KNOWN AND UNKNOWN KNOWLEDGE RISKS IN TIMES OF TRANSITION AND CHANGE

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Abstract
Although many studies have been carried out in the knowledge management domain, organizational knowledge risks is still a less explored field, difficult to analyze, and full of challenges, with areas of high interest, especially in the current transition and unpredictable changes. This paper aims to study the correlations in the knowledge management domain with the knowledge risk, focusing on the known and unknown knowledge risks and the challenges in these times of transitions and change in which uncertainties are more frequent than they seem at first sight and risks become more challenging to anticipate, to calculate and evaluate them. Organizations are pressured to constantly develop new methods to ensure the sound management of knowledge risks and have less time to deal with all the uncertainties, particularly with unknown risks. Knowledge risks and known knowledge risks have been examined from various angles; unknown knowledge risks have only been examined in a few papers. The analysis of unknown risks will help enforce the management of any organization because of the unprecedented access to information improvements in academic research; the current landscape of knowledge risks management represents a key point for managers in any organization, and if it is not given the necessary attention, sooner or later the system will fail. Thanks to text mining and scientific mapping analysis with VOSviewer software version 1.6.19, we could identify important insights about the evolution of the concept of knowledge risks. This has been accomplished using a database generated from the core collection of Web of Science. The term co-occurrence analysis-based text mining helped to provide a deeper insight into current and future workspace dynamics in the knowledge management of known and unknown risks.

Keywords
Knowledge risks; known knowledge risks; knowledge risks management; unknown knowledge risks; unknown unknowns risks

Introduction

The primary focus of this paper analysis of organization knowledge risks management systems are the "known risks" and "unknown risks" notions, with the primary purpose of determining if the "unknown risks" may have an impact on the organizational knowledge management system.

Societies and organizations are constantly changing. As a result, it is uncommon for an organization to start its knowledge risks management process with a "clean sheet of paper." Since the knowledge management methods and operational procedures described in books frequently presume the journey begins from the beginning, this

starting point is frequently disregarded. The truth is that the company can already manage knowledge, just not under the name of knowledge management. Organizations may also include a study of unidentified hazards in a rudimentary form, but frequently, these organizations lack expertise and knowledge in this area. Worse, an organization may have introduced knowledge management before. However, for whatever reason, the journey failed and had poor ramifications among staff (Remenyi, 2015)—considering the current times marked by a world pandemic (Bratianu, 2020) and the cybersecurity war (Rajasekharaiah, 2020).

Given the fact that organizations have less time to manage all the uncertainties that may occur and that they are constrained to continuously develop new strategies to ensure healthy management of knowledge risks (Ursache, 2022a), in these times of transitions, we wonder how difficult is to maintain a highly performant knowledge risk management system, and what are the main challenges.

Knowledge management systems are significantly impacted by unknown risks that have not even been considered as much as they should be so far, and taking into account military conflicts, energy, and food crises, on the other hand, the current times of transition are marked by numerous technological innovations and information transferred at a very high speed. This affects the organization's intellectual capital (Bratianu, 2007) and knowledge entropy (Bratianu, 2019).

Despite the fact that there are some great articles on knowledge risks (Durst, 2019; Durst& Wilhelm, 2013; Durst & Zieba, 2017; Durst & Henschel, 2020), there are very few papers examining known risks and their link to knowledge management systems, and barely any studies analyzing unknown risks and their impact on organizational knowledge risks management systems.

As a result, there is a significant knowledge gap in the literature devoted to the analysis of unknown knowledge risks and their impact, a gap that we want to uncover through the use of bibliometric analysis. In this context, the current work aims to conduct a thorough bibliometric analysis and pinpoint the primary knowledge risks that organizational knowledge risks management systems must contend with, emphasizing unknown risks. These being, we can state our research question as follows:

RQ: The unknown knowledge risks are important for an organization's knowledge management system, and how are they analyzed in the literature?

