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BIG DATA-DRIVEN KNOWLEDGE MANAGEMENT: A BIBLIOMETRIC ANALYSIS OF RESEARCH TRENDS AND THEMATIC EVOLUTION (2010–2025)

Utilising Scopus, this study provides a comprehensive bibliometric analysis of Big Data-Driven Knowledge Management from 2010 to 2025. A total of 1,405 peer-reviewed articles were analysed via biblioshiny and VOSviewer to map research trends. Findings indicate a significant rise in scientific production after 2017, with China and the US emerging as dominant contributors. The analysis reveals a clear thematic transition from traditional information systems towards intelligent, data-driven frameworks involving AI, machine learning, and predictive decision-making. These trends highlight the critical role of big data analytics in the digital transformation of organisational knowledge. This research offers a structured foundation for future theoretical and empirical investigations within the field.

Keywords: Big Data-Driven Knowledge Management; Bibliometric Analysis; Big Data Analytics; Digital Transformation; Organisational Decision-making.

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Introduction. Over the past decade, the rapid expansion of digital technologies has fundamentally transformed the ways organisations generate, store, and exploit knowledge. The exponential growth of data generated through digital platforms, the Internet of Things (IoT), and cyber-physical systems has shifted the focus of information systems from simple digitisation towards advanced knowledge creation and intelligent decision-making. Scholars increasingly argue that contemporary information technologies no longer function merely as operational tools, but rather as core mechanisms for organisational learning and knowledge production (Tallon et al., 2013; Xiang, 2023).

In this context, Big Data has emerged as a critical resource that reshapes how organisations perceive, process, and leverage knowledge across strategic, operational, and competitive domains, particularly in knowledge-intensive functions such as digital marketing and customer relationship management.

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As organisations confront complex environments, Big Data Analytics (BDA) has become central to enhancing decision-making performance and organisational agility. Recent studies highlight that the value of Big Data lies in analytical capabilities that enable firms to transform raw data into actionable knowledge (Côrte-Real et al., 2017; Shamim et al., 2020). Empirical evidence demonstrates that BDA contributes significantly to decision-making quality, competitive and market intelligence, and performance outcomes (Mahmood & Mubarik, 2020; Ranjan & Foropon, 2021). Thus, the intersection between BDA and Knowledge Management (KM) is a vital scientific task for modern organisations.

Within the knowledge management literature, Big Data is recognised as a key enabler of knowledge creation, sharing, and application. Prior research emphasises that advanced analytics—particularly text analytics and data mining—play a crucial role in extracting meaningful knowledge from unstructured data (Liang & Liu, 2018). This synergy is vital for modern marketing technologies (MarTech), where "market-driven knowledge" allows firms to personalise customer experiences and optimise digital strategies. Empirical studies confirm that integrating BDA with KM processes amplifies organisational innovation, positioning KM as a mediating mechanism between analytics investments and strategic marketing outcomes (Ferraris et al., 2019). Furthermore, recent advances in artificial intelligence (AI) and machine learning have accelerated this transformation, enabling automated knowledge discovery and predictive decision support. Research on deep learning, knowledge distillation, and transfer learning demonstrates how intelligent algorithms capture and reuse knowledge with minimal human intervention (Gou et al., 2021; Zheng et al., 2017; Zhu et al., 2021). Simultaneously, studies on semantic technologies and knowledge graphs highlight the challenge of enabling machines to interpret meaning within heterogeneous data (Olan et al., 2022).These developments reinforce the strategic importance of integrating data-driven and knowledge-based approaches.

Despite the growing body of research on Big Data-driven Knowledge Management, the literature remains fragmented across disciplines such as computer science, information systems, and management. While numerous empirical studies examine specific applications or technologies, there is still a lack of a comprehensive, longitudinal understanding of how the field has evolved, which themes dominate its intellectual structure, and how research trajectories have shifted over time (Liang & Liu, 2018). To address this gap, the present study adopts a bibliometric approach to systematically map the evolution, thematic structure, and collaboration patterns of Big Data-Driven Knowledge Management research from 2010 to 2025. This study aims to provide a holistic, data-driven overview to advance theory and practice in both management and marketing under the Big Data paradigm.

Aim and Objectives. The primary objective of this study is to provide a structured foundation for future theoretical development and empirical investigation. The study is guided by the following research questions:

RQ1:How has Big Data-Driven Knowledge Management research evolved in terms of publication volume and citation impact between 2010 and 2025?

RQ2: Which journals, authors, institutions, and countries have been the most influential in shaping the development of Big Data-Driven Knowledge Management research?

RQ3: What are the dominant thematic areas and conceptual structures that characterize Big Data-Driven Knowledge Management research?

RQ4: How have the core research themes and keywords in Big Data-Driven Knowledge Management evolved over time?

RQ5: What patterns of international scientific collaboration emerge within Big Data-Driven Knowledge Management research, and which countries act as central collaboration

hubs?

Research Methodology. This study adopts a bibliometric approach to examine research trends and thematic evolution in Big Data-Driven Knowledge Management between 2010 and 2025. The Scopus database was selected due to its comprehensive coverage of peer-reviewed publications and its reliable citation indexing across interdisciplinary research domains.

Data extraction was conducted on February 05, 2026. The initial search was performed within the TITLE-ABS-KEY fields using a concept-driven keyword strategy combining terms related to Knowledge Management and Big Data.

The preliminary search, without applying any filters (time frame, document type, language, subject area, or publication stage), yielded 5,793 records.

To ensure methodological rigor and disciplinary relevance, a sequential screening process was applied. The following inclusion criteria were implemented:

- Publication period: 2010–2025.
- Document type: Articles only.
- Language: English.
- Publication stage: Final articles.
- Subject areas: Computer Science, Social Sciences, Decision Sciences, and Business, Management and Accounting.

After applying these filters, the dataset was reduced to 1,405 records, which were retained for the final bibliometric analysis.

Presentation and Discussion of the Main Results. The full identification and screening process is presented in the PRISMA flow diagram (Figure 1 – The Search Strategy Flow Diagram).

All bibliographic records were exported from Scopus in CSV format and subjected to data cleaning procedures to remove duplicates and harmonize author names, keywords, and source titles.(Zupic & Čater, 2015)

The bibliometric analysis was conducted using a dual-software approach to ensure analytical rigor and reproducibility:

- RStudio environment (Bibliometrix package) was used to perform descriptive statistics, performance analysis, citation analysis, collaboration metrics, and thematic evolution mapping. (Aria & Cuccurullo, 2017).
- VOSviewer (version 1.6.20) was employed to construct network visualizations, (Van Eck & Waltman, 2010a, 2014) including:
  - Co-authorship networks (collaboration patterns).
  - Co-citation networks (intellectual foundations).
  - Keyword co-occurrence networks (conceptual structure).

