

Management information systems and organizational agility: a bibliometric analysis

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Abstract

Purpose – This paper aims to complex relationship between management information systems (MIS) and organizational agility, identifying gaps and key themes to guide future research in this domain.

Design/methodology/approach – A systematic extraction of 578 relevant articles from the Scopus database was conducted to provide an in-depth bibliometric analysis of the evolving role of MIS in enhancing organizational agility. Data analysis and visualization were performed using R Studio and VOSviewer.

Findings – The analysis highlights significant publication trends and identifies leading countries, institutions and journals in MIS and organizational agility research. Collaborative efforts from nations such as the USA, China and the UK, were prominent, focusing on information technology alignment, strategic agility and big data analytics. This study delineates distinct research clusters and future research questions, offering a clear trajectory for ongoing exploration in the field.

Originality/value – To the best of the authors' knowledge, this study is one of the first to provide a comprehensive bibliometric analysis of the intersection between MIS and organizational agility. It offers valuable insights into research trends and future directions while emphasizing the need for MIS deployment, thereby contributing to a comprehensive understanding of the field.

Keywords Management information systems (MIS), Organizational agility, Bibliometric analysis, Scopus database, VOSviewer, R studio

Paper type Literature review

Introduction

Globally, contemporary businesses rely substantially on management information systems (MIS) for efficient tactical planning. MIS is fundamentally concerned with the integration of technology, individuals and operations, which enables the accumulation, interpretation and dissemination of knowledge that is crucial to the execution of managerial decisions. In addition, MIS facilitates association and cooperation among multiple divisions within the organizational structure. Organizational agility and responsiveness are facilitated by MIS, which fosters the distribution of information and streamlines avenues for interaction, encouraging prompt willingness to evolve marketplace dynamism. MIS are critical frameworks designed to collect, process, store and disseminate data to support organizational decision-making and control (Ming *et al.*, 2020). As organizations grapple with the challenges of managing increasing data volumes, adapting to emerging threats and capitalizing on new opportunities, the role of MIS in facilitating agility and operational flexibility has become increasingly important (Amajuoyi *et al.*, 2024). The rapid progression of digitalization has intensified the need for agility, distinguishing agile organizations from their traditional counterparts (Walter, 2020; Motwani and Katatria, 2024). Agility, characterized by flexibility,



responsiveness and adaptability, is essential for thriving in a dynamic business environment (Holbeche, 2018). Agile organizations leverage these attributes to swiftly adapt to market changes and seize new opportunities (Baškarada and Koronios, 2018). Similarly, Barati *et al.* (2022) used a data envelopment analysis approach to assess organizational agility in banks in Isfahan, demonstrating how MIS can optimize bank branch efficiency.

MIS significantly impact organizational agility by enhancing flexibility and adaptability across various organizational components (Panda and Rath, 2018). Innovations in MIS – such as new concepts, products, methodologies and management practices – are essential for maintaining business excellence and aligning with organizational agility to drive improved performance (Kavukoğlu and İsci, 2023; Chen *et al.*, 2021). The 21st century presents organizations with unprecedented challenges due to rapid advancements in information systems (IS) and communication technologies (Saba *et al.*, 2023). Factors like globalization, market expansion, intense competition and the trend toward integration and collaboration necessitate that organizations develop clear strategies to anticipate trends, seize opportunities and manage risks (Lyu *et al.*, 2022). As reliance on technological capabilities grows, organizations must refine their information technology (IT) strategies to secure sustainable competitive advantages (Dwivedi *et al.*, 2021).

In today's technology-driven landscape, IT is crucial for enhancing competitiveness and sustainability (Khan *et al.*, 2022). Organizations must adopt strategic and innovative technological applications to excel. Continuous advancements in education, techniques and societal awareness require organizations to adapt their strategies dynamically to thrive in an ever-evolving environment (Grassini, 2023). As consumers become more informed and have more choices, competitive pressure has intensified (Farida and Setiawan, 2022). This technological revolution affects all fields, necessitating the evolution of business strategies to address emerging challenges (Shams *et al.*, 2021). Organizations must reevaluate their trade preferences, strategic perspectives and methodologies to remain competitive, moving beyond traditional methods reliant on personal experience and trial-and-error (Hussain *et al.*, 2023; Xu *et al.*, 2021).

MIS enhances organizational agility by managing data inputs, processes, outputs and feedback (Al-Darras and Tanova, 2022). Key MIS tools include transaction processing systems (TPS) for routine transactions, management support systems (MSS) for data organization and reporting and decision support systems (DSS) for decision-making support (Filip, 2020). Expert systems, powered by artificial intelligence (AI), provide valuable insights by emulating human expertise. These technologies streamline procedures, improve decision-making and enhance data management, thereby boosting operational efficiency (Bawack *et al.*, 2021). By offering real-time data and AI-driven analytics, MIS tools facilitate rapid responses to market changes and foster continuous improvement (Kraus *et al.*, 2021). MIS solutions significantly support strategic planning, enhance communication and provide timely information for informed decision-making, ultimately increasing organizational flexibility (Aljohani, 2023).

However, the implementation of MIS also requires careful consideration of legal and ethical issues. Compliance with regulations such as the general data protection regulation (GDPR) is essential for protecting employee data and privacy (Wolford, 2023; Tikkinen-Piri *et al.*, 2018). Agile organizations must adhere to employment laws, including those related to working hours, health and safety and anti-discrimination measures (Kroener *et al.*, 2019). Effective risk management within MIS frameworks helps mitigate legal concerns such as data misuse and breaches (IBM, 2021). Employee education and awareness programs are crucial for ensuring staff understand their responsibilities regarding data protection, thereby maintaining organizational adaptability and agility while addressing legal and ethical issues

(Holbeche, 2018). Despite significant research on MIS and organizational agility, a comprehensive review remains lacking (Tanushree *et al.*, 2023; Walter, 2020). This study addresses this gap by providing a thorough bibliometric analysis, offering valuable insights for both scholars and practitioners.