Qualitative and interpretive research uses VOSviewer, specialized bibliometric software for massive literature reviews (Van Eck & Waltman, 2010). The literature evaluations that follow the introduction, expressly focused on known and unknown knowledge risks, will best support the research aims. Monitoring the connections between the notion of knowledge risks and other crucial concepts, such as known and unknown knowledge risks, and illuminating the most pertinent connections we have found between them will allow us to visualize the links between the concepts and the gaps in the literature. The impact of known and unknown knowledge risks on organizational knowledge management systems will then be analyzed. Data sources and the applicable methodology will be provided, and the study will be concluded with its findings, limits, and potential research directions.

We live in a period of constant change and unpredictability, a transition time that is marked by multiple technological advancements and still feeling the effects of a global pandemic that brought about a new era of digitalization and the rapid sharing of information, the world economy has changed (Lafayette et al., 2019; Massingham, 2020; Nonaka & Takeuchi, 2019). The world itself is passing a new transition time marked by various risks, world crises, and military conflicts. Nowadays, the field of knowledge management faces many challenges and is also in transition. Transitions, challenges, and changes in these times announce significant changes in world leadership and civilization on a global level.

In times of transition, a new chapter begins in human evolution, and this is a new global leadership, where knowledge becomes an essential key component in the evolution process of organizations, societies, and as well as for each individual (Bratianu, 2013; Liu, 2020; May & Perry, 2018; O'Dell & Hubert, 2011).

In the new knowledge management system, where digitalization has advanced to a new stage in its evolution in the new global knowledge management system, most organizations depend on a combination of technology, knowledge management systems, and assimilation of new knowledge to remain competitive to innovate and to continue to exist in the best possible way. In the age of analytics and intelligence, nearly 5 billion people and 31 billion devices have access to the internet. The digital world has seen a drastic expansion in recent COVID-19. From MNCs to governments, schools to universities, all are functioning online. Almost all organizations use the internet to transfer data and cloud services to store it. This process increases all organizations' concerns about data protection and communication (Baheti et al., 2020).

With regard to their financial requirements, several organizations have faced severe challenges in the past few years due to the COVID-19 pandemic's global spread and related occurrences. While some organizations have lost out during these challenging times of a worldwide pandemic, others have adjusted and increased riches even more than before the pandemic. The pandemic requested a new way of thinking about business and emergent knowledge strategies (Bratianu, 2020; Bratianu & Bejinaru, 2021). A new way of thinking when we analyze knowledge risks is mandatory, and it is essential to include even the unknown ones in the analysis.

In this context of global crises, times of transition marked by the increasing development in digitalization, the concern of protecting information comes along with the same concern as securing organizational knowledge. Knowledge has emerged as the most valuable asset for every company or society wishing to advance and avoid stagnation or other forms of losing knowledge. In these times, securing knowledge in the economy has become a concern and a top priority for knowledge organizations (Bech, 2019; Cabaj et al., 2018).

Literature review

Knowledge management

The foundation of knowledge management is the intangible resources, which currently rule the majority of organizations in well-developed economies, even more so in these times of transition and full of changes. Knowledge is intangible and nonlinear,

distinguishing this way clearly from tangible resources like physical objects, including monetary resources (Bratianu, 2007, 2023; Bratianu & Bejinaru, 2022; Nonaka & Takeuchi, 1995).

Importance of knowledge management arose from the need to manage organizational intangible resources for which traditional management focused on tangibility and linearity is no longer effective. Knowledge generation, acquisition, transfer, retention, and sharing are all included in knowledge management (KM), which is the umbrella term for all actions and procedures involving data, information, and knowledge. A few examples of knowledge management systems (KMS) and technologies widely used to support these processes are databases, portals, and collaborative platforms, where humans contribute their knowledge.

Unicorns could be a great illustration of how knowledge empowers organizations. They are start-up firms that, in a short time, reach the value of 1 billion dollars, surpassing traditional companies that already have experience in the market. For a unicorn, market experience, tradition, and classic business models do not even matter. All that matters is the knowledge they possess, how they use it, and how they create value through knowledge in the new economy, where technological innovations and opportunities are everywhere, including associated risks (Bratianu et al., 2020; Massingham, 2020; Tiwana, 2002; Ursache, 2022a).