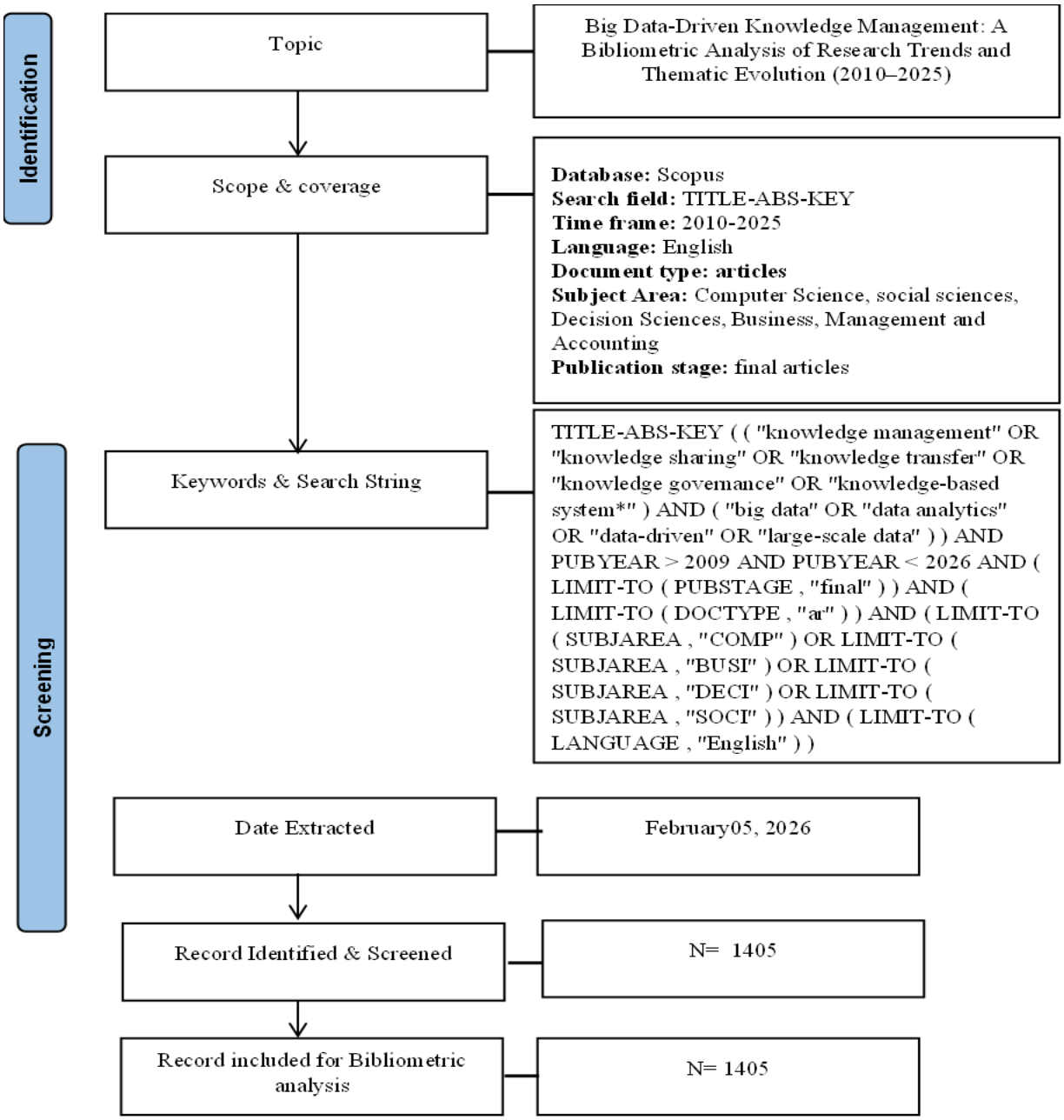

Figure 1 – The Search Strategy Flow Diagram

The analysis was structured into three main dimensions(Donthu et al., 2021):

1. Performance Analysis: Examining publication trends, leading authors, institutions, journals, countries, citation impact, and collaboration indicators.
2. Science Mapping: Identifying intellectual structures through co-citation and co-authorship networks.
3. Thematic Evolution: Analyzing keyword dynamics over time to trace the transition from traditional Knowledge Management systems toward data-driven and analytics-oriented approaches.(Cobo et al., 2011a).

This integrated analytical framework enables a longitudinal and structural understanding of how Big Data technologies have reshaped Knowledge Management research.

Despite its methodological rigor, this study has certain limitations. The exclusive

reliance on the Scopus database may exclude relevant publications indexed in other databases such as Web of Science or Dimensions.(Mongeon & Paul-Hus, 2016) Additionally, restricting the dataset to English-language articles may introduce linguistic bias.(Egger et al., 1997) The exclusion of conference papers and early-stage publications may also omit emerging but not yet fully consolidated research streams.(Bornmann & Daniel, 2008; Glänzel & Schoepflin, 1999) However, these criteria were intentionally applied to ensure data consistency, citation reliability, and comparability across studies. The structured filtering process, combined with transparent reporting and the inclusion of a PRISMA flow diagram, enhances the reproducibility and methodological robustness of the study (Moher et al., 2009; Page et al., 2021).

An essential preliminary step in bibliometric analysis involves examining the structural composition of the dataset, including publication volume, source diversity, authorship characteristics, and citation performance. These indicators provide critical insights into the maturity, growth trajectory, and collaborative nature of the research field.

As summarized in Table 1 – descriptive statistic, the dataset covers the period 2010–2025 and includes 1,405 documents published across 640 sources, encompassing journals, books, and other scholarly outlets. This wide source distribution reflects a highly diverse and interdisciplinary research landscape. The field demonstrates a robust annual growth rate of 23.41%, indicating sustained and accelerating scholarly interest over the past decade.

Table 1 – descriptive statistic

Description	Results
Timespan	2010:2025
Sources (Journals, Books, etc)	640
Documents	1405
Annual Growth Rate %	23,41
Document Average Age	5,08
Average citations per doc	31,93
References	12533
DOCUMENT CONTENTS	
Keywords Plus (ID)	8954
Author's Keywords (DE)	4609
AUTHORS	
Authors	3520
Co-Authors per Doc	7,85
International co-authorships %	32,74
DOCUMENT TYPES	
Article	1405

Source: Elaborated by author based on R Studio using biblioshiny.

The average document age of 5.08 years suggests that the literature is predominantly recent, underscoring the contemporary relevance of the field. Furthermore, an average of 31.93 citations per document, supported by 12,533 references, points to a strong academic impact and a well-established theoretical foundation.

From an authorship perspective, the corpus involves 3,520 contributing authors, with an average of 7.85 co-authors per document, revealing a pronounced tendency toward collaborative and team-based research. This high level of co-authorship suggests the presence of large-scale, interdisciplinary, and often internationally connected research efforts.

Overall, these descriptive indicators portray a research domain that is rapidly expanding, intellectually consolidated, and characterized by intensive scholarly collaboration, confirming its growing prominence within the broader academic landscape.

Figure 2 – Annual Trends in Scientific Production and Mean Citations per Year (2010–2025) The results reveal a marked and sustained growth in scientific production, particularly from 2017 onwards, with the number of published articles increasing sharply and reaching its peak in 2025.

