

EXPLORING THE DYNAMICS OF DECENTRALIZED MANAGEMENT IN BUSINESS: A BIBLIOMETRIC ANALYSIS

NGHIÊN CỨU CÓ HỆ THỐNG VỀ CHIẾN LƯỢC QUẢN LÝ PHÂN QUYỀN TRONG KINH DOANH: PHƯƠNG PHÁP TRẮC LƯỢNG THU

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ABSTRACT

Decentralized management (DM) in business settings has gained significant traction in recent years as an effective approach to enhance flexibility, innovation, and operational speed, especially in today's fast-changing digital world. This study aims to provide insights into the current state of DM research and offer implications for future studies. Data was retrieved from 184 Web of Science-indexed documents published between 1992 and 2024. Key bibliometric indicators - such as publications, citations, countries, journals, and authors - were analyzed using RStudio's Biblioshiny package. Additionally, topic trend analysis was conducted using VOSviewer software to examine current research patterns in the field. The results indicate that DM research is progressing steadily, with the USA, China, and the UK leading in research output and collaborations. Prominent research themes include keywords like "firm performance", "business strategy", "coordination", "supply chain", and "blockchain". These findings highlight the need for further research to address coordination challenges in decentralized business models, particularly through the development and application of blockchain technologies.

Keywords: Decentralized management; Systematic reviews; Bibliometric analysis; Blockchain.

TÓM TẮT

Quản lý phi tập trung (DM) trong bối cảnh kinh doanh đã đạt được sự chú ý đáng kể trong những năm gần đây như một phương pháp tiếp cận hiệu quả để tăng cường tính linh hoạt, đổi mới và tốc độ hoạt động, đặc biệt là trong thế giới kỹ thuật số thay đổi nhanh chóng ngày nay. Nghiên cứu này nhằm mục đích cung cấp thông tin chi tiết về tình trạng nghiên cứu về chiến lược quản lý phi tập trung hiện tại và đề xuất hướng nghiên cứu trong tương lai. Dữ liệu được lấy từ 184 tài liệu được lập chỉ mục trên Web of Science được xuất bản từ năm 1992 đến năm 2024. Các chỉ số đo lường chính - chẳng hạn như ấn phẩm, trích dẫn, quốc gia, tạp chí và tác giả - đã được phân tích bằng gói Biblioshiny của RStudio. Ngoài ra, phân tích xu hướng chủ đề đã được thực hiện bằng phần mềm VOSviewer để kiểm tra các mô hình nghiên cứu hiện tại trong lĩnh vực này. Kết quả cho thấy nghiên cứu về quản lý phi tập trung đang tiến triển ổn định, trong đó Mỹ, Trung Quốc và Anh dẫn đầu về số lượng các nghiên cứu và hợp tác. Các chủ đề nghiên cứu nổi bật bao gồm các từ khóa như "thành quả công ty", "chiến lược kinh doanh", "phối hợp", "chuỗi cung ứng" và "công nghệ chuỗi khối". Những phát hiện này làm nổi bật nhu cầu nghiên cứu sâu hơn để giải quyết các thách thức về phối hợp trong các mô hình kinh doanh phi tập trung, đặc biệt là thông qua việc phát triển và ứng dụng các công nghệ chuỗi khối.

Từ khóa: Quản lý phi tập trung; Tổng quan hệ thống; Trắc lượng thu; Công nghệ chuỗi khối.

1. Introduction

Decentralized management has emerged as a crucial organizational strategy in contemporary business environments, enabling companies to enhance agility, foster

innovation, and respond more effectively to dynamic market conditions (Birkinshaw and Gibson, 2004). By distributing decision-making authorities across various levels of an organization, decentralized management

empowers employees, encourages accountability, and aligns organizational goals with local insights (Spreitzer, 1995). In an era marked by rapid technological advancements and the increasing complexity of global markets, decentralized management has gained recognition as a strategy to manage uncertainty while harnessing diverse expertise (McAfee and Brynjolfsson, 2017). The growing adoption of remote work models, as highlighted by Bloom et al. (2015), and decentralized technologies, such as blockchain (Tapscott and Tapscott, 2016), has further emphasized the necessity of understanding how decentralized management practices influence organizational performance and innovation.