Nowadays, organizations are under more pressure to innovate and improve performance in the current environment, characterized by transition times, to keep up with the rapid pace of global changes. Organizations that can effectively handle their information can compete and adapt to the new markets. In this way, organizations will gain a new competitive edge that will separate strong from weak organizations by managing knowledge vulnerabilities and assessing knowledge risks correctly (Ursache, 2022b).

For the knowledge management domain, it is relevant to mention the SECI model, which depicts the dynamics of organizational knowledge generation and serves as a reference point in the knowledge research field (Nonaka & Takeuchi, 1995, 2019). The paradigm's three primary parts are the SECI knowledge cycle, the dynamic context BA, and the knowledge vision. According to Nonaka and Takeuchi (1995, 2019), the SECI cycle (Socialization, Externalization, Combination, and Internalization) illustrates how knowledge generated at the individual level is integrated into organizational knowledge along the ontological dimension in an evolving spiral. The model explains the dynamics between tacit and explicit knowledge. Tacit knowledge, also known as wordless information, is the knowledge we learn via firsthand experience and can only be communicated through body language.

The opposite is explicit knowledge, often known as codified knowledge. It is knowledge that can be easily expressed, communicated, and recorded using symbols like words, numbers, images, or sounds. It can be found in documents, databases, and other tangible or digital content. How organizations may effectively manage and use their explicit knowledge assets, such as documents, databases, and other digital and physical media types, has been the research focus in management and organizational studies. Researchers have also considered how explicit might increase rivalry, innovation, and organizational effectiveness.

Bratianu and Bejinaru (2019, 2023) extended the dyad of tacit-explicit knowledge into a triad of rational-emotional-spiritual knowledge in their theory of knowledge fields. Adopting a thermodynamics perspective, Bratianu (2023) and Bratianu and Bejinaru (2019) elaborated a new knowledge dynamics model. The model shows that any form of knowledge can be transformed into another form of knowledge. For instance, emotional knowledge can be transformed into rational or spiritual knowledge, and vice-versa.

From the SECI model, the dyad of tacit-explicit knowledge, and the triad rational-emotional-spiritual knowledge, a new perspective may be considered, and this is the new field of biological knowledge. The triad rational-emotional-spiritual may be considered the new tetrad of knowledge that includes the biological knowledge field. Thus, the tetrad of knowledge will consist of rational-emotional-spiritual-biological knowledge.

The biological knowledge has not been analyzed so far, and the present research presents a new perspective of analyzing the knowledge domain that may contribute to a more comprehensive identification of knowledge vulnerabilities and correctly assess the knowledge risks. The biological knowledge field may be considered a new research field in the knowledge domain because human bodies contain the molecular instructions for life, called deoxyribonucleic acid or DNA. Encoded within this DNA are various types of knowledge. How DNA is structured, what the complex molecules of DNA contain, and how this can be analyzed even from a knowledge perspective, including risks and another subcomponent; we will detail all this in a future study that will treat the fourth dimension of knowledge, the biological knowledge.

People create knowledge, and due to the knowledge-creating spiral described by Nonaka and Takeuchi (2019), it amplifies and becomes organizational knowledge that contributes significantly to the organization's performance. Whatever the case, an organization's past effort on knowledge management need to be understood and factored into the strategy for implementation (O'Dell & Hubert, 2011). Knowledge management emerged as a necessary domain within classical management (Liu, 2020; Massingham, 2020; Von Krogh et al., 2020).

Knowledge risks

Knowledge risk is associated with any knowledge activity done under the pressure of uncertainty. Researchers focus their attention especially on the following types of knowledge risks: knowledge loss, knowledge leakage, knowledge spillover, knowledge outsourcing, knowledge gaps, and improper use of knowledge (Bratianu, 2013a, p. 593).

Understanding knowledge risks requires first comprehending the idea of knowledge and its unique characteristics. For instance, knowledge does not have a clearly delineated structure because its understanding is bounded by the metaphors used to get its semantic field (Andriessen, 2004; Andriessen, 2008; Lakeoff & Johnson, 1999).