The following are the research questions of the study:

- RQ1. What are the publication trends in the domain of MIS and organizational agility?
- RQ2. Which authors and countries have made the most significant contributions to the field of MIS and organizational agility through their collaborative efforts?
- RQ3. How has the research community in the domain of MIS and organizational agility evolved?
- RQ4. What insights can be derived from recent research on the advancement of MIS and the predominant themes explored?

Literature review

IT plays a pivotal role in organizational success, influencing value creation, competitive advantage and surpassing competitors (Chen *et al.*, 2014; Lu and Ramamurthy, 2011). The technology–organization–environment (TOE) framework offers crucial insights into how digital investments impact IT innovation, guiding organizations in leveraging technology strategically to enhance innovation (Abdurrahman *et al.*, 2024). An innovative culture and a flexible organizational structure are essential for facilitating prompt decision-making and effectively implementing changes (Cepeda and Arias-Pérez, 2019). Innovativeness, which involves leveraging learning and external knowledge to generate new insights, is vital for organizations to adapt to external changes and meet evolving business demands. Thus, prioritizing IT staff training and development is critical (Salas *et al.*, 2012).

Recent research extends the resource-based view by integrating the dynamic capabilities perspective to explore the relationship between IT governance and organizational agility. Findings suggest that IT and innovation capabilities act as mediators between IT governance and organizational agility (Awwad *et al.*, 2022; Saeedikiya *et al.*, 2024). Organizational agility, which includes advanced capabilities, enables organizations to manage resources efficiently and create value in response to varying internal and external conditions (Overby *et al.*, 2006).

Organizational agility involves the ability to identify opportunities for innovation and swiftly mobilize necessary resources, knowledge and networks (Sambamurthy *et al.*, 2003). Enhancing organizational agility through IT and innovative practices remains a challenging and ongoing endeavor (Lowry and Wilson, 2016). Pavlou and Sawy (2010) highlight that improvisation – acting in an unplanned manner when reconfiguring IT resources – plays a significant role in contexts with new technological applications and can effectively support organizational innovation (Chetty *et al.*, 2024).

The TOE framework identifies three key elements affecting digital investment: IT competence, competitive pressure and organizational agility (Nwankpa and Merhout, 2020). MIS are critical for academic decision-making, as evidenced by descriptive content analyses of long-term classroom discussions and reviews of related studies (Gill and Bhattacharjee, 2009). For micro, small and medium enterprises (SMEs), the use of IT tools such as Google Business, social networking and IS significantly impacts their success (Gunawan and Hudiono, 2023). Structuration theory has been emphasized as crucial for the effective adoption of new technology systems, facilitating stakeholder acceptance (Quach *et al.*,

2022). Human resource information systems are integral for strategic decision-making across organizations of all sizes, with minimal differences in adoption rates between SMEs and large firms (Moussa and Arbi, 2020).

IT and administrative management enhance knowledge management techniques and e-government success by mediating their relationship to mitigate risks (AlMulhim, 2023). This has theoretical and practical implications related to Fayol's administrative management theory and socio-technical systems theory (Kuran, 2024). Efficient use of accounting information systems in the hydrocarbon industry is linked to better time management strategies, which enhance performance, efficiency, production and profitability (Magboul et al., 2024). In addition, increased use of MIS has been shown to positively impact the quality of health-care services (Janabi, 2023).

Methodology

Bibliometric approaches in systematic literature reviews focus on the quantitative analysis of publication content (Alsadi et al., 2024). This method, increasingly popular for evaluating scientific output, systematically organizes published works according to prominent journals, authors from various nations and other domain-specific criteria (Donthu et al., 2021). An essential aspect of bibliometric studies is citation analysis, which measures a study's academic impact by counting the number of times it is cited by other works (Kumar et al., 2019). Researchers use bibliometric analysis to comprehensively evaluate academic output, encompassing two primary components: performance analysis and science mapping (Jain et al., 2021). Performance analysis evaluates productivity and impact, whereas science mapping illustrates the structural and dynamic components of research.

Data selection

A specific and accurate approach to searching is crucial in bibliometric analysis (Donthu et al., 2021; Smirnova and Travieso-Morales, 2024). On May 25, 2024, we established search terms by reviewing the available literature on IS and organizational agility. First, the authors identify and acquire the prior relevant literature in the scanning phase. In this preparatory phase, the authors identify all the activities that are pertinent to the research questions of the current research to properly implement the suggested methodological design.

The following search string was formulated by the researchers: (("Information System" OR "Information Technology") AND ("Agility" OR "Agile*")) AND ("Organisation*" OR "Organization*"). This search string was applied to titles, abstracts and keywords to ensure the identification of significant articles (Table 1). For this study, the Scopus database was selected by the researchers due to its extensive coverage and comprehensiveness, which surpasses that of the Web of Science (Goel et al., 2024). The initial search in Scopus yielded 2,117 documents. To refine and enhance the relevance of our findings, the following inclusion and exclusion criteria were applied in the curating phase.

In the second phase of the review, the authors curate the extracted documents from the previous step. The authors selected the documents published between 1986 and 2023, reducing the total number of articles to 1,936. Next, researchers have focused on specific subject areas relevant to our study, including "computer science", "business, management, and accounting", "social science" and "engineering". This filtering step further refined the results. In addition, we confined our selection to research articles and review articles, excluding other types of publications such as conference papers, editorials and book chapters, which yielded 605 items. Finally, only English-language publications were included to ensure accessibility and comprehensibility. This final criterion reduced the

Table 1. Keywords search string

Search string (on May 25, 2024)	Total result
(TITLE-ABS-KEY (“Information system” OR “Information technology”) AND TITLE-ABS-KEY (“Agility” OR “Agile*”) AND TITLE-ABS-KEY (“Organisation*” OR “Organization*”)) AND PUBYEAR > 1985 AND PUBYEAR < 2024 AND (LIMIT-TO (SUBJAREA, “COMP”) OR LIMIT-TO (SUBJAREA, “BUSI”) OR LIMIT-TO (SUBJAREA, “ENGI”) OR LIMIT-TO (SUBJAREA, “SOCI”)) AND (LIMIT-TO (LANGUAGE, “English”)) AND (LIMIT-TO (DOCTYPE, “ar”) OR LIMIT-TO (DOCTYPE, “re”))	578 documents

Source: Authors’ own work

Competitiveness
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number of documents to 578. The final set of 578 articles constitutes the sample for our research. [Figure 1](#) illustrates the complete sorting process ([Figure 1](#)).