Despite growing interest in decentralized management, there is a lack of systematic reviews that map its intellectual structure. Existing studies often focus on specific aspects of decentralization, such as its impact on innovation (Birkinshaw and Gibson, 2004) or employee satisfaction (Spreitzer, 1995), but fail to provide a holistic view of the research landscape. A bibliometric analysis can address this gap by identifying key themes, influential works, and emerging trends in the literature. This study aims to conduct a comprehensive bibliometric analysis of decentralized management in business to (1) map the evolution of the field, (2) identify key contributors and influential publications, (3) analyze patterns and emerging themes in research, and (4) highlight gaps and opportunities for future research.

The objective of this study is to quantitatively and visually explore the

evolution of research on decentralized management within the Business/Economics domain. By analyzing keyword co-occurrences, citation networks, and thematic clusters, the study aims to uncover prevailing research trends, emerging topics, and gaps in the literature. This will not only provide scholars with a clearer understanding of the field's development but also guide future research directions and policy implications in organizational design and strategic management.

By providing a systematic overview of the decentralized management literature, this study offers valuable insights for researchers examining neglected fields, practitioners implementing decentralized strategies, and policymakers fostering organizational resilience and innovation. The remainder of this paper is structured as follows. Section 2 outlines the methodology used for the bibliometric analysis. Section 3 presents the findings and discusses their implications, and Section 4 concludes with recommendations for future research.

2. Literature review

Decentralized management is increasingly popular across different sectors, yet its definition remains ambiguous and debated. In public administration, decentralization is often seen as a structural reform strategy designed to enhance responsiveness and efficiency. According to Altamimi et al. (2023), moderate decentralization - rather than complete autonomy or strict centralization - can more effectively facilitate organizational change, particularly in areas like technology adoption

and performance management. This view challenges traditional hierarchical models and underscores the importance of governance structures that are sensitive to context. In global governance studies, decentralization is associated with polycentricity and institutional fragmentation, where overlapping authorities create intricate decision-making networks (Kim, 2020).

In the fields of digital systems and economics, decentralization assumes a more technical and ideological aspect. Bodó et al. (2021) highlight that decentralized architectures, such as blockchain and distributed ledgers, are often motivated by the desire to alter power dynamics and enhance autonomy. However, they point out that decentralized systems can unexpectedly lead to centralizing effects depending on their implementation. Di Bona et al. (2023) support this perspective through a comprehensive bibliometric study, showing that decentralization has independently emerged across disciplines with little cross-disciplinary integration. Their research indicates that while governance was the focus of early discussions, blockchain technologies have recently transformed the discourse, introducing new models of distributed control and transparency.

This disciplinary divergence contributes to a fragmented scholarly landscape, where decentralized management is interpreted through varied theoretical lenses—ranging from institutional theory and network science to socio-technical systems. As Schneider (2003) noted, decentralization is “called for far more than it is theorized or consistently defined,” underscoring the conceptual ambiguity that persists across academic and policy domains. A bibliometric analysis centered on Business and Economics can help clarify these complexities by mapping thematic clusters, identifying key

contributions, and tracing the development of major concepts over time.

3. Methods

This review employed a bibliometric analysis, integrating multiple software tools. To give an overview of all data analysis steps, the process began with a Web of Science (WoS) database search, followed by screening for English-language research articles in business, economics published up to 2024. From this selected dataset, bibliometric details such as authors, years, sources, keywords, and countries were extracted to enable a systematic assessment of decentralized management research trends, using RStudio and VOSviewer software.

Here are specific details for each step. First, a document search was conducted on March 4th, 2025, using the Web of Science (WoS) database. As a leading source of academic literature, WoS provides comprehensive publication metadata, making it a reliable tool for research assessment. It is widely used for evaluating research trends and mapping existing literature in review studies. Second, several data screening criteria were applied: (1) publication type limited to research articles, (2) final publication year ranging from database inception to 2024, (3) language restricted to English, and (4) research areas classified within Business Economics. Third, bibliometric data were extracted, including author names, publication year, title/abstract, source, keywords, countries, and other relevant indicators. These data points aligned with the study’s aim of providing a comprehensive analysis of the current literature on DM research.

To assess the field’s development, we address four specific research questions:

- What are the trends in publication and citation of scientific literature in the field?

- Which countries, journals, and authors contribute most to research productivity and impact?
- What are the most cited articles in this research domain?
- Which keywords are prominently featured in DM research?

For analysis, the filtered dataset was exported in XLS and TXT formats. The XLS file was used in RStudio software to generate descriptive statistics on publication and citation patterns, author and journal productivity, and topic trends. Meanwhile, the TXT file was analyzed using VOSviewer software to visualize keyword co-occurrences.

