# CHALLENGES OF ARTIFICIAL INTELLIGENCE FOR KNOWLEDGE MANAGEMENT SYSTEMS: A BIBLIOMETRIC ANALYSIS PERSPECTIVE

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**Abstract:** *This paper explores the opportunities and challenges associated with integrating artificial intelligence (AI) into knowledge management systems (KMS), by using a bibliometric analysis. The rapid advancement of AI technologies, particularly generative models, has opened new avenues for enhancing KMS theories and practices. The study examines publication trends, key contributors, predominant research themes, and the practical applications of AI in KMS, with a specific focus on how these technologies can transform knowledge creation, sharing, and dissemination. The study draws on data from the Scopus database, revealing the significant impact of AI on KMS practices, particularly its capacity to enhance knowledge transfer, support decision-making processes, and foster organizational learning. However, the study also identifies several challenges, including ethical concerns, the interpretability of AI-driven tools, and the scalability of AI methods. The analysis underscores the need for further research in addressing these challenges and exploring the full potential of AI to fill knowledge gaps and create new knowledge artefacts. This paper provides valuable insights for scholars, practitioners, and organizations looking to harness AI for improving KMS theories and practices, offering a systematic analysis for future research on the evolving intersection of AI and KMS.*

**Keywords:** knowledge management systems, artificial intelligence, deep learning, large language models, bibliometric analysis.

**JEL classification:**
D83, O32, O33, C88, L86, M15, J24

## 1. Introduction

The rapid evolution of Artificial Intelligence (AI) has brought transformative changes across various organizational domains, particularly in Knowledge Management (KM). Traditionally, KM has centered on systematically identifying, creating, capturing, organizing, storing, sharing, and effectively utilizing knowledge and information within an organization or community. However, the advent of generative AI technologies, encompassing machine learning, natural language processing (NLP), and advanced data mining, is opening new possibilities for automating knowledge-intensive tasks, enhancing analytical capabilities, and optimizing decision-making processes (Taherdoost and Madanchian, 2023). These advancements are not only reshaping conventional KM practices but are also driving

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broader innovation across sectors such as education, where AI is unlocking unprecedented opportunities (Rahman et al., 2024; Farrokhnia et al., 2023; Górriz et al., 2020).

The integration of generative AI into KM practices has the potential to revolutionize the management of both explicit and tacit knowledge within organizations. Explicit knowledge, easily codified and shared, aligns well with traditional knowledge management systems (KMS). However, tacit knowledge—rooted in personal experience and inherently challenging to articulate—has long posed a significant hurdle. Generative AI's capability to process vast amounts of unstructured data provides promising avenues for addressing this challenge, rendering tacit knowledge more accessible and actionable (Papagiannidis et al., 2023). This shift underscores the transformative potential of AI-driven systems in enhancing KM processes, facilitating improved knowledge sharing and organizational learning (Bratianu et al., 2011), and fostering innovation across organizational contexts (Harfouche et al., 2023).

Despite these advancements, several significant gaps remain, particularly in the integration of AI across all facets of KM. One critical gap is the development of comprehensive frameworks that fully incorporate generative AI (GenAI) into KMS. While existing research has focused on the application of AI to specific KM tasks, there is a lack of studies examining the integration of AI in KMS from a bibliometric analysis perspective. This gap highlights the need for a more systematic investigation into how AI technologies interact with and enhance different aspects of KMS. Additionally, the ethical considerations surrounding AI's integration into KMS are underexplored. As AI technologies continue to advance, there is an urgent need for research addressing the ethical challenges they pose, ensuring that the benefits of AI are maximized while mitigating potential risks, such as biases, privacy concerns, and unintended consequences (Harfouche et al., 2023). This points to a need for frameworks that not only optimize AI integration but also incorporate ethical considerations to maintain organizational integrity and trust. For the present research, we formulate the following research question (RQ):

RQ: What are the key challenges and emerging trends in the integration of Artificial Intelligence (AI) into Knowledge Management Systems (KMS) based on the scholarly research landscape over the past decade?

## 2. Literature review

The rapid evolution of artificial intelligence (AI) technologies, particularly generative models (GenAI), graph neural networks, and deep learning, has significantly influenced the knowledge management (KM) domain. The integration of AI into KM marks a transformative step in how organizations handle knowledge. While AI brings notable advantages in automating and improving KM processes, further research is required to address challenges such as managing tacit knowledge, artificial knowledge (Nakash & Bolisani, 2024), and navigating ethical concerns. As organizations increasingly implement AI-powered KM systems, it becomes essential to balance AI's technical capabilities with the human-centric aspects of KM to fully harness these technologies' potential.