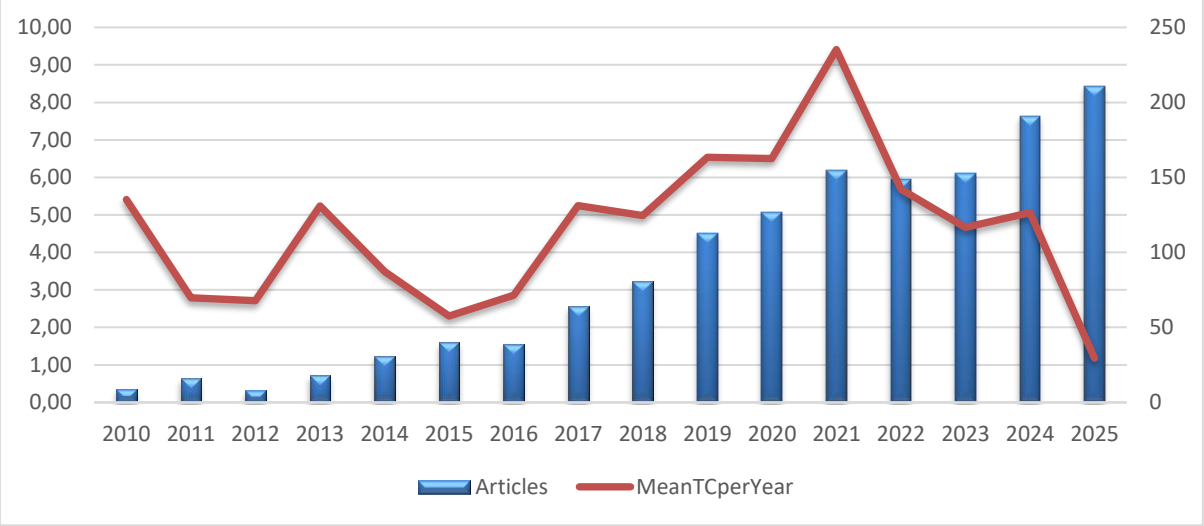

Figure 2 – Annual Trends in Scientific Production and Mean Citations per Year (2010–2025)
Source: Author's elaboration based on Scopus data using Excel.

This upward trajectory indicates a rapidly expanding and increasingly consolidated research field. In contrast, the mean citations per year exhibit greater volatility, with several fluctuations across the examined period. Citation impact rises notably between 2019 and 2021, culminating in a pronounced peak in 2021, which suggests the publication of particularly influential works during this phase. However, a subsequent decline in average citations is observed after 2021, especially in the most recent years, which can be attributed to citation lag effects, as newer publications have had less time to accumulate citations. Overall, the figure highlights a field characterized by accelerating research output and episodic peaks in scholarly impact, reflecting both its growing maturity and its dynamic, evolving nature.

To identify the most influential publication outlets in the field of Big Data-Driven Knowledge Management, Bradford's Law of Scattering was employed. This bibliometric principle classifies journals into three productivity zones, each contributing approximately the same number of publications (Table 2).

As illustrated in Figure 4 – Core Journals in Big Data-Driven Knowledge Management Based on Bradford's Law, the results reveal a clearly defined core zone (Zone 1) consisting of 23 journals, which together account for 468 articles, representing approximately 33% of the total dataset. The pronounced concentration of publications within this limited set of sources indicates that the field has developed a well-established core of preferred journals that serve as the primary channels for disseminating research.

The ranking of leading journals presented in Table 3 – Leading Core Journals in Big Data-Driven Knowledge Management further demonstrates the interdisciplinary character of the field. IEEE Access emerges as the most prolific source, followed by Knowledge-Based Systems and Expert Systems with Applications, highlighting the strong technological and engineering foundations of Big Data-driven research. At the same time, the position of the Journal of Knowledge Management within the core confirms that high-impact management journals are increasingly incorporating data-centric and prominent analytical perspectives into knowledge management scholarship (Figure 3).

Table 3 – Leading Core Journals in Big Data-Driven Knowledge Management

Sources	Rank	Freq	cumFreq
IEEE ACCESS	1	56	56
KNOWLEDGE-BASED SYSTEMS	2	32	88
EXPERT SYSTEMS WITH APPLICATIONS	3	26	114
JOURNAL OF KNOWLEDGE MANAGEMENT	4	23	137
SUSTAINABILITY (SWITZERLAND)	5	21	158
TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE	6	17	175
FUTURE GENERATION COMPUTER SYSTEMS	7	14	189
APPLIED SCIENCES (SWITZERLAND)	8	13	202

Source: Author's elaboration based on Scopus data using Biblioshiny.

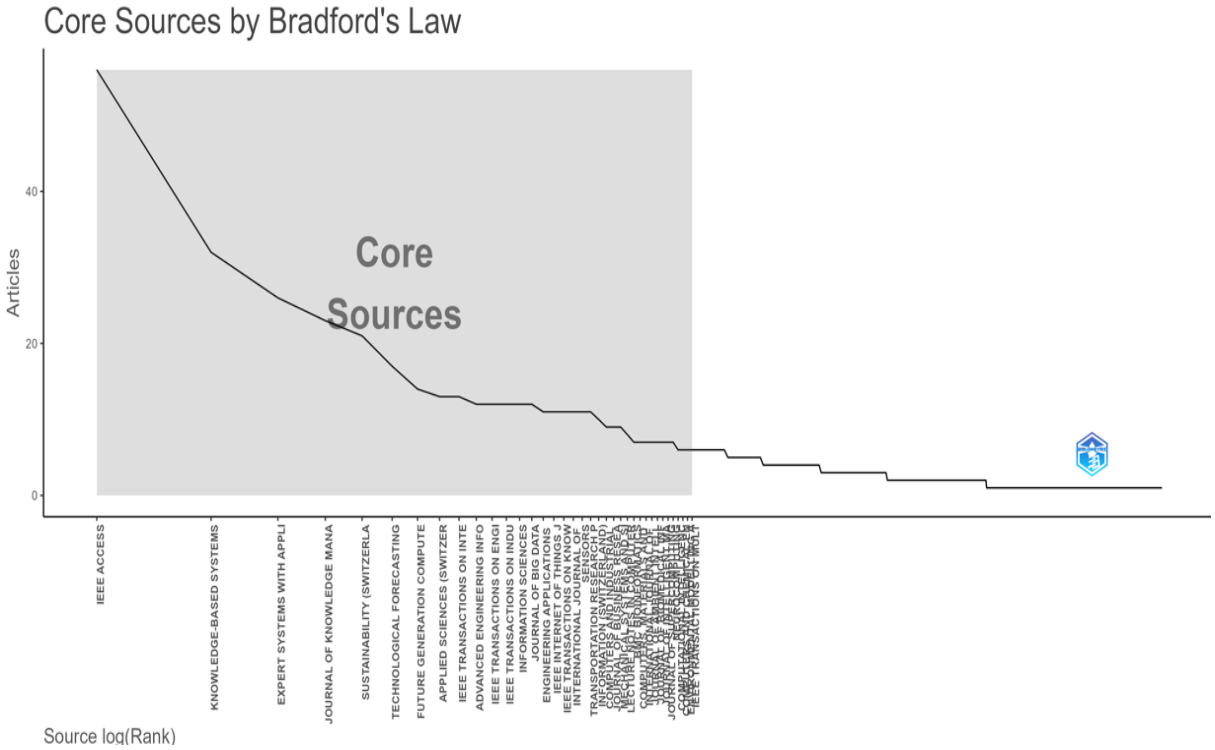

Figure 4 – Core Journals in Big Data-Driven Knowledge Management Based on Bradford's Law

*Source: Author's elaboration based o*n Scopus data using Biblioshiny.