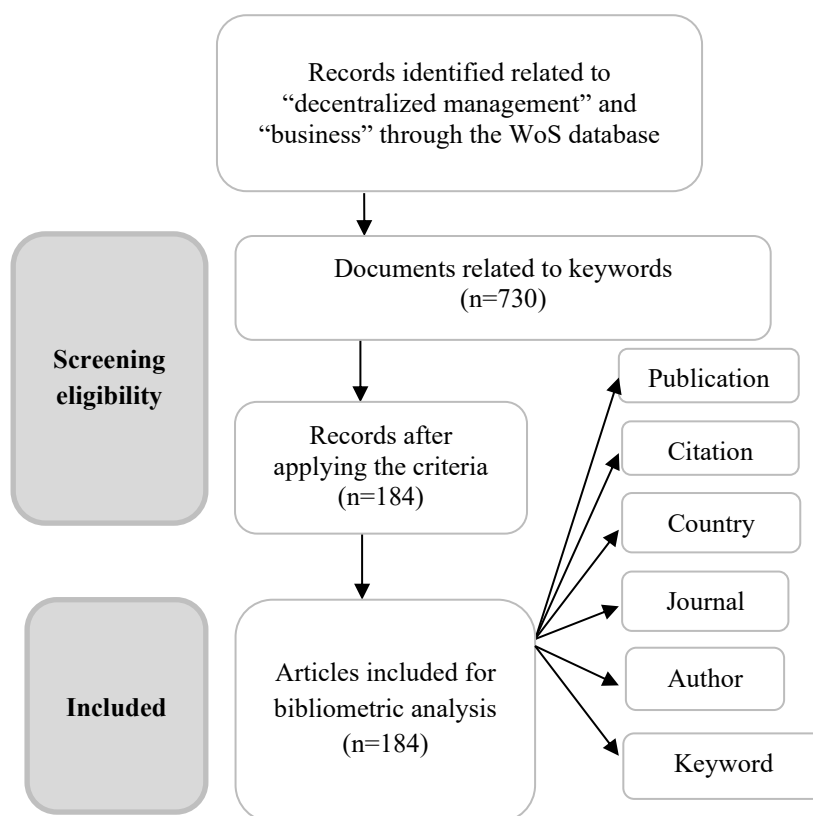


Figure 1. PRISMA Flow Diagram for the article selection process

RStudio and VOSviewer software were the two main analytical tools used in this study. Specifically, RStudio was applied to address the first three research questions, while VOSviewer was employed for the fourth. First, to draw conclusions from our literature data, Biblioshiny, built on the Bibliometrix package in R, uses a combination of descriptive statistics and network analysis to assess research productivity and collaboration (Mondal, 2025). It calculates metrics like publication count, total citations, and h-index to evaluate the impact of authors, journals, and

countries. For international collaboration, it analyzes co-authorship patterns using graph theory - mapping relationships between countries based on shared authorship - and visualizes these networks to highlight key contributors and partnerships. It also applies bibliometric laws like Lotka's (author productivity) and Bradford's (journal relevance) to identify influential entities in a research field. Second, VOSviewer uses the VOS (Visualization of Similarities) mapping technique to a keyword co-occurrence matrix from bibliographic data - typically author

keywords or terms from titles and abstracts - and then positions keywords in a two-dimensional space based on their frequency and strength of association (van Eck and Waltman, 2009). Keywords that frequently co-occur are placed closer together on the map, forming clusters that represent distinct research themes. To track the evolution of these themes over time, VOSviewer uses overlay visualization, where keywords are color-coded by the average publication year of the documents in which they appear. This allows researchers to identify emerging topics and shifts in scholarly focus, making it a powerful tool for exploring both the most commonly used terms and the dynamic development of a research field.

The data retrieval process is summarized in Figure 1, following the PRISMA (Preferred

Reporting Items for Systematic Reviews and Meta-Analyses) framework.

4. Methods

RQ1: What are the trends in publication and citation of scientific literature in the field?

Analyzing publication growth offers a quantitative snapshot of the research progress in decentralized management. Figure 2 below presents the temporal changes in total publications and citations of DM research. The steady increase in both metrics reflects a growing interest in this field within the scientific community. This upward trend in the volume and impact of DM research suggests that decentralized management is receiving attention as a viable and innovative approach to modern business strategies.