Bibliometric analysis tools

Bibliometric analysis in this study uses multiple tools to ensure comprehensive data processing and visualization ([Öztürk et al., 2024](#)). R Studio is applied for the crucial stages of data cleaning, processing and initial analysis, allowing for a robust foundation for the subsequent stages of the research ([Hair et al., 2021](#)). Following this, in the final phase of analysis, evaluation and reporting-related tasks were performed. VOSviewer is used by the authors to visualize the bibliometric networks, including networks related to coauthorship, citations and keyword co-occurrence ([Van Eck and Waltman, 2014](#)). This dual-tool approach ensures that the analysis is both thorough and visually interpretable, facilitating deeper insights into the relationships and trends within the data ([Lim et al., 2024](#)).

Results and discussion

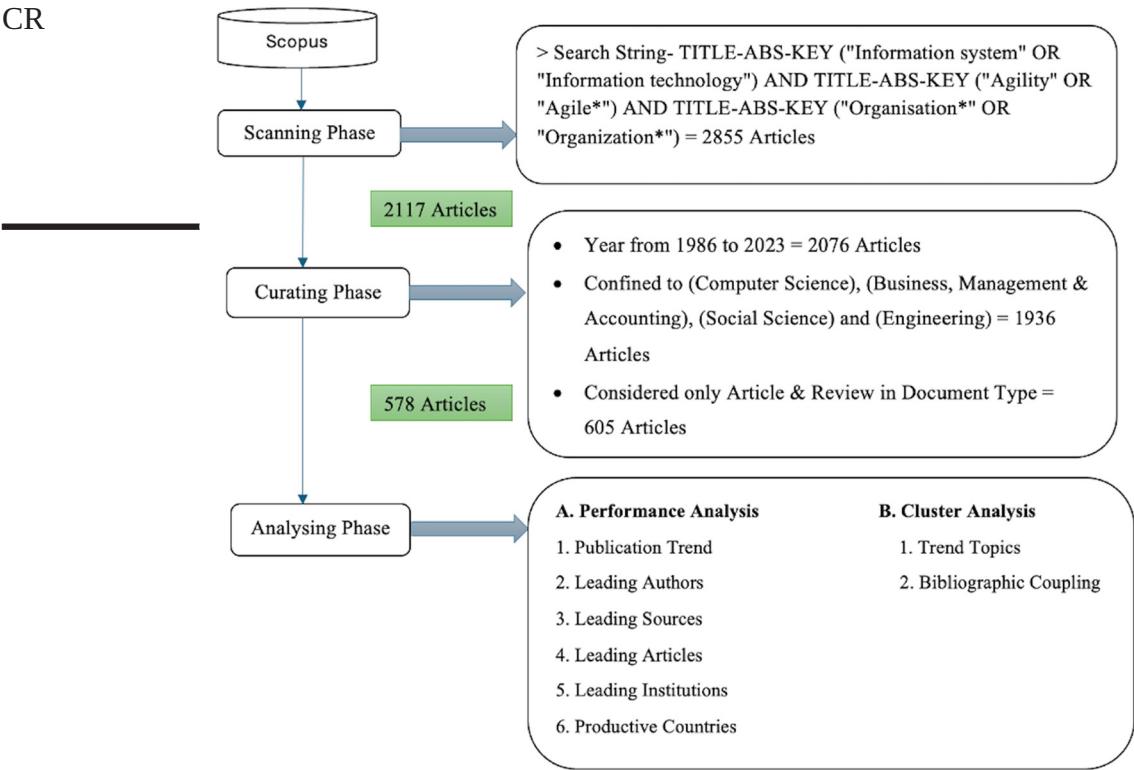
Data description

The bibliometric analysis, covering 1986–2023, reviewed 578 papers from 338 sources, reflecting a strong annual growth rate of 10.97% in publications ([Table 2](#)). The average document age is 8.99 years, with each work receiving an average of 49.27 citations, indicating significant impact. The analysis included 28,296 references, 2,207 “Keywords Plus” and 1,763 “Author’s Keywords”. A total of 1,472 authors contributed, with 24.91% of documents involving international co-authorship, highlighting global collaboration. The majority of publications were research articles (547), with 31 review articles, emphasizing the field’s growing importance and interest.

Performance analysis

Publication trend

As depicted in [Figure 2](#), the annual scientific production from 1986 to 2023 shows significant fluctuations. Minimal progress was noted between 1986 and 1991, with few publications. However, from the mid-1990s onward, research efforts gradually increased, peaking in 1998 with eight publications. The early 2000s maintained a steady output of seven to 16 papers annually. A significant rise began in 2005, culminating in a peak of 57 publications in 2021, reflecting intensified research activity. Though there was a slight decline in 2022 and 2023,



Source: Author’s own work
Figure 1. Eligibility criteria and selection of articles

the number of publications remained much higher than in earlier years, indicating sustained interest in the field.