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While Bradford's Law identifies the most productive publication outlets, citation-based indicators reveal a complementary perspective on scholarly impact (Table 4 – Top 10 Most Local Cited Sources (Impact Analysis)

Although IEEE Access leads in publication volume (NP = 56), the Journal of Knowledge Management emerges as the most influential source in terms of total citations (TC = 1,808) despite a substantially lower number of publications (NP = 23). This discrepancy suggests a higher average citation impact per article, indicating that seminal and theory-driven contributions in Big Data-driven Knowledge Management are frequently published in specialized knowledge management journals.

Table 4 – Top 10 Most Local Cited Sources (Impact Analysis)

Source	h_index	g_index	m_index	TC	NP	PY_start
IEEE ACCESS	20	37	2	1418	56	2017
JOURNAL OF KNOWLEDGE MANAGEMENT	20	23	1,818	1808	23	2016
TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE	15	17	1,5	1306	17	2017
EXPERT SYSTEMS WITH APPLICATIONS	14	26	1,167	753	26	2015
KNOWLEDGE-BASED SYSTEMS	14	26	1,077	722	32	2014
FUTURE GENERATION COMPUTER SYSTEMS	11	14	0,846	1039	14	2014
IEEE TRANSACTIONS ON INDUSTRIAL INFORMATICS	11	12	0,786	1337	12	2013
JOURNAL OF BIG DATA	10	12	0,833	502	12	2015
SUSTAINABILITY (SWITZERLAND)	10	21	1,111	464	21	2018
IEEE TRANSACTIONS ON ENGINEERING MANAGEMENT	9	12	1,125	271	12	2019

Source: Author's elaboration based on Scopus data using Biblioshiny.

A similar pattern is observed for Technological Forecasting and Social Change, where a relatively small number of articles (NP = 17) generated a remarkably high citation count (TC = 1,306), highlighting the strong influence of future-oriented and strategic perspectives in the field. Overall, the contrast between publication productivity (Bradford core journals) and citation impact underscores a division of scholarly roles: engineering-oriented journals dominate research output, while knowledge management and foresight-oriented journals contribute disproportionately to theoretical and conceptual impact.

The analysis of the most prolific authors indicates a highly distributed research landscape, with no single scholar exerting dominant influence over the field. As illustrated in Figure 5 – Most relevant authors, Wu, C. ranks first with eight publications, followed by Qiao, J. with six publications, while the remaining leading authors including Bettini, C., Chung, K., and Gupta, S. have each contributed four articles. This distribution, in which the most productive author accounts for less than 1% of the total publication corpus, suggests that Big Data-Driven Knowledge Management is characterized by a collaborative and rapidly expanding scholarly community, rather than being shaped by a small group of dominant researchers. Such a pattern is typical of emerging and interdisciplinary research domains, where

contributions are widely dispersed across authors and institutions.

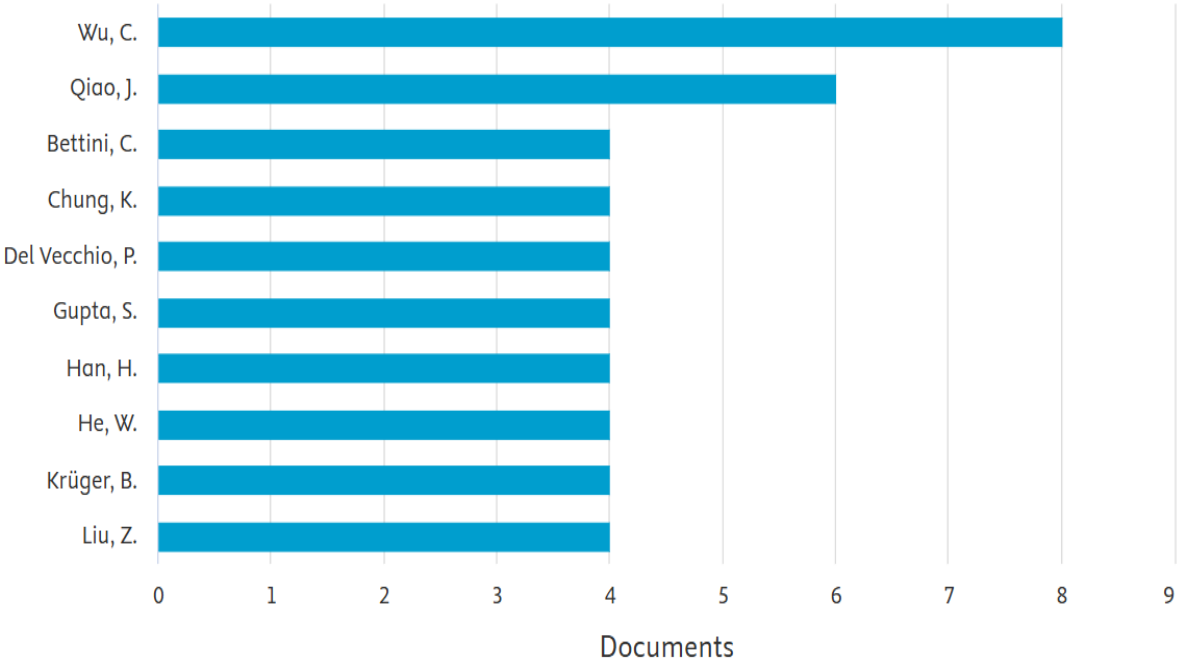

Figure 5 – Most relevant authors
Source: Elaborated by the author based on Scopus.

From a disciplinary perspective, the diversity of the leading authors reflects a clear convergence of technical and managerial research traditions. While several contributors are primarily associated with data science, analytics, and engineering-oriented research streams, the inclusion of established scholars in knowledge management and innovation research—such as Del Vecchio, P. is particularly noteworthy.

His presence among the most prolific authors signals an ongoing thematic integration of Big Data concepts into traditional Knowledge Management and organizational research, highlighting the field's evolution towards more data-driven strategic frameworks.

The analysis of scientific production by country reveals a clear concentration of research activity within a limited number of countries. As shown in Figure 6 – Global Distribution of Scientific Publications in Big Data-Driven Knowledge Management, China emerges as the leading contributor with 448 documents, followed by the United States (258), confirming the dominant role of these two countries in shaping research on Big Data-Driven Knowledge Management.