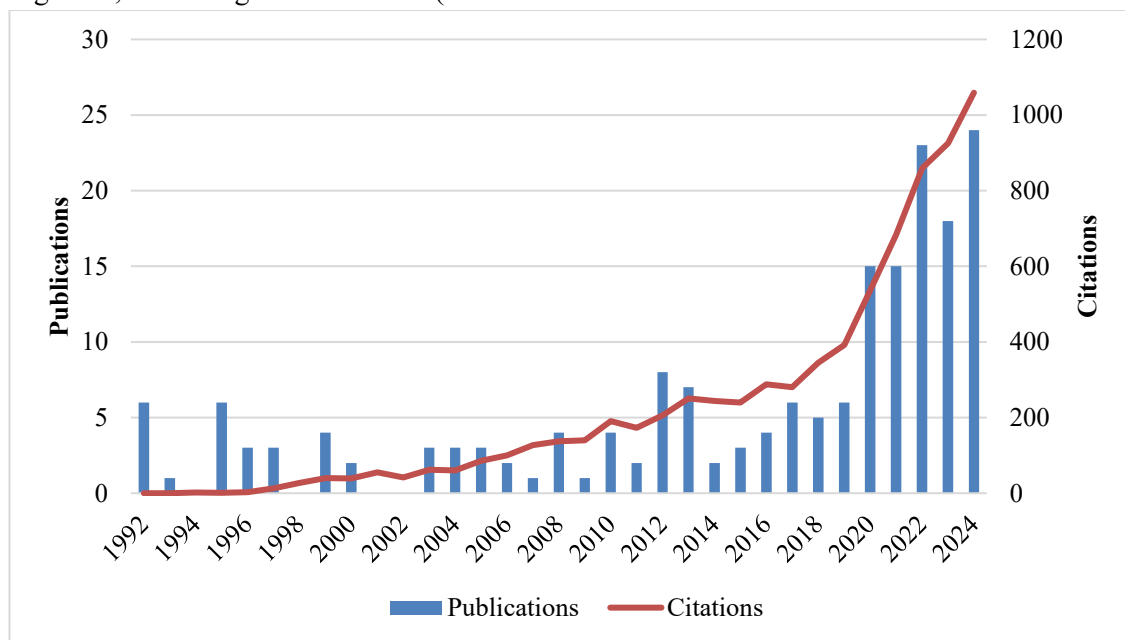


Figure 2. Publication growth of selected documents

RQ2: Which countries, journals, and authors contribute most to research productivity and impact?

Figure 3 illustrates the top 20 countries by research output on decentralized management in business settings. Rankings are based on the corresponding author's

affiliation and include both single-country publications (SCP) and multiple-country publications (MCP). The USA topped the list with 39 articles, followed by China (19), the UK (18), Germany (13), and India (9). The remaining top 10 countries contributed between 4 and 6 publications.

A majority of research stems from SCPs, indicating that most DM studies are conducted within national boundaries. For instance, the USA and China produced 29 and 14 SCPs, compared to just 10 and 5 MCPs, respectively. Notably, Portugal is the only country in the top

20 where MCPs exceed SCPs, suggesting stronger international collaboration. Additionally, countries such as Brazil, South Korea, Ukraine, Greece, and Japan exclusively contributed through SCPs, indicating a domestic focus in their DM research efforts.