The relationship between AI and KM is becoming more synergistic, with AI providing robust tools to enhance KM practices across multiple sectors. KM, which traditionally focuses on capturing, organizing, and sharing knowledge to foster better decision-making, innovation, and efficiency, is being transformed by AI integration. These technologies not only automate KM processes but also elevate their sophistication, enabling advanced knowledge discovery, personalization, and decision-support capabilities.

### 2.1. Definitions and key concepts

Knowledge Management (KM) is a structured approach to capturing, sharing, and utilizing knowledge within organizations to enhance learning, innovation, and decision-making (Dalkir, 2023). It involves managing both explicit knowledge, which is formalized and easily

shared, and tacit knowledge, which is deeply rooted in individual experiences and challenging to articulate (Harfouche et al., 2023). Effective management of both knowledge types is essential for organizations to remain agile, adapt to environmental changes, and sustain a competitive advantage. According to Bratianu (2022), KM is a process that encompasses the creation, acquisition, sharing, transfer, and utilization of knowledge within organizations. Expanding on this, Bratianu and Bejinaru (2020, 2023) emphasize the nonlinear and multidimensional nature of knowledge, considering its rational, emotional, and spiritual dimensions, as well as its transformative potential. They introduce the concept of knowledge fields, inspired by thermodynamics, to explain how knowledge flows and influences organizational processes, underscoring its role in driving innovation and achieving strategic goals.

A Knowledge Management System (KMS) is the framework that supports this process by integrating technology, people, processes, and organizational context. It enables the efficient creation, sharing, and application of knowledge through technological tools such as knowledge repositories, collaboration platforms, and expert catalogues. The system is dependent on the human resources involved, who carry out KM activities and contribute to organizational learning. The organizational context, including culture, structure, and management style, further influences how the system is designed and functions. As organizations rely on KMS for sustained innovation and competitiveness, aligning it with the organization's knowledge management strategy and adapting it to both internal and external environments is crucial for ensuring its effectiveness (Ben Chouikha Zouari & Dakhli, 2018).

Artificial Intelligence (AI) represents a generic concept for a large variety of software programs that imitate the cognitive functions of human intelligence. They range from learning and decision-making to playing chess or go (Baker, 2025; Russell & Norvig, 2022). AI is based on sophisticated algorithms using deterministic thinking like in the first stage of its development, or probabilistic thinking like in the new deep learning programs. A subfield of AI that has exploded in the last few years is represented by Generative AI (GenAI). GenAI is a specialized branch of artificial intelligence that leverages advanced natural language processing (NLP), neural networks, and machine learning (ML) models to create original, human-like content. It falls under the category of Large Language Models (LLMs), which process vast datasets across multiple domains, including human languages, programming code, mathematical expressions, and images (Baker, 2025, p. 8). One of the most known products of GenAI is ChatGPT, in a spectrum of applications.

Deep learning refers to the process of learning from an initial huge data set using many layers of neural networks. Deep learning is the most used technology for complex applications like visual objects recognition, machine translation, speech synthesis, and image synthesis (Russell & Norvig, 2022). It is important to underline that GenAI and LLMs are not capable of human thought; instead, they function by making predictions. While the prediction process is highly complex, it remains fundamentally a form of prediction (Baker, 2025, p. 8).

### 2.2. AI techniques and emerging themes in KMS

The integration of AI into KMS represents a paradigm shift in how organizations manage and leverage knowledge. By automating complex processes, AI techniques can enhance knowledge discovery, personalization, and collaboration within knowledge networks. However, alongside these advancements, challenges emerge related to scalability, adaptability, and transparency, making it essential to align AI solutions with organizational needs and human-centric KM practices. Exploring these techniques and addressing their limitations is crucial to ensure sustainable and ethical AI-driven KMS development (Baker, 2025; Floridi, 2023).

Wu et al. (2021) highlight the role of Graph Neural Networks (GNNs) in mapping knowledge networks, enabling organizations to visualize and optimize knowledge-sharing pathways. However, a key challenge in AI-KMS integration is the effective management of relational

knowledge structures, especially in large, dynamic organizations where knowledge networks frequently evolve. GNNs require extensive data preparation and network maintenance, which poses scalability challenges when applied to rapidly changing knowledge environments.