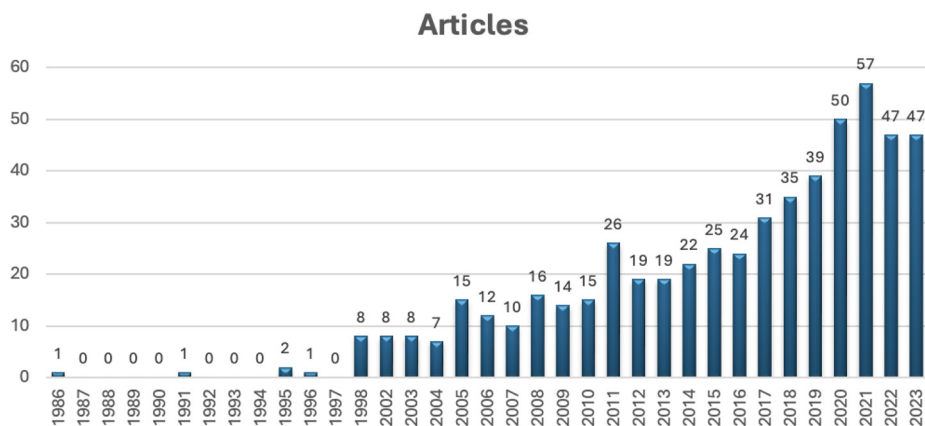
Top contributing and leading authors in the management information systems organization agility field. Table 3 highlights the top 10 authors who have made the most significant contributions and wielded the most influence in the field. Leading the list is Panda S., who holds the first rank with seven papers. Following closely is Rath S.K., with six articles. Both authors are positioned at the top due to their significant contributions and influence, each boasting an h-index of six. Gunasekaran A. and Sambamurthy V. are notable mentions, ranked fifth and ninth, respectively. Despite each having four articles, these authors stand out for their high citation counts. Gunasekaran A has a total of 1,043 citations, with both an h-index and a g-index of four. Similarly, Sambamurthy V., with an h-index and g-index both at four, has an impressive total citation count of 3,226. These metrics underscore the substantial impact these authors have had on the field, both in terms of the quantity of publications and the influence of their work as measured by citations.

Most productive and influential journals. Figure 3 illustrates the most productive and influential journals in the field of IS concerning organizational agility. The top 10 journals are

Table 2. Main information about data

Description	Results
Timespan	1986:2023
Sources (journals, books, etc.)	338
Documents	578
Annual growth rate %	10.97
Document average age	8.99
Average citations per doc	49.27
References	28,296
<i>Document contents</i>	
Keywords plus (ID)	2,207
Author's keywords (DE)	1,763
<i>Authors</i>	
Authors	1,472
Authors of single-authored docs	90
<i>Authors collaboration</i>	
Single-authored docs	95
Co-authors per doc	2.84
International co-authorships %	24.91
<i>Document types</i>	
Article	547
Review	31

Source: Authors' own work



Source: Author's own work

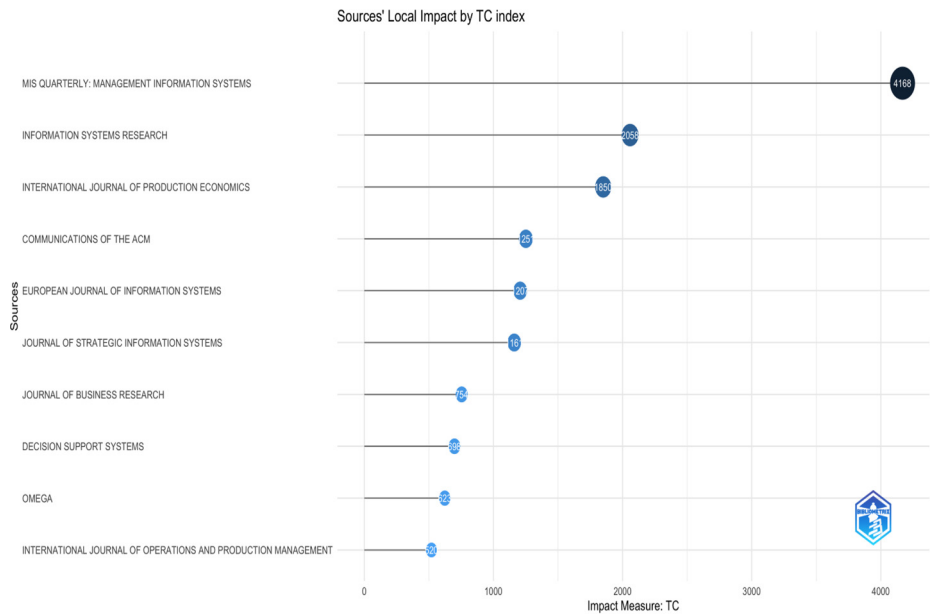
Figure 2. Annual scientific production in the MIS organization agility field

categorized into four groups based on publication volume: Group 1 includes the *European Journal of Information Systems* and the *Journal of Strategic Information Systems*; Group 2 features *Information Systems Research* and the *Journal of Enterprise Information Management*; Group 3 comprises *Information Systems Management* and the *International Journal of Project Management*; and Group 4 contains *Industrial Management and Data*

Table 3. Top 10 authors as per no. of the articles published and top 10 authors as per citation matrix

Top contributing authors (basis of articles published)				Leading authors (basis of citation matrix)			
Rank	Author	Documents	TC	Author	h_index	g_index	TC
1	Panda S	7	151	Panda S	6	7	151
2	Rath SK	6	138	Rath SK	6	6	138
3	Marnewick C	5	62	Marnewick C	5	5	62
4	Cram WA	4	136	Cram WA	4	4	136
5	Gunasekaran a	4	1043	Gunasekaran a	4	4	1,043
6	Luftman J	4	239	Luftman J	4	4	239
7	Pan SL	4	191	Pan SL	4	4	191
8	Rajanayagam D	4	57	Sambamurthy V	4	4	3,226
9	Sambamurthy V	4	3226	Sarker S	4	4	582
10	Sarker S	4	582	Ghobakhloo M	3	3	114

Source: Authors’ own work



Source: Author’s own work

Figure 3. Most influential journals

Systems, Information and Software Technology and the *Information Systems Journal*. Notably, journals in Group 1 alone account for approximately 40% of all published papers in this domain. Among these, *MIS Quarterly: Management Information Systems* is distinguished by its impressive citation count of 4,168. Furthermore, *Information Systems Research* is notable for its high citation impact, ranking among the top 10 highly cited journals with eight documents. These journals are not only prolific in terms of publication

volume but also exhibit substantial influence through their citation metrics, reflecting their pivotal role in advancing research on IS and organizational agility.

