



## Artículo de revisión

### Scientometric insights into dynamic capabilities: measuring academic impact and trends

### Perspectivas cientométricas sobre capacidades dinámicas: midiendo el impacto académico y las tendencias

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#### ABSTRACT

The business world is characterized by the rapid pace of changes in technological, political, and economic spheres. It is important to have the theoretical foundations that allow for the management of these rapid changes on a global scale. Dynamic Capabilities (DC) is a theoretical framework that facilitates addressing this issue. The objective of this article is to highlight advances in the measurement of dynamic capabilities by replicating a previous study and using scientometric techniques. Searches were conducted in Scopus and Web of Science, and the data were analyzed from two perspectives: a scientometric approach and the Tree of Science algorithm. The results revealed a 17.39 % increase in scientific production between 2000 and 2022, identifying three main trends: "Dynamic Capabilities: Driving Performance and Innovation in Rapidly Evolving Technological Landscapes"; "Strategic Advantages of Supply Chain Dynamic Capabilities in Enhancing Competitiveness"; and "Emphasizing Digitalization: The Impact of Big Data on Promoting Flexibility and Organizational Learning." These findings significantly contribute to the understanding of dynamic capabilities in current business management and provide guidance for future research in this field.

**Keywords:** Dynamic Capabilities; Scientometric Analysis; Big Data in Organizational; Performance; Innovation and Competitive Advantage.

#### RESUMEN

El mundo de los negocios está caracterizado por las altas velocidades de cambios a nivel tecnológico, político y económico. Es importante tener los fundamentos teóricos que permitan administrar estas velocidades en el cambio global. Las Capacidades Dinámicas (DC) son un cuerpo teórico que faciliten abordar este problema. El objetivo de este artículo es resaltar los avances en la medición de las capacidades dinámicas mediante la replicación de un estudio previo y el uso de técnicas cientométricas. Se llevaron a cabo búsquedas en Scopus y Web of Science, y los datos fueron analizados desde dos perspectivas: un enfoque cientométrico y el algoritmo del árbol de la ciencia. Los resultados revelaron un aumento del 17,39 % en la producción científica entre 2000 y 2022, identificando tres tendencias principales: "capacidades dinámicas: impulsando el rendimiento e innovación en paisajes tecnológicos en evolución rápida"; "ventajas estratégicas de las capacidades dinámicas de la cadena de suministro en la mejora de la competitividad"; y "Enfatizando la Digitalización: El impacto de los grandes datos en la promoción de la flexibilidad y el aprendizaje

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organizacional". Estos hallazgos contribuyen significativamente al entendimiento de las capacidades dinámicas en la gestión empresarial actual y proporcionan orientación para futuras investigaciones en este ámbito.

**Palabras clave:** capacidades dinámicas; análisis cientométrico; big data en organizaciones; rendimiento; innovación y ventaja competitiva.

**JEL:** O32; O33; D23

## INTRODUCTION

This research employs scientometric methods to systematically chart and pinpoint key scholarly contributions in "Dynamic Capabilities" (DC).

DC are a set of competencies that enable identifying and deploying resources to respond to changes in context and market conditions (Navarro-García et al., 2024; Teece et al., 1997). These capabilities allow organizations to adapt to change, forge a competitive edge, and drive continuous innovation. For instance, companies can more easily adapt to market fluctuations and technological innovations. They also create a competitive advantage by proactively anticipating responses to competitors' actions. DC foster a continuous innovation environment, where experimentation and organizational learning are valued. Consequently, scientific studies in this area are essential.

Regarding that change is the current normal, this property of change is inherently related mainly in all the arenas where business interacts. Identifying which of these fields are a trend would reveal the current trends of investigations and open new opportunities to investigate, like in environmental, social, political, or economic research.

In recent years, the scientific literature on DC has grown exponentially, making it challenging to identify current trends and dynamics in scientific production. Various studies have conducted scientometric analysis focusing on specific themes such as micro foundations (Chen et al., 2023), knowledge-based DC (Kaur, 2022), focused on startups (George et al., 2022; Pigola et al., 2022), or digital transformation (Aghimien et al., 2021; Talafidaryani, 2020). To our knowledge, this is the first investigation on DC employing scientometric techniques and the Tree of Science (ToS) algorithm to identify key contributions in DC and their measurements; this study also aims to contribute to and replicate Laaksonen & Peltoniemi's (2018) research on DC.

Searches were conducted in both Scopus and Web of Science (WoS), replicating the keywords used in the study by Laaksonen & Peltoniemi (2018).

The combined results yielded 330 unique records from both databases, and researchers divided the findings into a scientometric analysis and those related to the ToS algorithm (Robledo et al., 2022; Zuluaga et al., 2022). The annual production shows growth from 2000 to 2023 of 17.39 %; China leads in production volume, while the United States has the most significant impact.