Knowledge is intangible and nonlinear, distinguishing this way clearly from tangible resources like physical objects, including monetary resources (Bratianu, 2013b; Bratianu & Vasilache, 2009; Nonaka & Takeuchi, 1995). Synthetically, OECD (2006)

remarks three fundamental features of the knowledge assets: "i) they are sources of probable future economic profits; ii) they lack physical substance; iii) to some extent, they can be retained and traded by a firm" (p. 9).

Before a journey can move forward, there are likely knowledge assets to filter out and migrate, methodologies and/or processes to fine-tune, staff culture development, skeptics to deal with, among others. In other words, all organizations have "baggage" that needs to be dealt with and cannot be ignored when enacting change (Remenyi, 2015).

Analyzing the concept of knowledge risks (Bratianu & Bejinaru, 2022) to understand better the context in which the known and unknown risks and the challenges in these times of transitions and change in which uncertainties are more frequent than they seem at first sight and risks become more challenging to calculate and anticipate them, knowledge risk becomes fundamental for any organization highlighting the influence that the knowledge risks management system may have on the knowledge domain.

Any knowledge activity carried out under uncertainty has a certain amount of knowledge risk. Researchers pay close attention to the following categories of knowledge risks: knowledge loss, knowledge leakage, information spillover, knowledge outsourcing, knowledge gaps, and incorrect use of knowledge. The stock and flow paradigm, which assumes that knowledge is assumed to be rational in its explicit form, is used by all academics to examine knowledge risk.

According to the theory of knowledge fields, which is based on metaphorical thinking (Andriessen, 2008) and on the metaphor of knowledge as energy, we consider a holistic approach comprising the rational, emotional, and spiritual knowledge fields. In this perspective, the risk is associated with each knowledge field such that the whole phenomenon of knowledge risks becomes more complex (Bratianu, 2018).

In a comprehensive analysis, it is mandatory to include the unknown unknowns, which usually referred to as unidentified risks, which are traditionally outside the purview of project risk management. The majority of unknown unknowns are thought to be impossible to anticipate or find in advance. However, our analysis shows the importance of considering the known and unknown risks to concentrate a part of the effort on unknown risks, even if they are impossible to anticipate, not to mention to identify them. Including the unknown risks in the analysis and asses, them will not be superfluous; it will bring real value to the organization and, many times, will make the difference between the loser and the winner.

Knowledge risk can be defined as being "the measure of the probability and severity of adverse effects of any activities engaging or related somehow to the knowledge that can affect the functioning of an organization on any level" (Zieba & Durst, 2018, p.256). Thus, knowledge risk implies knowing the probability of those events, which leads to negative consequences in knowledge management (Bratianu, 2018).

Not to mention that some academics attempt to clarify how risk management and knowledge management are similar; such as the need for employee insight, the importance of action, and the value of lessons learned, and conclude that risk management is knowledge management (Massingham, 2010, 2020). For many people,

it is not the risk but the exposure to possible consequences of decision-making that matters. These consequences may negatively affect the course of action, which is the real issue people care about (Ursache, 2023c). Thus, risk entails two essential components: exposure and uncertainty. "Risk requires both exposure and uncertainty" (Bratianu, 2018).

In these transitions, funds are critical for the evolution of every knowledge management system because the qualified workforce and well-trained people require a higher payment than those who are less qualified. Strategic knowledge assets by managers or owners can be viewed as the first necessary step to address potential knowledge risks (Durst, 2019), but this is not enough and is not complete. We consider that a comprehensive understanding of knowledge risks needs to be included in a risk analysis, at least in a basic understanding of concepts such as known, unknown, and unknown unknowns' risks. If not, the organization will have to deal with some shocks that may cause real damage to the organization's main structure, endangering its very existence.

Biological knowledge should be considered among the unknown knowledge risks. In the unknown unknown's spectrum, humans passed from a transition to another, a fact that will continue, and many changes will occur. All these changes are not only reflected in our daily life, economy, or human relations; they even change our DNA structure. Passing from one generation to another, it seems that only a few of those ask what will happen with humans in the following decades without considering the next centuries.