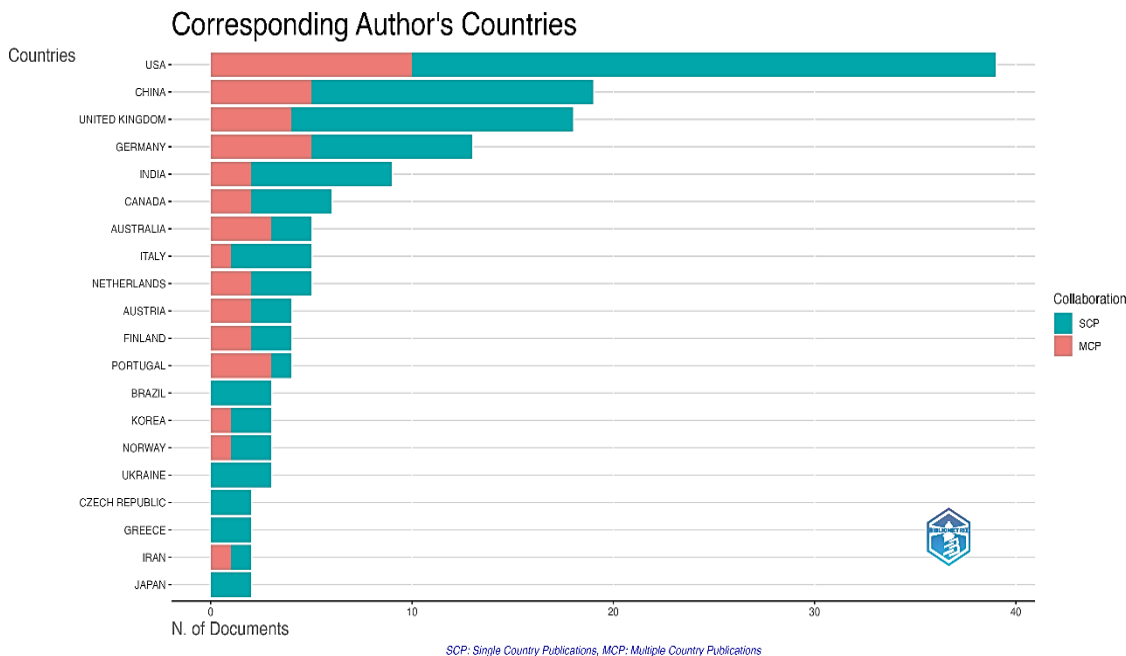


Figure 3. Countries with the highest publication productivity

Table 1 presents the most influential countries in the field of decentralized management within business contexts, based on total citation counts. The USA, India, the

UK, Germany, and China rank as the top five most cited countries, with the USA leading significantly with 3,069 citations.

Table 1. Top 10 countries that contributed to publications and citations

Country	Articles	%/total articles	SCP	MCP	Country	Citations
USA	39	21.20	29	10	USA	3,069
CHINA	19	10.33	14	5	INDIA	1,151
UNITED KINGDOM	18	9.78	14	4	UNITED KINGDOM	639
GERMANY	13	7.07	8	5	GERMANY	564
INDIA	9	4.89	7	2	CHINA	345
CANADA	6	3.26	4	2	CZECH REPUBLIC	288
AUSTRALIA	5	2.72	2	3	SWEDEN	208
ITALY	5	2.72	4	1	GREECE	195
NETHERLANDS	5	2.72	3	2	NETHERLANDS	144
AUSTRIA	4	2.17	2	2	AUSTRALIA	140

Interestingly, while these countries also ranked highest in publication output, there are slight variations in their citation rankings. For example, India, with 9 DM-related articles and a 5th place position in publication count, ranks 2nd in total citations with 1,151, highlighting the high impact of its contributions. Additionally, several countries that were not among the top 10 in terms of publication volume - such as the Czech Republic, Sweden, Greece, the Netherlands, and Australia - appear prominently in citation rankings. This suggests that despite fewer publications, research from these countries has received considerable scholarly attention and impact.

Figure 4 illustrates global research collaboration patterns in the field of decentralized management, reflecting international co-authorship links. Countries shaded in lighter colors represent those with lower publication output. Consistent with the findings in Table 1 and Figure 3, the strongest collaborative ties are observed among the leading countries in terms of publication volume - most notably the USA, China, and the UK. Furthermore, the map highlights robust research cooperation among English-speaking nations. Notable collaboration clusters include USA-UK, USA-Australia, and UK-Australia, suggesting a strong transnational network within these regions.