## METHODOLOGY

Scientometrics involves the empirical analysis of scientific literature, encompassing aspects such as tracking yearly publications, assessing international collaborations, scrutinizing journal contributions, and examining authorship networks (Gong, 2023). Typically, scientometric studies derive data from the WoS or Scopus databases (Viloria-Escobar et al., 2022). However, this study adopts an innovative approach by integrating data from both sources, focusing on primary records (Aria & Cuccurullo, 2017) and references (Robledo-Giraldo et al., 2023). This methodology aligns with trends observed in recent scholarly inquiries (Aguirre & Paredes, 2023; Ariza-Colpas et al., 2023). Table 1 illustrates the specific parameters adopted in this research, mirroring

the search formula used in the seminal study by Laaksonen & Peltoniemi (2018). The aim is to unravel the evolution and trends within the DC domain over the past two decades.

Two primary stages in the research process are delineated: Data preprocessing and data analysis. Upon merging the Scopus and WoS datasets, researchers noted that 73.08 % of the studies constituted research papers, with a mere 1.18 % being review articles. This disparity accentuates the imperative for more comprehensive reviews that amalgamate key findings from diverse studies. Furthermore, 13.03 % of the papers were exclusive to WoS, underscoring the significance of amalgamating data from both repositories for a more holistic perspective.

The discrepant formats of the main records and references in WoS and Scopus required the employment of text mining and web scraping techniques. Researchers used text mining to extract pivotal information such as titles, authors, and publication years from Scopus references; conversely, they employed web scraping to compile titles, authors, and their corresponding DOIs from WoS references using the CrossRef API. Web scraping entails extracting substantial amounts of data from websites (Chiapponi et al., 2023).

**Table 1.** Scientometric data harvesting: merging Web of Science and Scopus for enhanced research insights (2000-2023).

Parameters	Web of Science	Scopus
Range	2000 - 2022	
Date	November 27 del 2023	
Document types	Articles, books, chapters, and conferences	
Words	Title: (dynamic AND capabilit*) AND Title: (data OR empirical OR test*' OR "statistical" OR finding* OR result OR results OR evidence' OR quantitative OR survey* OR investigat*)	
Results	205	287
Total (Wos+Scopus)	330	

Source: Own elaboration.

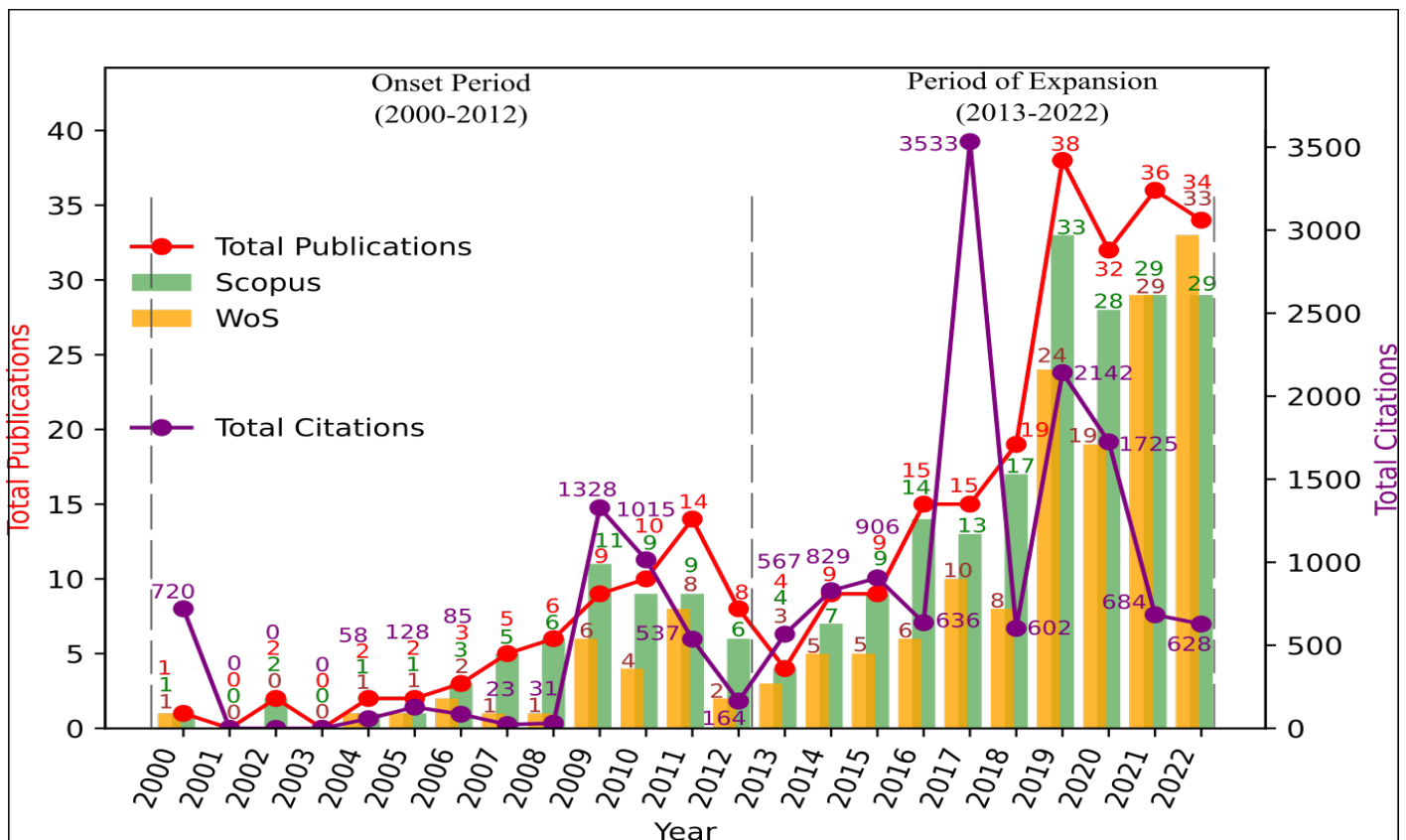
These procedures result in a comprehensive Excel file meticulously organized into 22 sheets containing curated data for subsequent analysis. Researchers divided the analytical phase into two segments: initially, they conducted a scientometric analysis followed by implementing the ToS algorithm, which proves instrumental in elucidating the foundational roots, central trunk, and branching aspects of the DC field, thereby offering a structured and insightful exploration of the domain. Examples of the ToS application can be found across various disciplines including marketing (Barragan et al., 2023; Robledo et al., 2023), management (Duque & Díaz, 2024; Restrepo et al., 2023), education (Loaiza et al., 2023; Santoveña-Casal et al., 2023), innovation (Duque-Hurtado et al., 2023), economy (Castellanos et al., 2022; Hoyos et al., 2022; Trejos et al., 2023) and finance (Díaz-Restrepo et al., 2023; Gonzalez-Urango et al., 2024).