Within Europe, the United Kingdom (124) and Italy (91) stand out as the most productive contributors, while Germany (79) and France (67) also maintain a strong research presence.

Notably, the results highlight the growing participation of emerging economies. India (80) ranks among the top contributors, surpassing several major European countries, which reflects the increasing global diffusion of Big Data and knowledge management research beyond traditional research-intensive regions.

Overall, this distribution suggests that although the field remains concentrated in technologically advanced economies, it is simultaneously expanding across a broader range of

countries engaged in digital transformation and data-driven innovation.

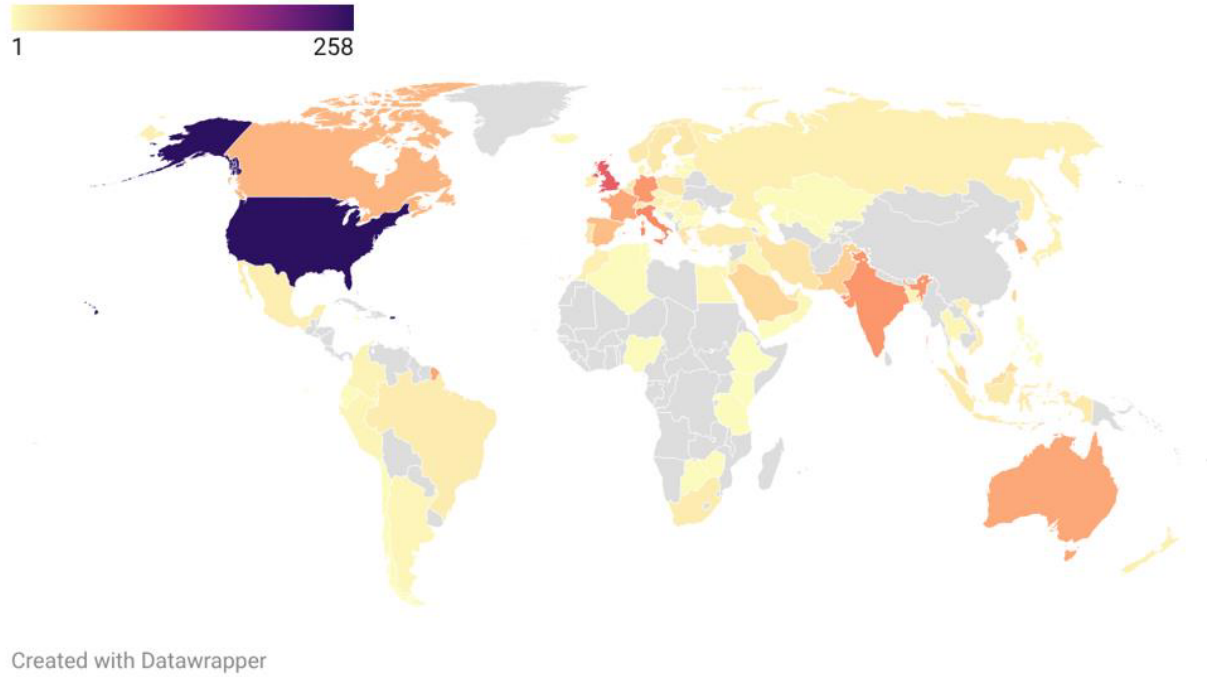

Figure 6 – Global Distribution of Scientific Publications in Big Data-Driven Knowledge Management
Source: Based on Scopus data (2010–2025); map created using Datawrapper.

As shown in Figure 7 – Top 10 Most Productive Institutions in Big Data-Driven Knowledge Management Research, the analysis of institutional productivity identifies the top 10 most productive institutions in Big Data-Driven Knowledge Management research, revealing a strong concentration of output within a limited number of organisations, predominantly based in China.

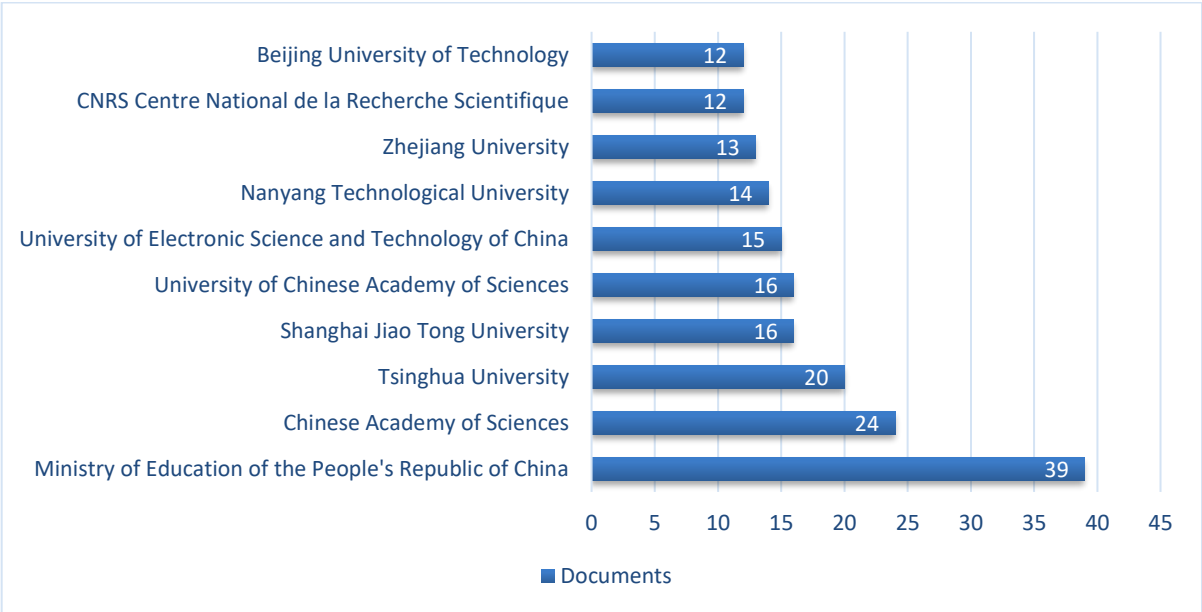

Figure 7 – Top 10 Most Productive Institutions in Big Data-Driven Knowledge Management Research

Source: Author's elaboration based on Scopus data using Excel.

The Ministry of Education of the People's Republic of China leads with 39 publications, followed by the Chinese Academy of Sciences (24) and Tsinghua University (20), highlighting the central role of nationally coordinated research systems and elite universities in shaping the field. Other leading contributors displayed in the figure-such as Shanghai Jiao Tong University, Zhejiang University, and Nanyang Technological University-further emphasise the prominence of research-intensive institutions with strong technological orientations.