The concept of Explainable AI (XAI), explored by Barredo Arrieta et al. (2020) and Adadi and Berrada (2018), emphasizes the importance of transparency and interpretability in AI-driven KMS. While AI can significantly automate KM processes, many AI models operate as black boxes (Adadi & Berrada, 2018), making it difficult for organizations to trust the insights generated. This lack of transparency can hinder the adoption of AI-based KM tools, particularly in industries where accountability and ethical concerns are paramount (Floridi, 2023). Thus, one of the primary challenges is developing AI systems that deliver understandable, actionable insights while maintaining high performance.

Transfer learning, discussed by Weiss et al. (2016), addresses the challenge of cross-domain knowledge transfer, a critical component of KMS. AI-driven KMS must adapt knowledge to new organizational contexts, but this requires models to efficiently reuse and adapt existing knowledge without retraining from scratch. The challenge lies in applying transfer learning techniques to heterogeneous datasets in a way that preserves knowledge accuracy while reducing the costs and time associated with model retraining. KMS should be able to integrate human knowledge and artificial knowledge into complex organizational learning processes and decision-making.

Alzubaidi et al. (2021) and Khan et al. (2020) discuss deep learning architectures and processes that handle unstructured data such as text, audio, and video. While these technologies are essential for managing the growing volume of unstructured organizational knowledge, they also pose challenges in terms of data processing and categorization. AI-based KMS must be able to automatically classify, sort, and retrieve relevant knowledge from large repositories. The difficulty in ensuring that AI tools can accurately interpret and categorize diverse forms of knowledge presents a significant challenge.

Sentiment analysis, as described by Taboada et al. (2011), introduces the theme of feedback-driven KM strategies, allowing organizations to extract valuable insights from employee and customer feedback. However, the challenge lies in ensuring that sentiment analysis tools account for context and nuance in textual data, which can vary across cultures and languages. Although sentiment analysis uses rational knowledge, it suggests how emotional and spiritual knowledge influence decision-making and consumer behaviour (Bratianu & Bejinaru, 2020; Hill, 2008). Similarly, text summarization and semantic analysis techniques, discussed by Erkan and Radev (2004) and Turney and Pantel (2010), improve knowledge accessibility by summarizing extensive data repositories. The challenge here is developing AI tools that can accurately summarize knowledge while retaining essential contextual information.

Link prediction methods, proposed by Liben-Nowell and Kleinberg (2007), focus on identifying potential collaborations within knowledge networks. In KMS, these methods can help organizations foster innovation by connecting individuals with complementary expertise. However, the challenge lies in ensuring that link prediction techniques remain relevant in dynamic organizational contexts where relationships and knowledge flows are constantly changing.

Finally, generative AI models hold significant potential for creating artificial knowledge and filling knowledge gaps within KMS. These models can simulate decision-making scenarios and generate insights based on integrating human knowledge with artificial knowledge. However, the ethical challenges surrounding generative AI—including data privacy, algorithmic bias, and transparency—remain underexplored in the KM context. Additionally, ensuring that generative models produce reliable and accurate knowledge outputs is a significant challenge.

The following table (Table 1) illustrates how different AI techniques contribute to KMS enhancement, while also presenting unique challenges.

**Table 1:** Key AI techniques and challenges in AI-KMS integration

| AI Technique | Focus Area | Application in KMS | Key Challenge Identified |
|---|---|---|---|
| Graph Neural Networks (Wu et al., 2021) | Relational data analysis | Mapping and optimizing knowledge networks | Scalability and network maintenance |
| Explainable AI (Barredo Arrieta et al., 2020; Adadi & Berrada, 2018) | Transparency and interpretability | Building trust in AI-driven KMS tools | Ensuring interpretability without sacrificing performance |
| Transfer Learning (Weiss et al., 2016) | Cross-domain knowledge transfer | Reusing knowledge across contexts | Efficient adaptation to heterogeneous datasets |
| Deep Learning (Alzubaidi et al., 2021; Khan et al., 2020) | Unstructured data processing | Automating classification of text, audio, video | Accurate categorization of diverse knowledge types |
| Sentiment Analysis (Taboada et al., 2011) | Feedback analysis | Extracting insights from textual feedback | Accounting for context and cultural differences |
| Text Summarization (Erkan & Radev, 2004) | Knowledge accessibility | Summarizing large knowledge repositories | Retaining essential context in summaries |
| Link Prediction (Liben-Nowell & Kleinberg, 2007) | Social network analysis | Predicting collaborations and knowledge flows | Relevance in dynamic organizational contexts |
| Generative Models | New knowledge creation | Creating knowledge artefacts and decision-making scenarios | Ethical concerns and reliability of outputs |