Leading articles in management information systems organization agility research. Among the pivotal articles in MIS organizational agility research, [Lu and Ramamurthy's \(2011\)](#) study, "Understanding the Link Between Information Technology Capability and Organizational Agility: An Empirical Examination", stands out with the highest citation count and the most extensive network of connections to other articles in the data set ([Table 4](#)). In addition, significant contributions include "Competing Perspectives on the Link Between Strategic Information Technology Alignment and Organizational Agility: Insights from a Mediation Model" by [Tallon and Pinsonneault \(2011\)](#) and "Agility from First Principles: Reconstructing the Concept of Agility in Information Systems Development" by [Conboy \(2009\)](#). These articles have profoundly impacted the literature on MIS and organizational agility, highlighting their critical role in advancing both local and global research in the field.

Leading institutions in management information systems organization agility research

The leading institution contributing to MIS organizational agility research is The Department of Information and Communication Engineering at Yeungnam University in Gyeongsan, South Korea, which stands out with two documents that have collectively garnered five citations. The department also boasts a total link strength of six, indicating significant collaboration and connectivity with other research entities. Following this, several institutions have each produced two publications as depicted in [Table 5](#). Among these, the Department of Information Systems at City University of Hong Kong, Terry College of Business at the University of Georgia and Case Western Reserve University in the USA have the highest citation counts, with 371, 271 and 159 citations, respectively. These institutions have made notable contributions to the field, reflecting their research impact and collaborative efforts within the MIS organizational agility domain.

Most productive countries. [Table 6](#) evaluates the academic output and influence of 10 leading countries in MIS organizational agility research using three key metrics. The USA dominates with 144 papers, 14,054 citations and a total link strength of 75, highlighting its role as a global leader. The most cited paper is by [Tallon and Pinsonneault \(2011\)](#), with 854 citations. China follows with 44 papers, 2,076 citations and a link strength of 43, indicating strong research productivity and international collaboration, notably with the USA and Hong Kong, with [Chen et al. \(2014\)](#) receiving 412 citations. The UK, with 52 documents, 2,931 citations, and a link strength of 38, also plays a significant role, with [Shams et al. \(2021\)](#) being a key collaborative work. Australia and France contribute actively with around 27 documents each, reflecting their participation in global research efforts. These findings illustrate the prominent roles of the USA, China and the UK as research hubs, driving global innovation and collaboration in MIS organizational agility ([Figure 4](#)).

Evolution of management information systems and organizational agility. [Figure 5](#) presents a trend chart depicting the evolution of research themes in the IS field. Initially, there was a strong emphasis on IS, which gradually shifted toward topics such as enterprise agility. By the late 2000s, there was a notable peak in research focusing on agility, IT and organizational agility. Recently, studies have increasingly explored themes such as digital transformation, IT governance and the impact on SMEs.

Content analysis. [Figure 6](#) uses bibliographic coupling to cluster related documents and identify emerging research themes and future directions ([Donthu et al., 2021](#)). Clusters were formed based on documents that were cited together at least 120 times, resulting in five distinct clusters comprising a total of 46 documents. A content analysis of these clusters

Table 4. Most cited articles

Authors	Article title	Journal title	Year	Local citations	Global citations
(Lu and Ramamurthy, 2011)	Understanding the Link Between Information Technology Capability and Organizational Agility: An Empirical Examination	MIS Quarterly Management Information System	2011	74	910
(Tallon and Pinsonneault, 2011)	Competing Perspectives on the Link Between Strategic Information Technology Alignment and Organizational Agility: Insights from a Mediation Model	MIS Quarterly Management Information system	2011	48	854
(Conboy, 2009)	Agility from First Principles: Reconstructing the Concept of Agility in Information Systems Development	Information Systems Research	2009	38	627
(van Oosterhout et al., 2006)	Change factors requiring agility and implications for IT	European Journal of Information Systems	2006	38	322
(Chakravarty et al., 2013)	Information Technology Competencies, Organizational Agility, and Firm Performance: Enabling and Facilitating Roles	Information Systems Research	2013	33	379
(Chen et al., 2014)	IT capability and organizational performance: the roles of business process agility and environmental factors	European Journal of Information Systems	2014	33	412
(Swafford et al., 2008)	Achieving supply chain agility through IT integration and flexibility	International Journal of Production Economics	2008	26	605
(Fink and Neumann, 2007)	Gaining Agility through IT Personnel Capabilities: The Mediating Role of IT Infrastructure Capabilities	Journal of the Association for Information Systems	2007	25	220
(Zhang and Sharifi, 2000)	A methodology for achieving agility in manufacturing organisations: An introduction	International Journal of Production Economics	1999	25	538
(Tallon et al., 2019)	Information technology and the search for organizational agility: A systematic review with future research possibilities	The Journal of Strategic Information Systems	2019	24	247
Source: Authors' own work					

