

Digital Transformation Management: Bibliometric Mapping of Topic Development and New Research Trends

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ABSTRACT

This study aims to map the development and intellectual structure of digital transformation management research through a bibliometric approach. Data were collected from the Scopus database using relevant keywords and refined based on document type, language, and subject relevance. A total of selected publications were analyzed using VOSviewer and Biblioshiny to examine publication trends, co-authorship networks, country collaboration, and keyword co-occurrence. The results reveal that digital transformation is the central theme connecting multiple research domains, including artificial intelligence, information management, innovation, and sustainable development. The cluster analysis indicates that the field is characterized by strong integration between technological, managerial, and sustainability perspectives. The overlay visualization shows a shift from general conceptual studies toward more applied and technology-driven topics such as blockchain, internet of things, and data-driven decision-making. Meanwhile, the density analysis highlights that while core topics are well-developed, emerging areas—particularly those related to human and organizational aspects—remain underexplored. This study contributes to the literature by providing a comprehensive overview of the evolution, structure, and emerging trends in digital transformation management research, offering valuable insights for future studies and practical implementation.

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1. INTRODUCTION

The rapid advancement of digital technologies has fundamentally reshaped the way organizations operate, compete, and create value in the contemporary business environment [1]. Technologies such as artificial intelligence, big data analytics, cloud

computing, the Internet of Things (IoT), and blockchain have not only transformed operational processes but have also redefined organizational strategies and business models. Within this context, digital transformation management has emerged as a critical area of scholarly and practical interest, focusing on

how organizations strategically manage the integration of digital technologies to achieve sustainable performance and competitive advantage. As firms across industries increasingly invest in digital initiatives, understanding how digital transformation is managed has become essential for both researchers and practitioners [2], [3].

Digital transformation management goes beyond mere technology adoption; it encompasses organizational change, leadership, culture, governance, and innovation processes. Unlike traditional IT implementation, digital transformation requires a holistic reconfiguration of organizational structures and capabilities. It involves aligning digital strategies with business objectives, fostering a culture of continuous innovation, and ensuring that technological investments generate tangible value [4], [5]. Consequently, scholars have examined digital transformation management from multiple perspectives, including strategic management, organizational behavior, information systems, and innovation studies. This multidisciplinary nature has contributed to the rapid expansion of the literature, resulting in a diverse yet fragmented body of knowledge [6].

Over the past decade, the volume of academic publications on digital transformation management has grown significantly, reflecting the increasing relevance of this topic in both developed and emerging economies. Organizations are under constant pressure to respond to digital disruption, prompting researchers to explore issues such as digital leadership, digital capabilities, business model innovation, and organizational agility. In addition, the COVID-19 pandemic has accelerated digital adoption across sectors, further intensifying scholarly attention on digital transformation. While this growing body of literature provides valuable insights, it also presents challenges in terms of synthesizing knowledge, identifying dominant

themes, and understanding how the field has evolved over time.

Given the rapid expansion and multidisciplinary nature of digital transformation management research, there is a need for a systematic and comprehensive approach to map the intellectual structure and development of this field. Traditional literature reviews, while useful, often rely on subjective selection criteria and may not capture the full breadth of the research landscape. In contrast, bibliometric analysis offers a quantitative and objective method for analyzing large volumes of scientific publications. By examining patterns of citations, co-authorship, and keyword co-occurrence, bibliometric techniques enable researchers to identify key contributors, influential publications, collaboration networks, and emerging research trends within a given field.

Bibliometric mapping is particularly valuable in uncovering the thematic structure and evolution of research topics. Through visualization tools such as VOSviewer researchers can generate network maps that illustrate relationships among keywords, authors, institutions, and countries. These visualizations help reveal clusters of related topics, indicating the core areas of research as well as peripheral and emerging themes. Furthermore, temporal analysis allows scholars to track the evolution of research topics over time, highlighting shifts in focus and identifying new directions that are gaining prominence. As such, bibliometric analysis serves as a powerful tool for synthesizing complex and rapidly growing bodies of literature.