Source: Author's processing

This table serves as a foundation for understanding the diverse roles of AI in KMS serving as a basis for the bibliometric analysis conducted in this study that will not only validate the challenges identified in the existing literature but may also uncover new ones.

## 3. Methodology

To explore the paradigm of AI integration in KMS, we have employed a bibliometric analysis using data from the Scopus database. Building on insights from prior literature regarding the transformative potential of AI technologies in KMS, this analysis aims to identify both opportunities and challenges in the field. The initial search query returned 17,000 documents, which were rigorously filtered based on predefined criteria, resulting in a refined dataset of 8,510 documents, including 3,832 open-access publications. This methodological approach enables a comprehensive exploration of key trends, challenges, and research gaps, providing valuable insights into the current state of AI-driven advancements in KMS.
Data collection involved searching Scopus using a detailed string of keywords, related to the concepts of Knowledge Management System, and Artificial Intelligence, targeting titles, abstracts, and keywords.

To ensure data relevance, several filters were applied. The study included only peer-reviewed journal articles published in English, thereby maintaining high-quality and consistent content. Conference papers, book chapters, and other formats were excluded. The dataset was further refined by focusing on keywords that emphasized the integration of AI and KMS, ultimately resulting in 3,832 relevant open-access journal articles.

The bibliometric analysis was conducted using Biblioshiny (Ghorbani, 2024) within the R-based Bibliometrix package, focusing on the combined dataset of articles related to both Artificial Intelligence (AI) and Knowledge Management Systems (KMS). Conducting the analysis on the sum of articles ensures a holistic understanding of how AI is shaping KMS, aligning with the paper's focus on addressing the challenges posed by integrating AI into KMS processes across various domains and disciplines. This approach was chosen to provide a broader, more insightful perspective on the complex and interdisciplinary challenges that organizations face when adopting AI-driven knowledge management solutions.

## 4. Results

The bibliometric analysis of 3,832 documents reveals several key statistics that highlight both the opportunities and challenges posed by AI in KMS. These challenges primarily revolve around rapid technological evolution, interdisciplinary collaboration, ethical concerns, and practical integration into KM processes.

The rapid annual growth of AI-related literature (16.58%) reflects technological advancements but poses difficulties for organizations in keeping KMS updated and avoiding information overload. The high level of international collaboration indicates a globally connected research field, yet it brings challenges in standardizing knowledge across regions and managing regulatory, cultural, and ethical differences. A moderate citation rate (37.06 citations per document) suggests the field's importance but reveals fragmentation, with many studies lacking comprehensive frameworks that address both explicit and tacit knowledge management. Additionally, the young average document age (1.89 years) indicates a focus on cutting-edge innovations but highlights a scarcity of long-term studies on practical and ethical implications, creating challenges in adopting new AI technologies while mitigating risks like data privacy, algorithmic bias, and transparency concerns.

Insights drawn from the average citation analysis (Figure 1) further emphasize the challenges in AI integration within KMS. High citation rates in the early years (1984-2001) suggest that seminal works in both KMS and AI played a foundational role in shaping the academic discourse, establishing the basis for future research. However, as the field expanded and more studies emerged between 2005 and 2014, citation rates began to moderate, reflecting the maturation of the field. The recent decline in average citations per year (2015-2024), despite the surge in publications, presents a critical challenge. This decline may be attributed to a variety of factors, including citation lag, where newer publications struggle to gain visibility and recognition in an increasingly saturated research environment. With more publications competing for attention, AI-driven KMS studies face difficulty standing out among the vast number of articles published annually. This highlights the need for more targeted and impactful research that not only contributes novel insights but also addresses the practical integration of AI within KMS in a way that resonates with both academia and industry practitioners.