The modifications in the DNA of every individual are more than obvious. We see with our eyes that the new generations adapt quickly to new technologies, are more concerned about well-being, and pursue personal satisfaction. However, at the same time, they lack analysis. A young individual born in 2000 will have a poorer analysis than an individual born in the 1980s, not to mention those born in the 1950s who have a deeper understanding and a more solid knowledge. These differences between generations, left even a mark in the DNA structure as well. Knowledge now has a different shape, structure, and components. These unknown knowledge risks deserve a profound analysis, including identifying risks.

Knowledge risks may be analyzed from various perspectives in multiple ways. An essential key in knowledge risk management is considering even the knowledge vulnerabilities. The literature treated this subject very vaguely, and there are only a few research papers on this matter. A good start may be understanding the concept of knowledge vulnerabilities, such as the definition given by Ursache (2023b), that knowledge vulnerability represents a weakness in securing the human value, knowledge, individual or by group that can be exploited through one or more threats if the weakness is known and exposed. The vulnerability impacts the individual, the group, or the knowledge management system with consequences that can result in the generation of a knowledge risk. In this way, we may widen our views in understanding how knowledge risks management should be implemented correctly by starting with a thorough understanding of the knowledge vulnerability concept.

Known and Unknown Knowledge risks

Even if, in the last 25 years, the number of research topics in the knowledge risks domain has increased and become increasingly diversified, the concepts of knowledge risks have not been exhausted. There are still various topics that may be analyzed; one of them is the unknown risks or unknown unknowns. These are highly complex topics, especially since treating something you know nothing about is almost impossible. However, this is not impossible and can be achieved in some form and up to a certain level.

Among the already known knowledge risks that have been treated in the literature, we may count the great classification of knowledge risks as the knowledge waste risks, knowledge hoarding risks, knowledge hiding risks, knowledge attrition risks, and knowledge obsolescence risks made by (Bratianu et al., 2020). Other known knowledge risks treated, we may count the knowledge risks due to unlearning and knowledge risks due to forgetting (Durst & Zieba, 2017), knowledge articulation risks, knowledge outsourcing risks, knowledge acquisition risks, knowledge continuity risks (Lambe, 2013), knowledge gap risk (Perrot, 2007), knowledge transfer risks (Bayer & Maier, 2006), lack of effective knowledge base maintenance, knowledge stealing, risk of declining organizational creativity and innovation, ineffective management (Jamieson & Loeng, 2003) and many others.

The real challenge in the knowledge domain came with the unknown knowledge risks, a less explored area that would deserve more attention. In the category of unknown knowledge risks, we may consider unidentified risks, possible risks that may appear, and a good forecast of them. Unknown unknowns, usually referred to as unidentified knowledge risks, are traditionally outside the purview of project risk management. The majority of unknown unknowns are thought to be impossible to anticipate or find in advance.

Creating a model that will assist organizations in identifying unknown knowledge risks that initially did not even consider the unknown unknowns knowledge risks category will make a notable value. Ultimately, the organization will be better prepared to face shocks that destabilize or destroy it.

Analyzing more unknown unknowns knowledge risks entails making them known unknowns so that project risk management can, in the first stage, manage and, in the second one, control them. This approach can be adjusted to aid anyone who manages risks, but it is intended to assist project managers in managing unknown knowledge risks.

The only thing surprising is that we continue to be surprised when a surprise occurs (Rumsfeld, 2002). Exactly this happened in the morning of October 7, 2023, when the Hamas group attacked Israel, and the terrifying sound of several thousand rockets fired from the Gaza Strip could be heard by Israelis who took shelter in bunkers. This case may be analyzed in future research. Notable is the fact that the Israeli authorities were taken by surprise; even more, it seems that they were unprepared if even the slightest bit of information did not reach the decision-makers, or if it arrived, the reactions were much delayed. How would it actually be if, among the known knowledge risks, unknown knowledge risks were considered and analyzed among the risks taken into account initially? The answer is more than evident. Israeli authorities have been prepared and would have acted in good time.