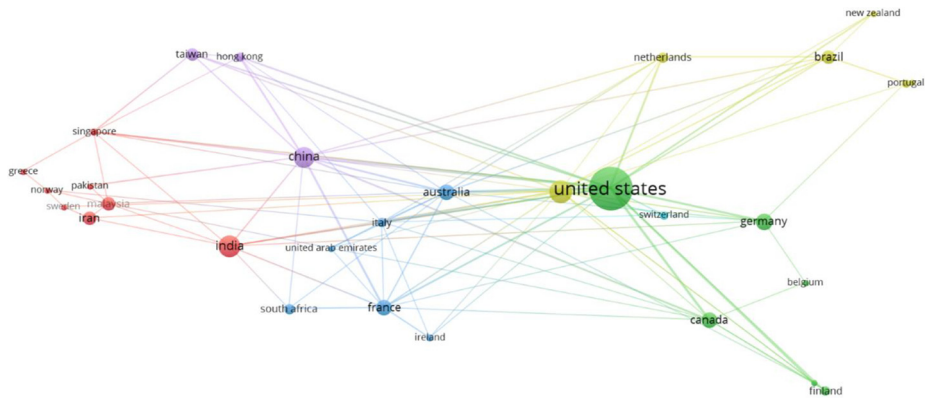
Table 5. Leading institutions in MIS organization agility research publication

Organization	Documents	Citations	Total link strength
Department of Information and Communication Engineering, Yeungnam University, Gyeongsan, South Korea	2	5	6
Bentley University, USA	2	32	5
Case Western Reserve University, USA	2	159	5
Department of Information Systems, City University of Hong Kong, Kowloon, Hong Kong	2	371	5
School of Business Administration, Guizhou University of Finance and Economics, Guiyang, China	2	41	5
Standards and Systems, Salzer Electronics Limited, Coimbatore, Tamil Nadu, India	2	27	5
Brigham Young University, USA	2	60	4
School of Management, Huazhong University of Science and Technology, Wuhan, China	2	85	4
Terry College of Business, University of Georgia, Athens, Ga 30602, USA	2	271	4
Curtin University, Perth, Australia	2	34	3

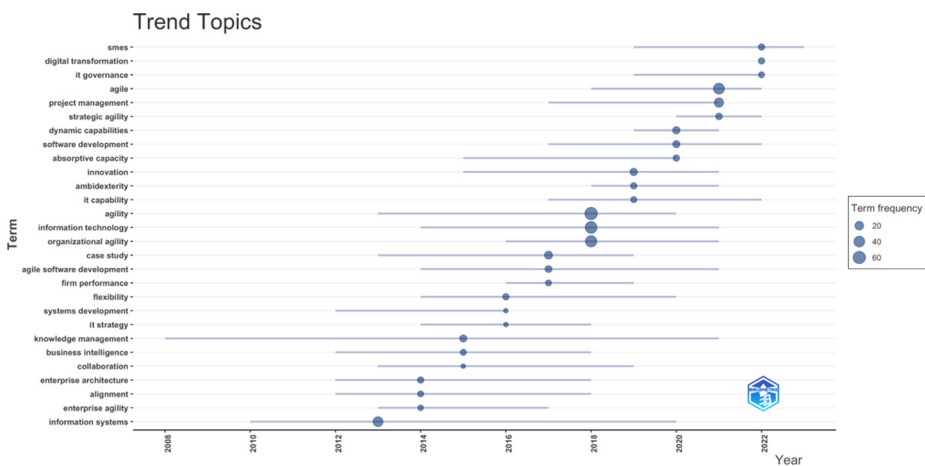
Source: Authors' own work**Table 6.** Leading countries in MIS organization agility research publication

Country	Documents	Citation	Total link strength
USA	144	14,054	75
China	44	2,076	43
UK	52	2,931	38
Australia	27	1,321	27
France	26	1,150	23
Canada	27	1,617	18
Italy	13	726	18
Brazil	23	714	13
Germany	31	924	13
India	47	941	13

Source: Authors' own work



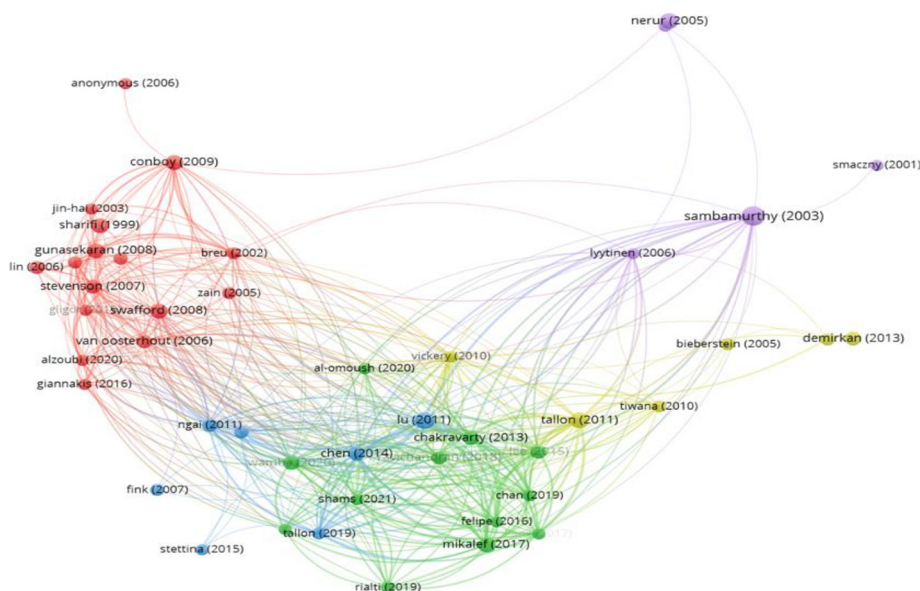
Source: Author’s own work
Figure 4. Country collaboration network in the MIS organization agility field



Source: Author’s own work
Figure 5. Trend topics in the current domain

revealed specific research themes and recommended directions for future research in the field of IS. These figures provide a comprehensive overview of the evolving research landscape within IS, highlighting both historical trends and current areas of scholarly interest and innovation.