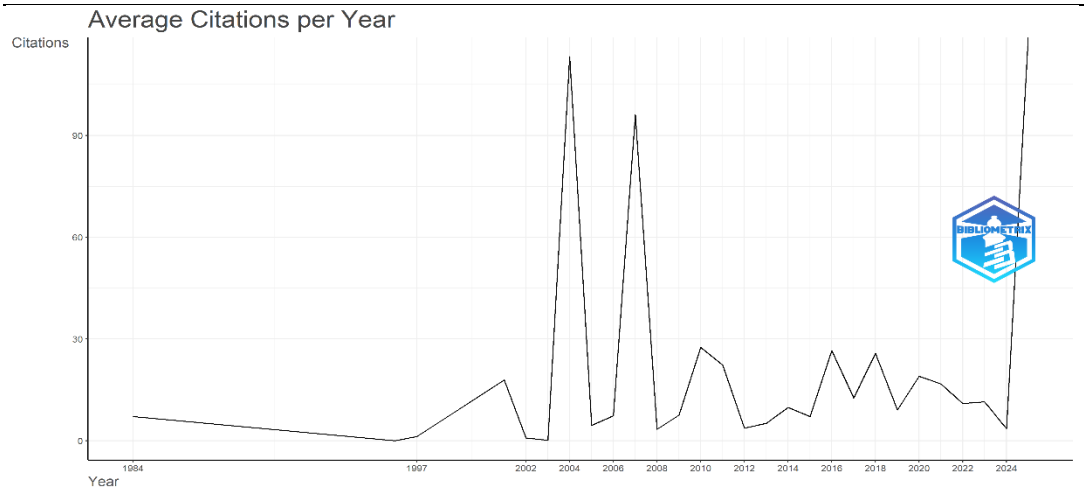


**Figure 1:** The average citations per year of articles on AI and KMS
Source: Author's analysis /processing based on own data

Moreover, the decline in citations could suggest that the novelty of the initial AI-KMS integration studies is wearing off, leading to less frequent citations as researchers explore more niche or specific topics within the broader framework. This could indicate a shift in focus from foundational to more specialized research areas, which may not yet have had enough time to accumulate significant citations. For organizations looking to implement AI-enhanced KMS, this trend emphasizes the challenge of keeping up with the evolving nature of both AI technology and KMS design while ensuring that new research continues to contribute to solving integration challenges in a meaningful and widely recognized way.
The next conducted analysis focuses on identifying trends in research topics using authors' keywords. The parameters for this analysis were set with a minimum frequency of 10 occurrences per keyword and a selection of up to 5 keywords per year. This analysis sheds light on the most prominent AI-related technologies and their evolving relevance within KMS. The data reveals a substantial rise in the frequency (Figure 2) of terms related to advanced AI technologies, with deep learning (466), machine learning (367), and artificial intelligence (346) emerging as the most frequently published topics, particularly between 2021 and 2024. These terms signify a dominant shift toward AI-driven approaches in KMS, highlighting their growing role in automating processes, improving knowledge discovery, and enhancing decision-making. However, integrating such technologies into KMS presents several challenges, as organizations must navigate the complexity of aligning new AI tools with existing organizational structures and knowledge processes.