Country Collaboration Map

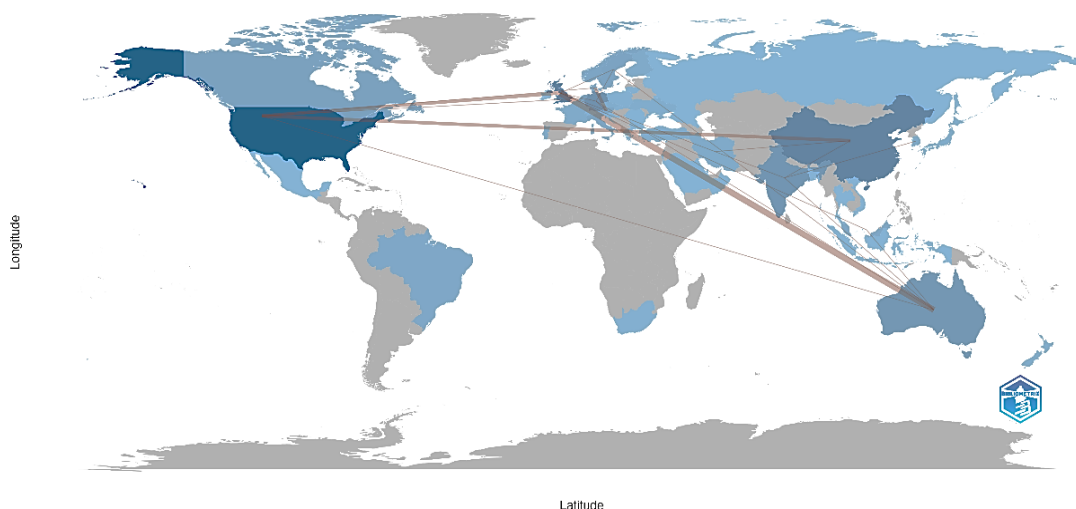


Figure 4. Countries' academic production and collaboration

Table 2 presents the most influential journals contributing to the literature on decentralized management in business settings. The top five journals in terms of publication count include *Energy Policy*, *European Journal of Operational Research*, *MIS Quarterly*, *Business Horizons*, and *Business Strategy and The Environment*, each publishing between 3 and 6 articles.

Additional notable sources include *Information Systems* and *E-business*

Management (3), *Journal of Retailing and Consumer Services* (3), *MIT Sloan Management Review* (3), *Omega-International Journal of Management Science* (3), and *Operations Management Research* (4).

To assess the scholarly impact of these journals, we utilized both the h-index and g-index - standard metrics that reflect publication productivity and citation performance. According to these indices, *Energy Policy*, *European Journal of*

Operational Research, and MIS Quarterly emerge as the most reputable and impactful journals, offering a strong foundation for further DM research. Interestingly, while Omega-International Journal of Management Science published only three relevant articles,

it garnered a notable 286 citations, highlighting its influence relative to its publication volume. This suggests that impactful research on DM can also be found in journals with moderate output but strong citation performance.

Table 2. Top 10 most active sources

Source	h	g	TC	NP	Publisher
ENERGY POLICY	6	6	447	6	Elsevier Ltd
EUROPEAN JOURNAL OF OPERATIONAL RESEARCH	5	5	249	5	Elsevier Ltd
MIS QUARTERLY	4	4	1,251	4	Management Information Systems Research Center
BUSINESS HORIZONS	3	3	247	3	Elsevier Ltd
BUSINESS STRATEGY AND THE ENVIRONMENT	3	4	161	4	Wiley Online Library
INFORMATION SYSTEMS AND E-BUSINESS MANAGEMENT	3	3	45	3	Springer Nature
JOURNAL OF RETAILING AND CONSUMER SERVICES	3	3	47	3	Elsevier Ltd
MIT SLOAN MANAGEMENT REVIEW	3	3	65	3	MIT Press
OMEGA-INTERNATIONAL JOURNAL OF MANAGEMENT SCIENCE	3	3	286	3	Elsevier Ltd
OPERATIONS MANAGEMENT RESEARCH	3	4	68	4	Wiley Online Library

Table 3. Top 10 most active authors

Author	h	g	TC	NP	Affiliation
SINGH RK	2	4	36	4	National Research Institute of Ayurveda for Drug Development, India
AGRAWAL S	2	2	18	2	Delhi Technological University, India
ALEXANDER A	2	2	53	2	University of Sussex, England
ANDREWS DS	2	2	21	2	Georgia State University, USA
BROWN CV	2	2	213	2	Healthcare IT Program Stevens Institute of Technology, USA
KLEIN PG	2	2	57	2	Baylor University, USA
KUMAR A	2	2	53	2	Indian Institute of Management Rohtak, India
KUMAR D	2	2	18	2	United College of Engineering & Research, India
NELL PC	2	2	44	2	Vienna University of Economics & Business, Austria
SAMBAMURTHY V	2	2	668	2	University of Wisconsin Madison, USA

Table 3 presents the top 10 most productive authors in the domain of decentralized management in business, each contributing at least 2 publications. Among them, Singh R.K. emerges as the most prolific author, with 4 publications - the highest in the list - and the top h-index and g-index scores of 4 and 2, respectively, indicating both productivity and citation impact. The other authors each contributed 2 publications and share equal h-index and g-index values of 2.