Cluster 1: Information technology-driven agility in supply chain and workforce. Cluster 1 focuses on supply chain and workforce agility, highlighting the essential role of IT. It explores how information sharing strategy mediates supply chain performance in medium-sized manufacturing firms adopting agile practices (Abdallah et al., 2021; Alzoubi and



Source: Author's own work

Figure 6. Bibliographic coupling of articles

Yanamandra, 2020). The cluster also emphasizes the development of multi-agent-based supply chain systems enhanced with big data analytics for autonomous control (Hasan *et al.*, 2022). IT integration is crucial for operational flexibility and supply chain agility, directly impacting competitive performance (Cherian *et al.*, 2022). Traditionally, supply chain flexibility has been studied mainly within manufacturing, with less focus on service sectors (Jafari *et al.*, 2022). Leadership, organizational culture and reward systems are vital in leveraging IT to strengthen the relationship between people and technology (Gunasekaran *et al.*, 2008). Workforce agility depends on intelligence, collaboration, cultural alignment and robust MIS infrastructure (Eilers *et al.*, 2022). Rapid deployment of new MIS capabilities via IT platforms is critical for both workforce and organizational flexibility (Breu *et al.*, 2002). This cluster synthesizes research on the critical role of IT in advancing supply chain and workforce agility, offering valuable insights for both theory and practice in organizational agility.

Cluster 2: Strategic integration of advanced information systems for enhancing organizational agility. Cluster 2 (highlighted in green) investigates the role of advanced IS and proactive IT investment in fostering organizational agility. This cluster focuses on organizations that harness sophisticated digital platforms to improve their adaptability and responsiveness. Ravichandran (2018) identifies a positive relationship between organizational agility and innovation capacity, indicating that enhanced innovation capabilities enable more effective deployment of digital platforms to boost organizational agility (Guo *et al.*, 2023). The literature further suggests that during periods of crisis, organizations benefit from collaborative knowledge creation and proactive e-business practices, which contribute to

enhanced agility (Nguyen *et al.*, 2024). This cluster highlights the strategic importance of digital platforms, innovation capacity and proactive organizational practices in cultivating agility. It offers valuable insights into how leveraging advanced MIS and forward-looking IT strategies can facilitate organizational adaptation and resilience in dynamic business environments.

Cluster 3: Strategic enhancement of organizational agility through information technology capabilities. Cluster 3 (depicted in blue) explores the crucial role of IT capabilities in achieving organizational agility. Lu and Ramamurthy (2011) provide evidence that IT capabilities positively impact both operational adjustment and market capitalization agility. They argue that strategic investments aimed at enhancing IT capabilities, rather than merely increasing IT expenditures, are vital for improving organizational agility (Pashutan *et al.*, 2022). In addition, Sarker and Sarker (2009) use TECHCOM as a case study to investigate distributed information system development practices, showcasing TECHCOM's advanced approaches in IT development and deployment. This cluster emphasizes that organizational agility involves multiple dimensions, including resource management, process optimization and interlinkages, highlighting the complexity of evaluating and fostering agility. Through a combination of real-world case studies and theoretical frameworks, this cluster underscores the strategic importance of IT investments and capabilities in enhancing organizational agility. It provides valuable insights into how organizations can leverage IT to advance agility across various operational and strategic dimensions.

Cluster 4: Enhancing operational efficiency through service-oriented technologies. The focus of Cluster 4 (represented in yellow) is on how service-oriented technologies and management practices can drive operational efficiency. It examines the integration of applications such as business process workflows, computing resource virtualization and business semantics, with a particular focus on cloud-based service-oriented DSS. These systems prioritize service reliability and cost-effectiveness over traditional metrics like delivery time. Prior researchers have asserted that service-oriented DSSs offer economies of scale, scope and speed, reducing unit service costs through scalable operations and enhanced supply chain efficiency (He *et al.*, 2024). Such benefits lead to significant improvements in operational performance and cost savings. Tallon and Pinsonneault (2011) highlight the role of strategic alignment in mediating the relationship between organizational agility and performance, especially in volatile environments (Tallon *et al.*, 2019). In addition, flexibility in IT infrastructure is crucial for fostering agility alongside alignment, underlining its importance in adapting to dynamic business conditions (Awwad *et al.*, 2022). This cluster underscores the strategic deployment of service-oriented technologies and management practices to optimize efficiency, reduce costs and enhance organizational agility.

Cluster 5: Strategic evolution through capability-building, entrepreneurial action and co-evolutionary adaptation. The purple cluster in the figure elucidates three pivotal processes – capability-building, entrepreneurial action and co-evolutionary adaptation – that are crucial in driving organizational strategic evolution. This cluster explores how investments in IT and the development of IT capabilities intersect with digital innovations, agility and entrepreneurial alertness to influence competitive behaviors within firms (Radicic and Petković, 2023; Sambamurthy *et al.*, 2003). It highlights the dynamic interplay between IT capabilities and organizational agility, emphasizing the strategic importance of effectively building IT capabilities, undertaking entrepreneurial initiatives and adapting co-evolutionarily to both technological advancements and market fluctuations. By strategically leveraging IT investments, organizations can enhance their agility, allowing them to rapidly capitalize on market opportunities and mitigate threats. This adaptive approach facilitates a competitive edge in fast-evolving industries (Alghamdi and Agag, 2024).

Discussion

This study explores the evolving perspectives on organizational agility through a comprehensive bibliometric analysis, particularly focusing on the influence of MIS. By examining research trends from 1986 to 2023, the study offers a detailed understanding of how MIS technologies contribute to organizational agility and operational flexibility. The analysis highlights the critical roles of key MIS components, including DSS, TPS and MSS (Kamis *et al.*, 2008). These systems are instrumental in enhancing various aspects of organizational performance. DSS, for instance, is crucial for refining decision-making processes by offering advanced data management, complex analytical capabilities and improved collaboration, thereby significantly boosting organizational responsiveness (Verhoef *et al.*, 2021). TPS, in contrast, focuses on optimizing routine operations and ensuring data accuracy, contributing to organizational efficiency and data reliability (Sofyan *et al.*, 2022). MSS plays a strategic role by integrating support systems, processing vast data sets and driving productivity, which are all essential for strategic decision-making and enhancing overall organizational agility (Vasanthan and Suresh, 2021; Clark *et al.*, 2007). Collectively, these MIS components are indispensable in achieving strategic objectives and fostering a more agile organizational structure. Through a bibliometric analysis, the study identifies significant contributions, influential researchers, leading institutions and key collaborative networks within the IS domain. The analysis reveals a consistent increase in both the volume of research and the number of citations over the examined period, indicating a growing academic interest in the role of MIS in promoting organizational agility. Notably, the USA emerged as the most prolific contributor to IS research, whereas *MIS Quarterly: Management Information Systems* was identified as the most influential journal in the field.

