergies at the organizational level is highlighted in this cluster by the strong links recorded with the co-concept of "sales" (Link strength of 59). It assigns due importance to the company's external communication processes.

However, managing knowledge/ideas from formal and informational discussions/communications is most important. Adequate KM and CKM processes increase the ability of organizations to transmit relevant knowledge to their consumers to increase the flow of valuable and incorporable external knowledge in the organization, leading to OI processes. Without such structuring, external knowledge may not generate the desired benefits (West & Gallagher, 2006). Attracting and implementing new knowledge from the external environment supports companies in developing new services and products, improves the quality perceived by customers, and increases customer satisfaction. Through the processes of organizing and sharing knowledge from, about, and for customers, CKM increases the breadth and depth

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of the organization's overall knowledge and intellectual capital. Applying CKM can increase innovation capabilities, reduce innovation costs, and shorten the time needed to innovate.

Studies on firm-level innovation show the increased influence of knowledge transfer and the KM process on innovation. On this note, studies emphasizing the increased impact of customer knowledge in the organization can mitigate uncertainty related to customer needs (Lievens et al., 1999). The perspective broadens with the introduction of knowledge from and for customers, which helps companies develop knowledge capital, can serve as a source of innovation of new services and products, and improves customer-perceived service quality (Slater et al., 2014). Therefore, the relationship between CKM and OI is reflected by increasing profitability, increasing innovation capabilities, reducing innovation costs, and accelerating the innovation cycle. This relationship, however, appears to be mediated by KM, something that can be investigated in future studies to delineate relational boundaries. This relationship positions the consumer as an active and influential participant, a co-creator in the processes of defining products/services and creating value and strategies using a complex ecosystem of knowledge. This collaborative commitment between the organization and the consumer increases company performance metrics and promotes increased levels of customer satisfaction.

The absorptive capacity of the organization also has a direct impact on the ability to manage knowledge. This influences the ability to integrate external knowledge flows and to develop internal knowledge cumulatively. Moreover, considering that open innovation is based on the ability to attract, integrate, and use external and internal knowledge, the company's dynamic capabilities are also defined as an essential factor. Dynamic capabilities allow the organization to transform internal and available resources and increase and renew these resources to create value for the organization. In this direction, the KM process is essential. Without this well-defined process, the use of CKM practices in the innovative process will not achieve the desired performance. Thus, we conclude by highlighting the fact that there is an essential dynamic between the processes of KM, CKM, and OI, without which the attraction,

transformation, and use of external knowledge and the combination of internal knowledge in creative processes that generate value cannot be optimized to the desired capacity.

Conclusions and Limitations

The present study represents a starting point in exploiting the relationship between CKM and OI, emphasizing the importance of external knowledge for innovation. The study involves developing a bibliometric analysis using VOSviewer software as an analytical tool to explore the complex relationships between CKM and OI. The study results bring to the fore the synergistic relationship between concepts that lead to organizational success and the development of new company values. The study also provides critical insight into the linkages between key pillars of research.

According to the results obtained through the bibliometric analysis and the exploratory analysis of the literature, KM, through the processes of exploration and exploitation, has a significant potential to influence the processes of OI. Regarding the dynamics of relations between CKM and OI, the consumer with consumer knowledge is at its center. Applying CKM strategies in OI processes can increase external knowledge flows and create knowledge networks. However, the relationship between the two concepts cannot reach the desired potential without KM. Previous studies have partially reported similar results regarding a simple relationship between OI and knowledge resources (West & Bogers, 2014) but do not explore the relationship between the two concepts in depth.

Thus, this paper contributes to the completion of exploratory studies in the field of OI and CKM and completes the sphere of knowledge by including and delimiting points of intersection and mutual determination of concepts. The findings validate and answer the research questions, instigating new quantitative research in the field to validate and explore the findings in depth. The study addressed two research questions, focusing on the standard links between CKM and OI, the extent of mutual influence, and whether CKM influences OI processes. The bibliometric analysis highlighted the strong interaction between the field of knowledge and the processes of OI and CKM. We emphasize the importance of KM as a mediator of

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the relationship between concepts and the importance of developing future studies to employ this research model. Also, the present analysis highlights the results of the interaction between the two concepts and the possible benefits for organizations. The analysis of specialized literature highlighted intermediate terms necessary to facilitate OI processes.

Therefore, the present study offers new perspectives to explore the reality between CKM and OI by highlighting the complexity of the relationship, the intersection points of the concepts, and the potential benefits. The paper presents several limitations that should be considered as potential future research. The first relates to bibliometric analysis and software that can directly influence the results obtained. The second limitation is that the study may not capture the entire literature on CKM and OI, as it is limited to the database selected based on keywords and explores only works written in English. These limitations can be overcome by developing new studies to explore the topic.

Knowledge is today the primary source of development, and to develop sustainable businesses in the deeply digitized age in which we live, business strategies must emphasize consumer knowledge. This ability to attract, capture, develop, and transform knowledge is the key to business development.

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