Beyond the institutions visualised in Figure 6, the extended dataset reveals a broad and internationally dispersed group of contributing organisations. A substantial number of universities and research centres from Europe (e.g. CNRS, ETH Zürich, Delft University of Technology, KU Leuven, Imperial College London), North America (e.g. Stanford University, Carnegie Mellon University, University of Cambridge), and the Asia–Pacific region (e.g. National University of Singapore, Monash University, University of Technology Sydney) contribute moderate but consistent publication output. This wider distribution forms a pronounced long-tail structure, indicating that while research productivity is institutionally concentrated at the top, knowledge production is supported by a diverse global network of universities.

As presented in Table 5 – Most Globally Cited Documents in Big Data-Driven Knowledge Management, the analysis of the most globally cited documents reveals a pronounced concentration of scholarly influence within a small set of highly impactful publications. Gou (2021) ranks as the most influential work, with 3,146 total citations and an exceptional average of 524 citations per year, highlighting its pivotal role in contemporary shaping research, particularly through its comprehensive survey-based contribution.

Table 5 – Most Globally Cited Documents in Big Data-Driven Knowledge Management

N°	Paper		Total Citations	TC per Year
1	GOU, 2021	Knowledge Distillation: A Survey	3146	524,33
2	DAI, 2013	From model, signal to knowledge: A data-driven perspective of fault detection and diagnosis	703	50,21
3	PENG, 2010	Current status of machine prognostics in condition-based maintenance: A review	642	37,76
4	FERRARIS, 2019	Big data analytics capabilities and knowledge management: impact on firm performance	540	67,50
5	CHEN, 2020	A deep learning method for bearing fault diagnosis based on Cyclic Spectral Coherence and Convolutional Neural Networks	455	65,00
6	CÔRTE-REAL, 2017	Assessing business value of Big Data Analytics in European firms	424	42,40
7	IMRAN, 2014	Challenges in 5G: How to empower SON with big data for enabling 5G	390	30,00
8	BALI, 2020	Multifactorial Evolutionary Algorithm with Online Transfer Parameter Estimation: MFEA-II	387	55,29
9	VON STOSCH, 2014	Hybrid semi-parametric modeling in process systems engineering: Past, present and future	386	29,69
10	ZHOU, 2020	Knowledge-driven digital twin manufacturing cell towards intelligent manufacturing	373	53,29

Source: Author's elaboration based on Scopus data using Biblioshiny

Several foundational studies published earlier – such as Peng (2010) and Dai (2013) – continue to demonstrate substantial cumulative citation impact, reflecting their enduring relevance as methodological and conceptual cornerstones. Their sustained citation trajectories indicate long-term influence across multiple research streams.

More recent publications, including Ferraris (2019), Chen (2020), Bali (2020), and Zhou (2020), exhibit notably high citations per year, signaling rapid diffusion and strong alignment with current research priorities. In particular, the prominence of Ferraris (2019) and Côrte-Real (2017) underscores the growing integration of Big Data analytics and knowledge management perspectives, complementing the traditionally dominant engineering- and algorithm-oriented contributions observed in the field.

The ranking of keywords and their temporal evolution presented in Figure 8 – Temporal Evolution of Research Topics in Big Data-Driven Knowledge Management reveal the conceptual backbone and developmental trajectory of Big Data-Driven Knowledge Management research. Three keywords clearly dominate the field and form its intellectual core. Knowledge Management emerges as the central concept connecting all research streams, while Knowledge-Based Systems reflects a decisive shift from human-centred knowledge practices towards system-oriented and computational approaches. Big Data Analytics ranks among the most influential terms, empirically confirming that big data technologies constitute the primary driver of contemporary knowledge management research.

Beyond these core concepts, Figure 7 indicates a marked temporal intensification of artificial intelligence–related terms, including machine learning, deep learning, learning systems, and neural networks, particularly from 2019 onwards. This pattern signals a fundamental transformation of the field from traditional storage- and codification-oriented models towards automated knowledge discovery, in which intelligent algorithms extract and refine knowledge directly from large-scale datasets with minimal human intervention.

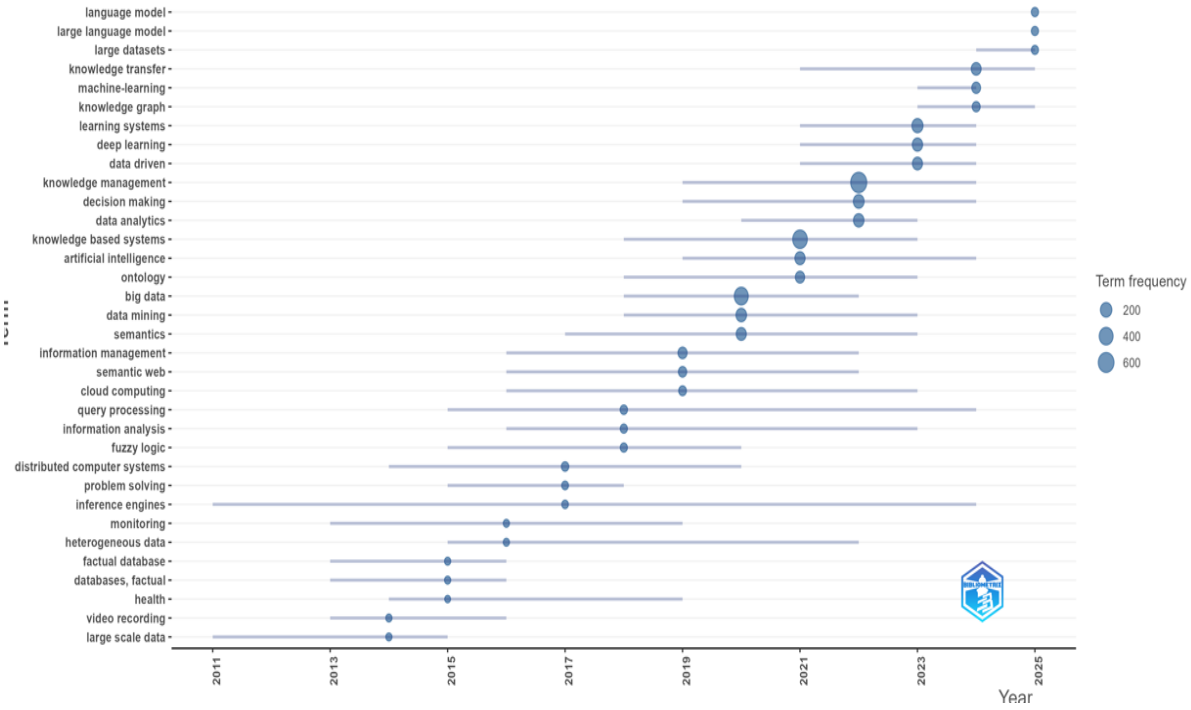

Figure 8 – Temporal Evolution of Research Topics in Big Data-Driven Knowledge Management

Source: Author's elaboration based on Scopus data using Biblioshiny.

The sustained prominence of decision making and forecasting highlights the strategic orientation of the field. Their increasing frequency over time reflects a shift towards predictive and proactive approaches, where Big Data-driven knowledge management aims to enhance organizational decision-making rather than merely support data accumulation.