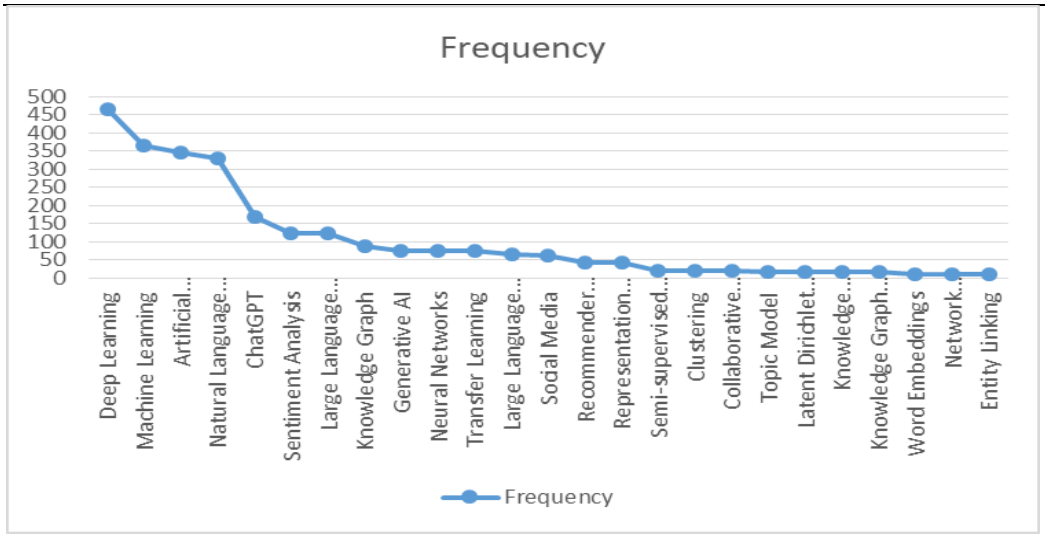


**Figure 2:** Keyword frequency trend chart
Source: Author's analysis /processing based on own data

A key challenge identified from the data is the rapid advancement and diversification of AI technologies. The popularity of natural language processing (330) and ChatGPT (168) reflects the increasing demand for better human-machine interaction and more efficient knowledge retrieval within KMS. While these technologies offer significant potential, their integration requires overcoming technical challenges such as ensuring that AI models can understand and process domain-specific knowledge. The growing focus on large language models (125) and generative AI (75) further complicates this integration, as organizations must invest in specialized infrastructure and continually update these models to keep pace with AI advancements.

Additionally, more specialized AI technologies such as knowledge graphs (88) and semi-supervised learning (22) are gaining traction. These focus on improving knowledge representation and enabling the use of partially labelled data, which are crucial for enhancing KMS functionality. However, their integration into KMS requires expertise in both AI and domain-specific knowledge, as well as considerable effort to adapt these technologies to the specific needs of organizations. The rise of knowledge representation (16) and topic modelling (18) reflects the increasing sophistication of KMS, where the focus is on improving how organizational knowledge is structured and interpreted. This shift highlights the need for organizations to develop not only the technological infrastructure but also the human expertise required to leverage these advanced AI tools effectively.

While innovations like deep learning, natural language processing, and generative AI promise to revolutionize knowledge management, their successful integration presents challenges that require a careful alignment of technological, human, and organizational factors. The diversity of AI technologies and the pace of their development call for continuous adaptation and expertise to ensure that KMS can harness AI's full potential while addressing the complexities inherent in such integration.

To further explore the challenges of AI integration in KMS, a thematic network cluster map (Figure 3) was generated using a clustering algorithm Walktrap to analyse authors' keywords with parameters of a minimum word frequency of 10 and a minimum cluster frequency of 5. This analysis identified two prominent clusters: deep learning and artificial intelligence. These clusters reflect key trends in AI technologies, which are closely tied to KMS, particularly in their ability to enhance technological tools within KMS.

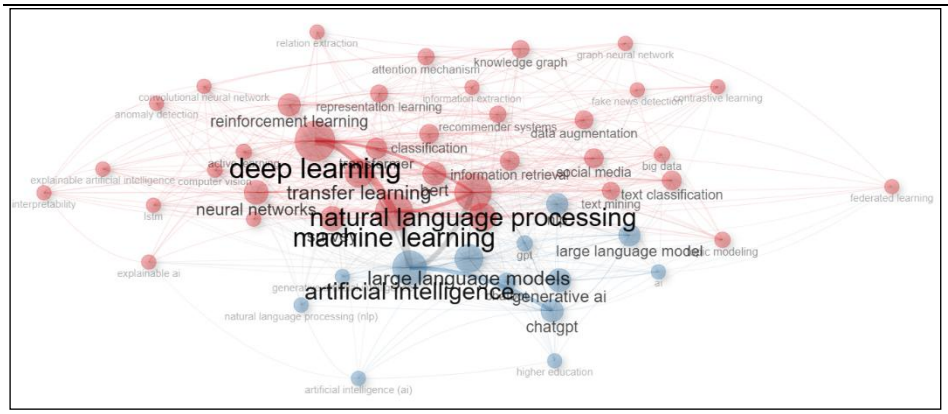


**Figure 3.** Thematic network cluster map.
Source: Author's analysis /processing based on own data

However, several challenges in the integration of these technologies into KMS emerged from this analysis.