Despite the increasing number of studies on digital transformation management, there remains a lack of comprehensive bibliometric analyses that systematically map its intellectual structure and thematic evolution. Existing studies often focus on specific aspects, such as digital innovation or information systems, without capturing the broader landscape of digital transformation

management. Moreover, there is limited understanding of how research themes have evolved, which topics are well-established, and which areas present opportunities for future investigation. Addressing this gap is crucial for advancing theoretical development and guiding empirical research in this field. Therefore, this study aims to conduct a bibliometric mapping of digital transformation management research to provide a comprehensive overview of its development and emerging trends.

2. METHODS

This study employs a bibliometric analysis approach to systematically map the development and intellectual structure of digital transformation management research. The data were collected from the Scopus

database, which is widely recognized for its comprehensive coverage of high-quality peer-reviewed publications. A structured search was conducted using relevant keywords such as “digital transformation,” “digital transformation management,” and related terms within titles, abstracts, and keywords, with a publication time span covering the most recent decade to capture current developments. The retrieved data were refined based on inclusion criteria, including document type (articles and reviews), language (English), and subject relevance. The final dataset was then exported in CSV format and analyzed using VOSviewer to generate visualizations and quantitative indicators.

3. RESULT AND DISCUSSION

3.1 Citation Analysis

Table 1. Top Cited Literature

Citations	Authors and year	Title	Source
4668	[7]	Understanding digital transformation: A review and a research agenda	Journal of Strategic Information Systems, 28(2), pp. 118–144
3257	[8]	“So what if ChatGPT wrote it?” Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy	International Journal of Information Management, 71, 102642
3195	[9]	Blockchain technology and its relationships to sustainable supply chain management	International Journal of Production Research, 57(7), pp. 2117–2135
2301	[10]	Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal	Long Range Planning, 52(3), pp. 326–349
1670	[11]	Literature review of Industry 4.0 and related technologies	Journal of Intelligent Manufacturing, 31(1), pp. 127–182
1540	[12]	The impact of digital technology and Industry 4.0 on the ripple effect and supply chain risk analytics	International Journal of Production Research, 57(3), pp. 829–846
1143	[13]	Digital transformation by SME entrepreneurs: A capability perspective	Information Systems Journal, 28(6), pp. 1129–1157
1050	[14]	Reflections on societal and business model transformation arising from digitization and big data analytics: A research agenda	Journal of Strategic Information Systems, 24(3), pp. 149–157

945	[15]	Roles of artificial intelligence in construction engineering and management: A critical review and future trends	Automation in Construction, 122, 103517
850	[16]	Impact of COVID-19 pandemic on information management research and practice	International Journal of Information Management, 55, 102211