Finally, the recurring presence of semantics, ontology, and semantic web across multiple periods underscores a persistent research challenge: enabling machines to interpret meaning within heterogeneous and unstructured data. The continuity of these terms over time suggests that semantic technologies remain a foundational component for structuring, contextualizing, and integrating big data into effective knowledge management systems.

Figure 8 presents the network visualisation of keyword co-occurrence, revealing four major, interrelated thematic clusters that collectively define the intellectual structure of Big Data-Driven Knowledge Management research.

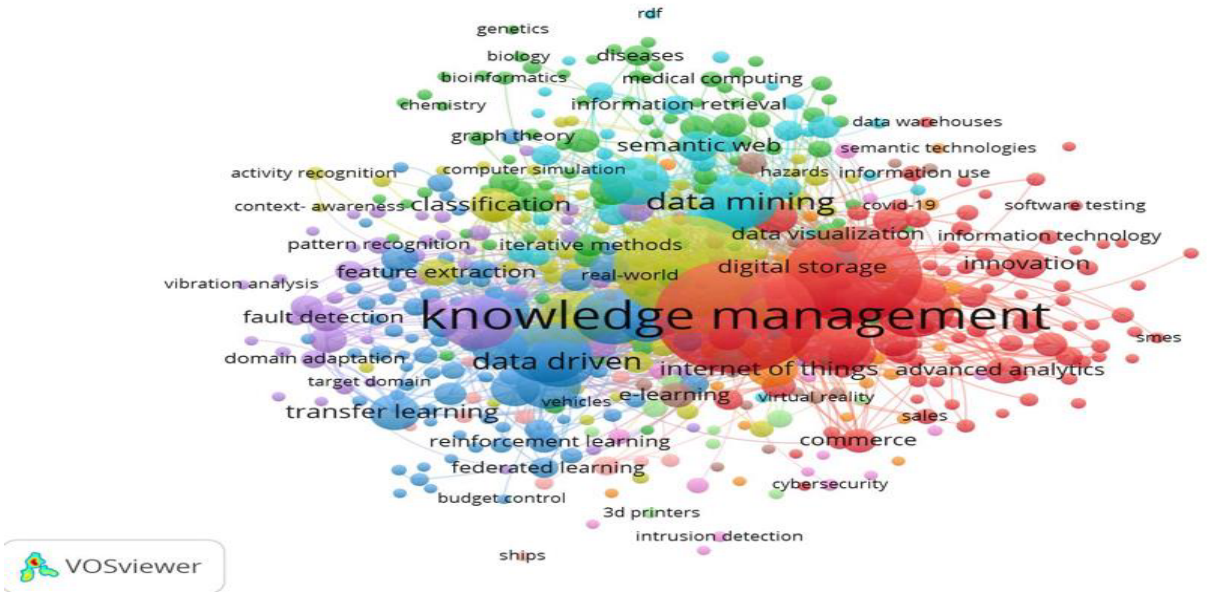

Figure 9 – most relevant key words

Source: Author's elaboration based on Scopus data using Vosviewer.

Cluster 1 (Red): Strategic Knowledge Infrastructure represents the organisational and infrastructural dimension of the field. It centres on knowledge management, digital storage, Internet of Things, innovation, and data visualisation, highlighting research efforts aimed at building robust technological infrastructures capable of transforming data into strategic and organisational value.

Cluster 2 (Blue): Advanced Artificial Intelligence and Machine Learning constitutes the technological frontier of the field. Keywords such as transfer learning, federated learning, reinforcement learning, and data-driven systems indicate a clear shift towards adaptive, decentralised, and intelligent knowledge systems that continuously learn across heterogeneous environments.

Cluster 3 (Green/Yellow): Data Processing and Mining Methodologies acts as the operational engine of the research domain. This cluster bridges raw data and actionable knowledge through data mining, classification, feature extraction, and pattern recognition

techniques, supporting the extraction of meaningful patterns from complex datasets.

Cluster 4 (Cyan): Semantic Web and Knowledge Structuring focuses on organising and contextualising knowledge using semantic web technologies, ontologies, graph-based models, and information retrieval. This stream addresses the critical challenge of interpreting heterogeneous and unstructured big data to enable effective knowledge integration and reuse.

The country-level collaboration network presented in Figure 10 – International Collaboration Network in Big Data-Driven Knowledge Management , reveals a highly interconnected global research structure characterized by a limited number of central hubs and several regionally clustered collaboration patterns. The United States occupies a central bridging position within the network, connecting multiple regional clusters and facilitating cross-regional scientific collaboration. This centrality highlights its role as a key integrator of global research efforts in Big Data-Driven Knowledge Management.

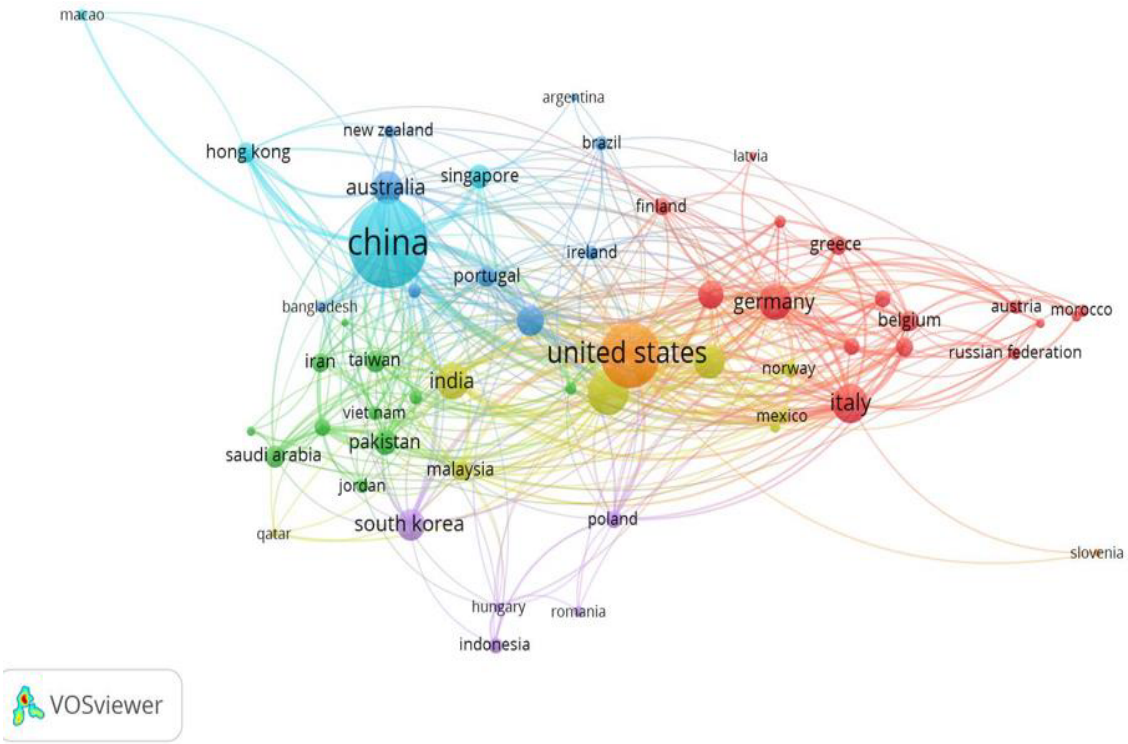

Figure 10 – International Collaboration Network in Big Data-Driven Knowledge Management

Source: *Author's elaboration based on Scopus data using Vosviewer*.