Since former U.S. Secretary of Defense Donald Henry Rumsfeld highlighted "unknown unknowns" (Rumsfeld, 2002), there have been some attempts to comprehend the complex characteristics of this new concept. Some research has been done using the quadrants of knowledge, known known, known unknown, and known unknown, but there is still space for much more in this area. It is known that it is impossible to identify all risks in advance for many reasons (Hillson & Murray, 2017), and unidentified risks remain as unknown unknowns until they are identified or actually happen.

This understanding is quite limiting, and we believe this concept must be viewed as an opener to new understandings. It must be remembered that to succeed in applying this concept, there must be no limits in thinking about risks, analyzing them, and using a model.

Methodology

To address the study question: the unknown knowledge risks are important for an organization's knowledge management system and how are they analyzed in the literature, the current paper uses bibliometric research, also known as statistical bibliography. An additional computer-aided analytical procedure was carried out using the VOSviewer program in this context.

According to the software creators Van Eck and Waltman (2010, 2011, 2020), using text mining analysis, VOSviewer can be utilized in academic research projects to define, investigate, and visually illustrate network-based scientific maps. In the current conceptual inquiry, the author chose the term co-occurrence analysis option from the spectrum of potential methodologies. The unit of analysis in the current study is the term or word. The analysis outcome is an intellectual plan or a knowledge atlas of the studied topic (Iliescu, 2021).

Results and discussion

The data was retrieved from the Web of Science (WoS) Core Collection, and the retrieval model was through an advanced search function. The retrieval period was 2020-2023. The default values provided by WoS were used on all the rest of the retrieval settings besides selecting publications with titles and abstracts in English. Regarding the document type, we have chosen knowledge risks, unknown knowledge risks, knowledge transition, and knowledge change.

We analyze different interpretations of these four concepts and focus on the unknown knowledge risks to understand how it has been treated so far. Additionally, we perform a bibliometric analysis to get a larger view of the multiple connections between knowledge and risks. The contribution of the present paper comes from this enlarged framework of searching for links between knowledge, unknown risks and analyzing their relevance to organizational knowledge management system.

We have integrated data search, filtering, and extraction settings during the preparation stage to obtain the most definitive results. First, a topic category was established, and our research was limited to titles, abstracts, author keywords, and

keywords plus fields. This is why we believe collecting more precise data for our word co-occurrence study is important.

In the second phase, we set the search structure on "knowledge risks" to identify relevant publications for this concept. Other set concepts were unknown knowledge risks, knowledge transition, and knowledge change.

In our study's case, the "unknown knowledge risks" search returned some publications, including terms like "knowledge risks," "knowledge change," or "knowledge transition." Additionally, quotation marks have been utilized to guarantee accurate outcomes and prevent lemmatization.

Data were collected from WebOfScience, and the results were the following:
- *knowledge risks*, from 225.628 results; refining the search in VOSviewer, only 34.115 results have been considered for the analysis;
- *unknown knowledge risks*, from 5443 results, only 2362 meet the threshold; refining the search, only 26 results have been considered for the analysis;
- *knowledge transition*, from 54.494 results, only 18.571 meet the threshold; refining the search, only 548 results have been considered for the study;
- *knowledge change*, from 312.216 results, only 99.954 meet the threshold; refining the search, only 3152 results have been considered for the analysis

For all categories in VOSviewer, a minimum occurrence of terms has been set to 10; of all 17.200 keywords, 747 meet the threshold. For each 747 keywords, the total strength of the co-occurrence links with other keywords was calculated. We selected the keywords with the greatest total link strength.

Based on the score, the most relevant terms were selected, and the default choice was chosen by 60% for the most appropriate terms. Applying these settings, the most relevant terms were selected with a total link strength of more than 57 and occurrences of more than 10. After clearing and filtering the data results 7 clusters from which they were selected only 3 clusters, considered relevant for VOSviewer mapping as illustrated in the tables below.