Firstly, deep learning emerged as the dominant cluster, reflecting its widespread application in areas such as neural networks, transfer learning, and reinforcement learning. While these technologies can significantly enhance KMS capabilities—enabling more efficient data processing, automated knowledge extraction, and improved decision-making—integrating them into existing KMS infrastructure presents challenges. These challenges include the need for substantial computational resources and specialized expertise in managing and maintaining deep learning models. Additionally, aligning these advanced AI technologies with organizational processes, structures, and cultures presents a considerable hurdle. The complexity and technical nature of deep learning may also limit its accessibility for non-experts within the organization, leading to potential barriers in adoption and use.

Secondly, the artificial intelligence cluster, which includes generative AI, large language models (LLMs), and ChatGPT, reveals the increasing focus on AI's ability to generate, process, and adapt knowledge within KMS. While these technologies offer the promise of more dynamic, responsive, and user-friendly systems, their integration raises several challenges. One key challenge is the need for continuous updates and retraining of LLMs to ensure they remain relevant and accurate. As new models emerge, KMS must be agile enough to integrate these advancements without disrupting existing systems. Furthermore, the ethical implications of using generative AI in knowledge management—such as the potential for bias, misinformation, or over-reliance on AI-generated content—present additional challenges that organizations must address. There is also the issue of ensuring that AI-generated knowledge aligns with the strategic goals of the organization and does not conflict with human expertise or organizational values.

Finally, the CallonCentrality and CallonDensity measures, used for exploring the research dynamics of future studies (Di Zio et al., 2023), highlight the dominance of deep learning in the field, but the relative lower density of the artificial *intelligence* cluster points to the challenges in managing a wide range of AI technologies with diverse applications. This broad scope makes it difficult to create a cohesive framework that can seamlessly integrate all relevant AI technologies into KMS. The challenge here lies in balancing the diverse capabilities of AI with the need for a unified, strategically aligned KMS. The increasing complexity of AI integration requires organizations to carefully evaluate which technologies best align with their knowledge management objectives while ensuring that they do not overwhelm or complicate the overall system.

## 5. Discussions

To further explore the integration of AI into knowledge management systems (KMS), bibliometric analysis has provided valuable insights into both challenges and opportunities in this area. In the following, we discuss the alignment of these challenges with the existing literature, identify new challenges, and highlight opportunities arising from the challenges.

### 5.1. Challenges Identified from Bibliometric Analysis and Literature

Complexity of deep learning and data processing: The bibliometric analysis emphasized deep learning technologies, such as neural networks and transfer learning, which can automate knowledge processes but also introduce challenges in their complexity and computational demands. This issue aligns with the literature, which discusses the difficulty of implementing deep learning models due to their complexity and high resource requirements (Dalkir, 2023). GenAI applications generate artificial knowledge. Understanding that artificial knowledge has no correspondence with real life or truth and that can be accepted or unaccepted due to its possible hallucinations, constitutes a major challenge for knowledge managers. Another key challenge is the integration process of human knowledge and artificial knowledge within KMS, and decision-making processes. Human knowledge is represented by a spectrum of rational, emotional, and spiritual knowledge (Bratianu and Bejinaru, 2020, 2023) while artificial knowledge is exclusively rational and depends on the complexity of training data (Baker, 2025).

Transparency and interpretability in AI models explainable AI (XAI), identified in the analysis, remains a barrier to AI adoption in KMS, as AI models often function as black boxes. The literature supports this concern, stressing that transparency is essential for trust in AI-based tools (Barredo Arrieta et al., 2020; Adadi & Berrada, 2018). Artificial knowledge is created using syntactic rules, without any connection with semantics or spiritual values. GenAI tools generate texts considering the most probable words to fit a given context, and not like human thinking. They make predictions and not interpretations. Only the human mind gives meaning to artificial knowledge and can integrate it in a decision-making process (Baker, 2025; Russell & Norvig).

Cross-domain knowledge transfer and model adaptation transfer learning pose challenges in applying AI models across different organizational contexts. This challenge is reflected in the literature, where efficient knowledge transfer across diverse datasets and contexts is crucial for successful AI-KMS integration (Nakash & Bolisani, 2024; Weiss et al., 2016).

Ethical oversight and knowledge generation generative AI models present ethical challenges related to data privacy and algorithmic bias. While these models can create new knowledge, the literature emphasizes the need for ethical oversight to ensure AI outputs are reliable and transparent (Harfouche et al., 2023)**.** According to Floridi, digital ethics influences digital regulation and governance by assessing what is considered socially acceptable or desirable from a moral perspective (Floridi, 2023, p. 81). That is a complex challenge for any KMS in making decisions and delivering ethical and moral solutions for organizations and communities.