China emerges as another major hub, forming a dense collaboration cluster with countries in the Asia–Pacific region, including Australia, Singapore, and New Zealand. This pattern reflects strong regional cooperation alongside increasing engagement with international research partners beyond the region.

European countries form a tightly interconnected cluster, with Germany and Italy acting as prominent nodes linking Western, Central, and Southern Europe. The dense interconnections within this cluster indicate mature intra-European collaboration frameworks and sustained cross-border partnerships.

A further cluster highlights contributions from South and Southeast Asian countries, such as India, Pakistan, Malaysia, and South Korea, which are increasingly integrated into the global collaboration network, often through collaborative ties with major hubs in North

America and East Asia.

The findings of this study provide a comprehensive overview of the evolution and current structure of Big Data-Driven Knowledge Management research. The rapid growth in publication volume observed after 2017 reflects the increasing strategic importance of data-driven approaches in organizational decision-making and knowledge creation. This trend is consistent not only with recent studies on digital transformation, which identify the late 2010s as a critical phase marked by the widespread integration of big data analytics and artificial intelligence into management and organizational research (Donthu et al., 2021; Verhoef et al., 2021), but also with earlier conceptual work that anticipated the transition of knowledge management towards data-intensive paradigms (Cobo et al., 2011b). The sustained growth observed trajectory in this study indicates that Big Data-Driven Knowledge Management has progressed beyond an emerging phase toward a more consolidated and mature research domain.

The analysis of core journals reveals a clear division between publication productivity and scholarly impact. While engineering- and technology-oriented journals dominate in terms of research output, knowledge management and management-focused journals exhibit disproportionately high citation influence. This duality is consistent with both foundational bibliometric research, which shows that interdisciplinary fields tend to separate methodological experimentation from theoretical consolidation (Zupic & Čater, 2015), and more recent empirical evidence demonstrating that management journals play a central role in integrating analytics-driven insights into organizational theory (Côrte-Real et al., 2017; Ferraris et al., 2019). Together, these findings highlight the complementary relationship between technical innovation and managerial theory in shaping the intellectual foundations of Big Data-Driven Knowledge Management.

At the author level, the results indicate a highly distributed and collaborative research landscape, with no single scholar exerting dominant influence over the field. Such decentralization is a characteristic feature of interdisciplinary and fast-evolving research domains, as previously observed in science mapping studies (Aria & Cuccurullo, 2017) . More recent research on analytics-driven organization studies further emphasizes that collaboration across data science, information systems, and management disciplines is increasingly essential for addressing complex organizational challenges (Shi et al., 2022; Shrestha et al., 2019) . The high levels of co-authorship observed in this study therefore reflect both the technical complexity of Big Data research and the growing need for cross-disciplinary knowledge integration.

From a geographical perspective, the dominance of technologically advanced economies such as China and the United States reflects sustained national investments in digital infrastructure, artificial intelligence, and data-driven innovation. At the same time, the growing participation of emerging economies suggests a gradual diffusion of research capacity facilitated by international collaboration networks. This pattern is consistent with earlier studies on scientific collaboration, which highlight the role of global research networks in integrating peripheral countries into dominant knowledge systems (Van Eck & Waltman, 2010b), as well as with more recent work emphasizing the strategic importance of international collaboration for enhancing research visibility and impact in the digital era (Waltman et al., 2020).

The thematic evolution of the field reveals a clear transformation from traditional knowledge storage and information management systems toward intelligent, data-driven knowledge systems. Early conceptualisations of knowledge management focused primarily on codification and information repositories (Cobo et al., 2011b), whereas recent research

increasingly emphasizes machine learning, deep learning, and semantic technologies as enablers of automated knowledge discovery, predictive analytics, and decision support (Ferraris et al., 2019; Vial, 2019). This evolution supports the view that knowledge management has become a dynamic, analytics-enabled organizational capability embedded within broader digital transformation strategies rather than a static managerial function.

Conclusions and Directions for Further Research. This study analysed the development of Big Data-Driven Knowledge Management research during the period 2010–2025 using a bibliometric approach based on Scopus-indexed journal articles. By examining publication trends, core journals, influential authors, and thematic evolution, the study provides a comprehensive overview of the field's intellectual structure and growth trajectory. The results indicate a strong and sustained increase in research activity after 2017, alongside a clear division between technologically oriented journals that dominate publication volume and management-focussed journals that exert greater citation influence. This underscores the multidisciplinary nature of the field, where technical innovation directly informs managerial and marketing strategies.

Thematic analyses reveal a decisive shift from traditional knowledge management towards intelligent, data-driven systems centred on artificial intelligence, machine learning, and predictive decision-making. These findings suggest that Big Data-Driven Knowledge Management has become the technological backbone of digital transformation, enabling organisations to convert massive datasets into strategic market intelligence. Overall, the field is positioned as a mature yet evolving domain that is increasingly integrated into digital marketing technologies and automated organisational practices.

Prospects for further research include the need for more empirical investigations into how Big Data-driven KM impacts specific sectors, such as digital marketing performance and consumer behaviour analytics. Future studies should also explore the ethical implications of automated knowledge discovery and the challenges of implementing these intelligent systems in small and medium-sized enterprises (SMEs). Additionally, further research could examine the role of generative AI in reshaping the knowledge-sharing mechanisms within global digital collaboration networks.

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Управління знаннями на основі великих даних: бібліометричний аналіз тенденцій досліджень та тематичної еволюції (2010–2025).

Використовуючи базу даних Scopus*, у цьому дослідженні представлено комплексний бібліометричний аналіз управління знаннями на основі великих даних за період 2010–2025 років. Загалом було відібрано 1405 рецензованих статей, які проаналізовано за допомогою пакету* biblioshiny *та програми* VOSviewer*. Результати свідчать про значне зростання наукового виробництва після 2017 року, при цьому Китай і США є провідними країнами. Тематичний аналіз вказує на чіткий перехід від традиційних систем до інтелектуальних моделей на основі ШІ, машинного навчання та прогнозного прийняття рішень. Ці тенденції підкреслюють вирішальну роль аналітики великих даних у цифровій трансформації організаційних знань. Дослідження створює основу для подальших теоретичних та емпіричних розробок у цій галузі.*

Ключові слова: управління знаннями на основі великих даних; бібліометричний аналіз; аналітика великих даних; цифрова трансформація; прийняття організаційних рішень.

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