Source: Scopus Database

3.2 Keyword Co-Occurrence Network Visualization

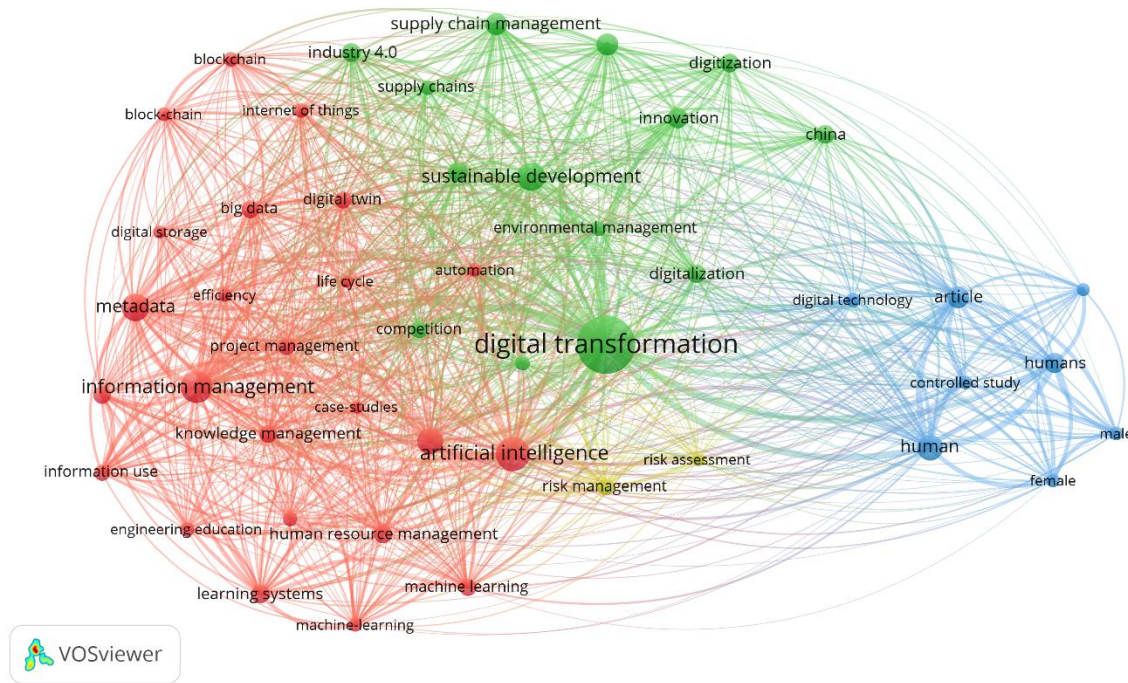


Figure 1. Network Visualization

Source: Data Analysis

Figure reveals the intellectual structure of digital transformation management research through keyword co-occurrence patterns. The map is composed of several clusters distinguished by colors, each representing a thematic grouping of closely related research topics. At the center of the network, the keyword “digital transformation” appears as the most dominant and highly connected node, indicating its central role as the core concept that integrates various research streams. Its strong links with multiple clusters suggest that digital transformation serves as a unifying

theme across technological, managerial, and sustainability-oriented discussions.

The green cluster primarily reflects the strategic and sustainability-oriented dimension of digital transformation. Key terms such as sustainable development, innovation, digitization, and supply chain management are strongly interconnected, indicating a research focus on how digital transformation supports long-term organizational and environmental sustainability. The presence of environmental management and China also suggests a growing interest in regional and policy-driven

Figure 3 highlights the concentration of research topics within the field of digital transformation management. The bright yellow area centered on “digital transformation” indicates that this keyword is the most frequently studied and highly interconnected concept, serving as the core of the research landscape. Surrounding this central node, areas with relatively high density—such as artificial intelligence, information management, and sustainable development—suggest that these topics are also well-developed and widely explored in the literature. Their proximity to the central theme reflects their strong conceptual and empirical linkage to digital transformation studies.

In contrast, areas with lower density (green to blue regions), such as blockchain, internet of things, digital twin, machine learning, and human resource management, represent less saturated but emerging or specialized research areas. These topics are still developing and offer significant opportunities for future research. Additionally, the presence of human-related terms indicates ongoing interdisciplinary engagement, although these are less central compared to technological and strategic themes.

Discussion

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This study contributes to the literature by providing a comprehensive mapping of the intellectual structure and development of digital transformation management research. The findings highlight the increasing convergence of technological, managerial, and sustainability perspectives, indicating that future research should adopt more integrative and interdisciplinary approaches. Scholars are encouraged to explore underdeveloped areas, particularly those related to human-centric and organizational dimensions, as well as the application of emerging technologies in different industrial contexts. By bridging these gaps, future studies can enhance both theoretical understanding and practical implementation of digital transformation management, ultimately supporting organizations in navigating the complexities of the digital era.

4. CONCLUSION

This bibliometric study demonstrates that digital transformation management has developed into a rapidly expanding and multidisciplinary field characterized by strong integration between technological innovation, managerial practices, and sustainability considerations. The findings reveal that digital transformation serves as the central theme connecting key research areas such as artificial intelligence, information management, and sustainable development, while also highlighting a clear evolution from general conceptual discussions toward more applied and technology-driven topics. Despite the maturity of several core themes, the study

identifies emerging and less-explored areas, particularly those related to human and

organizational dimensions, which offer valuable opportunities for future research.

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