Notably, Sambamurthy V. and Brown C.V., affiliated with the University of Wisconsin-Madison and Stevens Institute of Technology, respectively, have the highest citation counts despite having only 2 publications - 668 and 213 citations, respectively - underscoring their substantial scholarly impact.

RQ3: What are the most cited articles in this research domain?

Empirical evidence has substantiated the advantages of decentralized management across a variety of business contexts. By distributing decision-making authority among multiple entities—rather than concentrating it in a single central authority—decentralized management enhances flexibility, operational efficiency, and organizational resilience, particularly in globalized, fast-changing markets. This model fosters innovation and agility by empowering local teams to respond quickly to situational demands, making it especially effective in technology-driven industries, complex supply chains, and startup ecosystems.

Table 4. Top 10 most cited articles

No.	Authors, Year	Title	Cites	CitePerYear
1	Dutta et al. (2020)	Blockchain technology in supply chain operations: Applications, challenges and research opportunities	646	107.67
2	Sambamurthy and Zmud (1999)	Arrangements for information technology governance: A theory of multiple contingencies	477	17.67
3	Swami and Shah (2013)	Channel coordination in green supply chain management	400	30.77
4	Lee et al. (1995)	Critical skills and knowledge requirements of is professionals - A joint academic-industry investigation	391	12.61
5	Ichniowski et al. (1996)	What works at work: Overview and assessment	385	12.83
6	Tanriverdi (2006)	Performance effects of information technology synergies in multibusiness firms	304	15.2
7	Fiala (2005)	Information sharing in supply chains	275	13.1
8	Armanios et al. (2017)	How entrepreneurs leverage institutional intermediaries in emerging economies to acquire public resources	218	24.22
9	Angelis and Da Silva (2019)	Blockchain adoption: A value driver perspective	207	29.57
10	Sambamurthy and Zmud (2000)	Research commentary: The organizing logic for an enterprise's IT activities in the digital era - A prognosis of practice and a call for research	194	7.46

A notable trend identified in the field is the frequent application of decentralized management in information technology (IT) companies, with most of the top 10 highly cited papers focusing on this context. The second most cited study, authored by Sambamurthy and Zmud (1999), laid the foundation for IT governance under decentralization. This seminal work introduced a multiple contingency theory, arguing that the optimal governance mode - whether centralized, decentralized, or federal - depends on the interplay among organizational forces, including corporate IS, divisional IS, and line management.

Similarly, Lee et al. (1995) observed a strategic shift in IT activities and staffing patterns from centralized control toward end-user-focused, decentralized business strategies.

This decentralization trend was not exclusive to IT firms but was also evident in traditional enterprises managing IT activities. In this regard, Sambamurthy and Zmud (2000) proposed several adaptable models for managing IT capabilities in the digital era, emphasizing the integration of diverse governance structures and sourcing practices. Furthering this discourse, Tanriverdi (2006) found that while standardized IT systems across departments led to cost synergies, they did not necessarily improve firm performance. Conversely, deploying complementary yet distinct IT systems contributed to value synergies that significantly enhanced business performance. Importantly, this performance boost appeared to be independent of whether the IT governance mode was centralized, decentralized, or hybrid.

Beyond the IT sector, decentralized management has proven to be a crucial managerial strategy in supply chain management.

Within complex supply chains - encompassing suppliers, manufacturers, distributors, and retailers - decentralization empowers local entities to make real-time decisions based on immediate demand and contextual dynamics. However, the decentralized supply chain model also poses notable challenges. As highlighted in the third-most-cited article by Swami and Shah (2013), decentralized green supply chains - specifically the coordination between manufacturers and retailers - tend to underperform in terms of profitability and sustainability, compared to integrated systems. Their finding suggests that a lack of coordination is a key constraint, which could potentially be mitigated through blockchain technology. The most cited paper in the field, authored by Dutta et al. (2020), underscores this point by examining the transformative role of blockchain as a state-of-the-art solution for modern supply chains. Their study highlights how blockchain's decentralized, transparent, and tamper-resistant infrastructure can address key inefficiencies in decentralized supply chains, enhancing trust, traceability, and coordination among multiple stakeholders.

RQ4: Which keywords are prominently featured in DM research?