The bibliometric analysis uncovered also new challenges not extensively discussed in the literature: Saturation of AI research: The rapid increase in AI research publications, with a decline in citations, suggests a saturation of research. This makes it challenging for organizations to identify and apply the most relevant research for KMS.

Integration of emerging AI technologies: The integration of advanced AI technologies, such as GenAI and LLMs, presents challenges related to real-time updates and potential disruption of existing KMS frameworks. The literature has not fully addressed these issues, highlighting a gap in practical integration strategies.

### 5.2. Opportunities Resulting from Identified Challenges and New Directions for Research

The challenges identified in the bibliometric analysis and the literature also present several opportunities for the advancement of AI-powered KMS:

*Development of scalable and accessible AI models:* The complexity of deep learning can be addressed by creating modular and scalable AI models that are easier for organizations to implement and manage, reducing the need for specialized expertise. Also, the generation of synthetic data and artificial knowledge contributes directly to the extension of the knowledge space and enhances the power of possible solutions analysis and decision-making. It is an amplification of the potential intellectual capital of the organization with artificial knowledge. However, that amplification may create new knowledge vulnerabilities and knowledge risks (Bratianu et al., 2020).

*Establishing ethical guidelines for AI integration*: The ethical challenges surrounding AI offer an opportunity to create robust ethical frameworks that ensure AI systems are transparent, trustworthy, and reliable, which would facilitate greater adoption. That is in line with society's efforts to create new legislation able to guard a high standard of ethical working life (Baker, 2025; Floridi, 2023).

*AI-driven knowledge personalization*: The challenge of managing diverse knowledge types can be addressed through personalized AI systems that tailor knowledge delivery to specific user needs, improving decision-making and knowledge accessibility.

## 6. Conclusions

In conclusion, this study highlights the transformative potential of AI integration into Knowledge Management Systems (KMS), underscoring both the opportunities and challenges involved. While AI technologies, such as deep learning, GenAI, and transfer learning, provide powerful tools for automating and enhancing knowledge management processes, the implementation of these technologies is not without difficulty, and many barriers coming from inertial thinking, fear of losing control, and some new possible knowledge risks.

The study identifies critical challenges, including the complexity of deep learning models, the need for transparency and interpretability in AI systems, and ethical concerns surrounding AI outputs. These challenges, however, offer valuable opportunities for innovation, such as the development of scalable, transparent AI systems and the creation of ethical guidelines to govern their use in KMS. The generation of artificial knowledge opens new opportunities for enlarging the organizational knowledge spectrum, but induces new knowledge vulnerabilities and knowledge risks.

The findings of the bibliometric analysis, which reveal emerging trends in AI research, further emphasize the dynamic nature of this field and its implications for KMS. The rapid growth in AI research, coupled with the saturation of certain areas, suggests the need for more focused, context-specific studies to bridge the gap between theoretical advancements and practical applications. By addressing the challenges identified, organizations can better integrate AI into their KMS, fostering greater knowledge discovery, collaboration, and decision-making. Ultimately, the integration of AI into KMS offers substantial opportunities for improving organizational efficiency, driving innovation, and maintaining a competitive edge in an increasingly data-driven world.

This study yields several theoretical contributions to the extensive topic of AI integration in KMS. It reveals the power of the new AI tools like deep learning and large language models and shows how they generate artificial knowledge that should be integrated into the organizational KMS. Artificial knowledge does not replace human knowledge but it complements the actual KMS centred on human knowledge and human intelligence.

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**Major Alexandru IOAN**, is a PhD student and a seasoned professional with extensive experience in law enforcement, civil protection and disaster management, specializing in public safety, security, foreign affairs, and criminal investigations. With a strong foundation in management, economics, and legal sciences, he holds degrees from prestigious institutions and demonstrates a steadfast commitment to professional development. Alexandru excels in strategic planning, leadership, and problem-solving, leveraging his expertise to oversee complex operations. He actively enhances his skill set through certifications and training in law enforcement, cybersecurity, EU Civil Protection Mechanism and project management. Proficient in digital tools and languages, Alexandru combines technical aptitude with interpersonal communication to contribute effectively to multidisciplinary teams.