In this first category, we will discuss in detail the connections established between the knowledge risks (cluster 1), knowledge management (cluster 2), and the performance (cluster 3). In our research, we did not identify any direct terms as unknown knowledge or unknown knowledge risks. As illustrated in this section, the three clusters are gaining relevant meaning only in the context of the knowledge risks, and this will also be reflected in the analysis below.

Table 1. VOSviewer cluster 1 analysis
(Source: Authors' own research results)

Term	Cluster	Occurrences	Links	Total link strength
Technology		282	23	463
Risk	**1**	288	23	335
Uncertainty	**Knowledge risks**	113	22	181
Exploitation		71	20	134
Risk perception		31	15	42

In Table 1, we present the first cluster, "knowledge risks," the term assigned by VOSviewer under this cluster, as well as the occurrences, links, and total link strength value for each term. The term "technology" registers the most substantial values for occurrences and link strength. Throughout all analyzed publications and after performing the methodological data cleaning, the "Risk" term appears 288 times, and this value has been obtained by implementing the full counting analysis option. As the link's value is 23, this represents that the term "risk" is directly linked with the term "technology," which seems to have a notable influence on the analysis. "Uncertainty" and "exploitation" are among the most common. "Risk perception" has a lower link strength, which can be perceived as an area where more research can still be done.

Table 2. VOSviewer cluster 2 analysis
(Source: Authors' own research results)

Term	Cluster	Occurrences	Links	Total link strength
Management		756	33	1087
Impact	**2**	632	32	929
Risk management	**Knowledge management**	96	22	138
Risk assessment		20	11	29
Risk analysis		17	10	21

In cluster 2 knowledge management, the term "management" has the highest total link strength, followed by the term "impact," which has a high occurrence and a high total link strength, meaning that these terms are very close to each other and connected with many links, which means a high frequency with which they are used together. The term "impact" and others like "risk management," "risk assessment," and "risk analysis" are among the most relevant ones. The fact that some terms are less common does not imply that they are less significant; instead, it simply means that they are less frequently used for a variety of objective reasons, such as the fact that they are part of a related field, are no longer relevant due to the advancement of research, or are a relatively new area of study with fewer publications, but still relevant.

Table 3. VOSviewer cluster 3 analysis
(Source: Authors' own research results)

Term	Cluster	Occurrences	Links	Total link strength
Performance		1011	34	1520
Knowledge management	**3**	282	26	416
Knowledge transfer	**Performance**	96	20	137
Risk management		63	18	99
Crisis management		19	13	34

From all three clusters, a direct relationship may be seen between "technology," "management," and "performance." All terms are relevant for the organizational knowledge risks management research. With a high link strength between "technology," "management," and "performance," this indicates a new trend in knowledge risks management, where technology has an important role in influencing the management domain, creating pressure on organizations to perform. Therefore, the "performance" concept is much more treated in research papers, being in direct relation to concepts such as "knowledge management," "knowledge transfer," "risk management," and "crisis management."

It is not surprising that terms such as "unknown knowledge risks," "knowledge transition," or "knowledge change" are not highlighted since there are indeed very few papers that deal with this topics. In the area of unknown knowledge risks, there is a research gap, and a more detailed bibliometric analysis could reveal new aspects that may be of interest for the knowledge risks management domain.
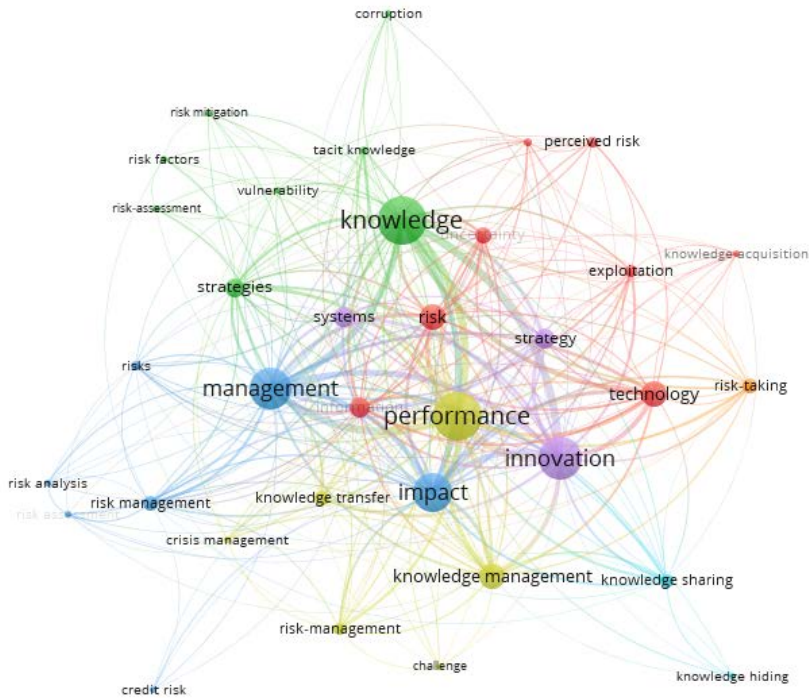
Figure 1. Network clusters visualization by VOSviewer software version 1.6.19
(Source: Authors' own research results)