Figure 5 illustrates the co-occurrence mapping of keywords found in DM-related research, highlighting thematic connections within the literature. Keyword co-occurrence analysis serves as a valuable tool to uncover conceptual structure and research trends in the field. Out of the 1,177 keywords, 49 were used at least 5 times and were visualized using VOSviewer. The mapping reveals 5 distinct clusters, each represented by a different color, indicating groups of closely related topics: Cluster 1 (red) emphasizes themes related to business strategy, firm performance, organizational innovation, and general management practices; Cluster 2 (green)

concentrates on decentralization in supply chain management, featuring keywords such as Cluster 4 (yellow) highlights concepts related to business models, capabilities, and

knowledge management; Cluster 5 (purple) focuses on forward-looking strategies aimed at enhancing firm performance.

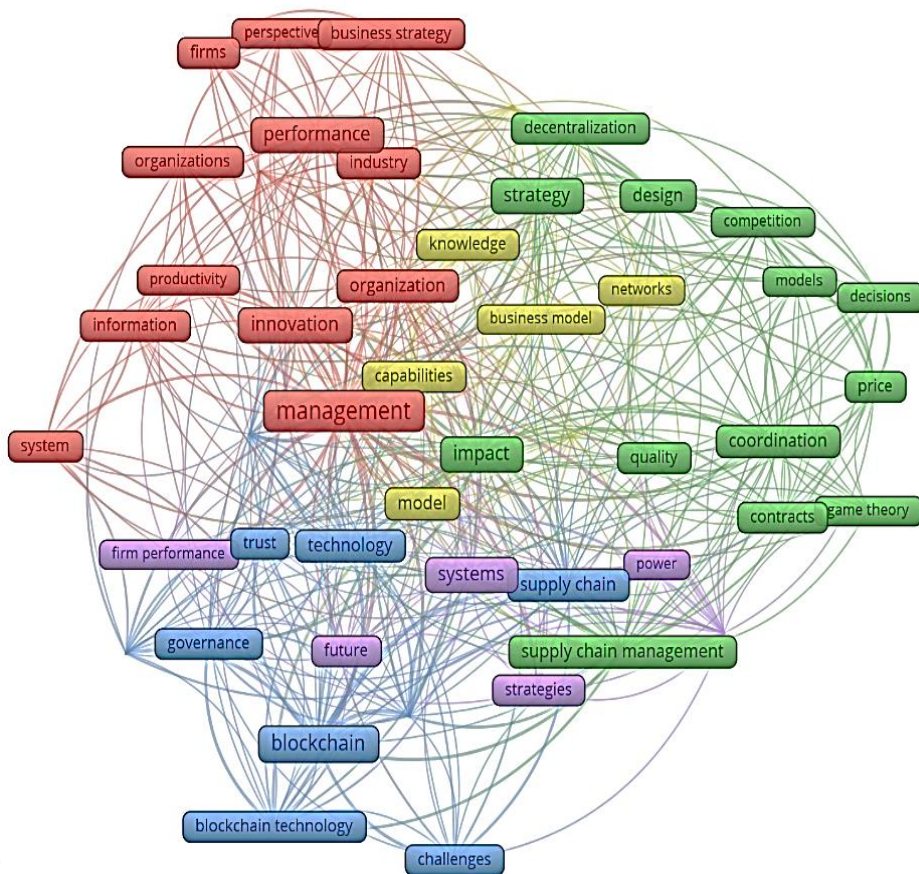


Figure 5. Visualization map of co-occurrence network of keywords

Figure 6 presents an overlay visualization map aimed at exploring the temporal evolution of research themes in decentralized management. This analysis provides insights into how scholarly interest has shifted over time. Prior to 2018, research predominantly focused on the application of decentralization at the organizational level, particularly for productivity enhancement and capability development. During this period, decentralization was primarily regarded as an internal organizational mechanism. From 2018 onwards, the scope of DM expanded significantly. The concept began to be viewed

as a strategic approach to business management, encompassing broader firm-level decision-making processes and the integration of advanced technologies. Notably, recent years have seen the emergence of keywords such as “blockchain technology”, “game theory”, “governance”, and “supply chain management”, reflecting a clear shift towards technologically driven, complex organizational systems.

This evolving trajectory underscores a growing academic and practical interest in DM models, particularly their applicability beyond traditional business operations to areas such as

technology. This trend signals a shift in DM research toward technology-driven governance models, where decentralized structures can enhance transparency, efficiency, and firm performance. These findings lay a solid foundation for future research, underscoring the need to further explore DM's implications for business governance, digital transformation, and organizational strategy.

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