Strategic, practical, legal and ethical implications

This study provides valuable insights for organizational leaders, policymakers and researchers, emphasizing the strategic importance of advanced MIS in enhancing organizational agility and performance. Practitioners are encouraged to align MIS tools with strategic objectives and legal frameworks, particularly in areas of data protection, intellectual property and cybersecurity. Effective MIS integration requires investments in employee training to ensure compliance and mitigate risks, such as data breaches and intellectual property infringements. Policymakers should develop comprehensive regulatory frameworks that support the ethical and lawful use of MIS, balancing technological advancement with legal standards, especially concerning data privacy and cross-border transfers. The global scope of this study highlights the need for international collaboration to address legal challenges and promote innovation while ensuring compliance.

For researchers, the study identifies emerging trends and legal challenges within IS, encouraging interdisciplinary research that incorporates legal perspectives. This approach will advance both theoretical and practical understanding of how MIS technologies can enhance organizational agility while adhering to legal constraints. The integration of MIS into organizations involves significant legal and ethical challenges. Compliance with regulations, such as GDPR and national laws, is crucial for safeguarding data and intellectual property. Organizations must proactively manage these challenges by establishing clear policies and ensuring employees understand their responsibilities regarding data privacy and cybersecurity. Legal training and clear guidelines will help navigate the complexities of MIS use, minimizing risks of legal liabilities, financial penalties and reputational damage.

From a societal perspective, the responsible and ethical use of MIS is critical in preventing data misuse, discrimination and privacy breaches, ultimately contributing to

Table 7. Future agendas of research

Cluster label	Current research	Future agendas
Cluster 1: Supply chain agility and workforce or enterprise agility	States the role, principles and effects of the system on supply chain agility (Giannakis and Louis, 2016; Alzoubi and Yanamandra, 2020; Conboy, 2009)	(1) How do cultural and geographical differences across various regions and countries influence the demand for agility and the level of business agility within organizations?
		(2) What are the impacts of agile IT architectures on the performance and agility of business networks when analyzed as units of analysis?
Cluster 2: Organizational or firm agility	SMEs achieve agility to respond to DDI and mechanism of achieving organizational adaptability (Chakravarty et al., 2013; Chan et al., 2018)	(1) How do (SMEs) achieve agility in response to (DDI)?
		(2) What is symbiotic relationship in mitigating organizational rigidity and innovative capability development in organization?
		(3) What in addition to boundary openness and organizational adaptability helps SMEs to manage the tension of organizational ambidexterity?
Cluster 3: Information technology and capabilities	The effect and influence of subsets in business process agility of IT capability, firm performance, dimensions and their interrelationships among (Chen et al., 2014; Sarker and Sarker, 2009; Fink and Neumann, 2007)	(1) What is the effect of IT systems on the business process/unit/department level in terms of supporting organizational agility?
		(2) How are firms influenced by their trading partners' IT capabilities and strategies and how do they influence their trading partners in return?
		(3) How can business units with differing IT requirements and needs as part of multi-business organizations find agility?

(continued)

Table 7. Continued

Cluster label	Current research	Future agendas
Cluster 4: Organizational IT architecture and service-oriented	Examine the service-oriented architectural guidelines and elucidate the potential advantages and obstacles in developing service-oriented (DSS) within a cloud environment. Furthermore, explore the concerns and observations pertaining to information technology systems, organizational frameworks, cultural norms and firm performance (Demirkan and Delen, 2013; Tallon and Pinsonneault, 2011; Bieberstein et al., 2005)	(1) How can organizations integrate customers' databases and business intelligence tools with analytics as a service environments?
		(2) What new models and new methods can be conceived to address the security risk of cloud data? How do we deliver an always on-stream processing pipeline for analytics as a service in both real time data and analytics?
		(3) B2B services to consumers - Opportunities or risks? And how can these be effectively analyzed?
Cluster 5: Information technology and agility	Examines the strategic role information technology and conducts an empirical investigation of a hybrid management framework that combines agile project management with the stage-gate model in projects driven by technology (Conforto and Amaral, 2016; Sambamurthy et al., 2003)	(1) Why would a team technology a hybrid framework, under different organisational and project conditions?
		(2) How can we leverage different concepts and approaches (like design thinking, systems engineering or lean development) in combination to meet the demands and complexities in specific industries?
Source: Authors' own work		

societal trust in technology. Addressing these legal and ethical challenges strengthens organizational integrity and long-term sustainability.

Future recommendations and limitations

Building on the insights of the current review, our study proposes several future research directions and questions based on the identified thematic clusters as depicted in Table 7. These include further exploration of IT capabilities and their impact on organizational agility, the role of digital transformation in enhancing business agility and strategies for integrating IT systems to achieve operational flexibility. In addition, examining the interplay between IT investments, innovation capacity and firm performance under dynamic market conditions presents a promising avenue for future research.

Despite its contributions, this study acknowledges certain limitations. First, our analysis relied exclusively on the Scopus database, potentially limiting the scope of our findings compared to studies that incorporate multiple databases. Future research could benefit from integrating data from additional scholarly databases to provide a more comprehensive view of the IS research landscape. Second, although we used total citations to identify influential authors, future studies could use advanced methodologies such as PageRank analysis or network metrics to further refine the assessment of author influence and collaboration patterns. Finally, this bibliometric study provides valuable insights into the evolution and current state of MIS research in organizational agility.

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