In Figure 1, we present the network visualization of all seven clusters, of which only three are relevant: cluster 1 knowledge risks, in red colors; cluster 2 knowledge management, in blue colors; and cluster 3 performance, in yellow colors. Each term sphere size and distance are visual representations of their connection strength values given in the tables, according to Van Eck and Waltman (2010).

Understanding the insights gained through the systematic literature review, this visual distribution can be explained as follows: "technology," "management," and "performance" terms are analyzed and treated in various research papers and terms such as "unknown knowledge risks", "knowledge transition" or "knowledge change" are not treated, being a gap in the literature and may be considered a new challenge for future research.

Figure 2. Network density visualization by VOSviewer software version 1.6.19
(Source: Authors' own research results)

In Figure 2, we can observe the representation of the density overview of the clusters, broadcasting the most visited concepts in the literature, correlated with the knowledge concept. According to Van Eck and Waltman (2010), each term has an associated sphere with a specific dimension and density of color. As can be seen, there is a specific distance between each sphere. These parameters are directly linked to each item's values reflected in the cluster tables. An interesting aspect is a fact that, on the one hand, the "knowledge" concept appears to be in closer relationship with "management"; "impact" is in a close relationship with "performance" and "innovation". This visual effect can be caused by the fact that closer items on the density map are part of the same article. It is also interesting to note the appropriation between items belonging to different clusters.

The knowledge of risks management is not separate from the mentioned terms but is part of this analysis, with strong link connections even with risks, risk assessment, and risk analysis.

The research also points out the direct correlation between the mentioned terms, with strong link connections with risks, risk assessment, and risks analysis. Considering available research papers, this field of unknown knowledge risks will open new perspectives in further research on knowledge risk challenges, which can be correlated with the knowledge management domain.

Conclusions and limitations

The present paper aims to analyze the organizational knowledge risk correlations with knowledge risk, focusing on the known and unknown risks and the challenges in these times of transitions and change in which uncertainties are more frequent than they

seem at first sight and risks become more challenging to calculate and anticipate them. The research was initially achieved by implementing a comprehensive literature review and a text-mining analysis with VOSviewer software. While we successfully identified a set of research interests in knowledge associated with knowledge management risks, we have also found that each holds specific knowledge gaps and research areas requiring increased scientific attention, especially in the unknown knowledge risks field.

With this research we get a better understanding of the existing knowledge risks gap and the opportunities that may arise from studying in the unknown knowledge risks area. With many important advantages brought by digitalization and technology in the management of knowledge risks, we have to be aware of the increased knowledge risks and the unknown knowledge risks that deserve much greater attention.

Regarding the study's limitations, it is evident that more research is required to understand the unknown knowledge risks and how they influence the knowledge management systems to foresee potential threats and risks to these systems and develop an emergent knowledge risks strategy to counteract them. Being aware of the increasing knowledge risks and taking appropriate measures to reduce them, including the study of the unknown knowledge risks, in addition to the numerous significant advantages brought by digitalization in the domain of knowledge risks management will be a good start.

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