## RESULTS

### Scientific production

The analysis of annual production offers insights into the shifts and interests of the academic community regarding a specific topic.

Figure 1 displays the yearly output of DC literature from 2000 to 2022, when it experienced a growth rate of 17.39 %, with three significant peaks in impact, as measured by citations, in 2000, 2009, and 2017. The following sections provide a detailed explanation of the three most representative periods.



**Figure 1.** Dynamic capabilities research trajectory: A scientometric analysis of publication and citation trends (2000-2022).

**Source:** Own elaboration based on data from the WoS and Scopus.

**Country analysis**

The scientific dynamics of nations offer insights into their endeavors within science and innovation. These endeavors are commonly assessed through publication output, citation impact, and quality rankings (Scimago). Together, these metrics afford a comprehensive understanding of a nation's scientific dynamics. Table 2 delineates these dynamics within the framework of DC, revealing that while China boasts the highest publication output, the United States leads in citation impact with twice as many citations. Notably, even countries ranking lower on the table, such as the United Kingdom, outshine China in citation impact. This variance may stem from the observation that out of China's 71 publications, 31 originate from the years 2023 and 2022, indicating a recent surge in interest in DC (Wang et al., 2023).

**Table 2.** Scientific output and impact: A comparative overview of country-specific research contributions and citations

Country	Production		Citation		Q1	Q2	Q3	Q4
	Count	%	Count	%				
China	71	21.26 %	1 195	12.64 %	23	9	3	2
USA	51	15.27 %	2 534	26.81 %	21	3	2	2
United Kingdom	21	6.29 %	1 775	18.78 %	11	2	0	0
Indonesia	17	5.09 %	66	0.7 %	0	1	5	1
Germany	14	4.19 %	187	1.98 %	2	2	0	1

Italy	12	3.59 %	332	3.51 %	4	0	1	0
India	11	3.29 %	310	3.28 %	3	1	3	1
Pakistan	11	3.29 %	248	2.62 %	4	2	0	0
Japan	10	2.99 %	150	1.59 %	6	1	0	0
France	9	2.69 %	333	3.52 %	4	0	1	0

Source: Own elaboration.

The collaborative network among countries emphasizes leading national groups in DC. For example, Figure 2 delineates three major clusters led by the United Kingdom, China, and Australia. A recent study between the United Kingdom and Italy demonstrates how DC cultivation can optimize the impact of DB on innovation (Capurro et al., 2021). Another instance of scientific collaboration exists between China and the USA, where a study examined the relationship between DC and the rate of strategic change in Chinese firms (Yi et al., 2015). Additionally, a noteworthy cluster involves Latin American countries collaborating with Spain (Martin-Cruz et al., 2020; Pérez-Rave et al., 2023). The "nodes and links" figure indicates that the ratio of new collaborations exceeds that of new participating countries, suggesting a strengthening and consolidation within the academic community focused on DC.

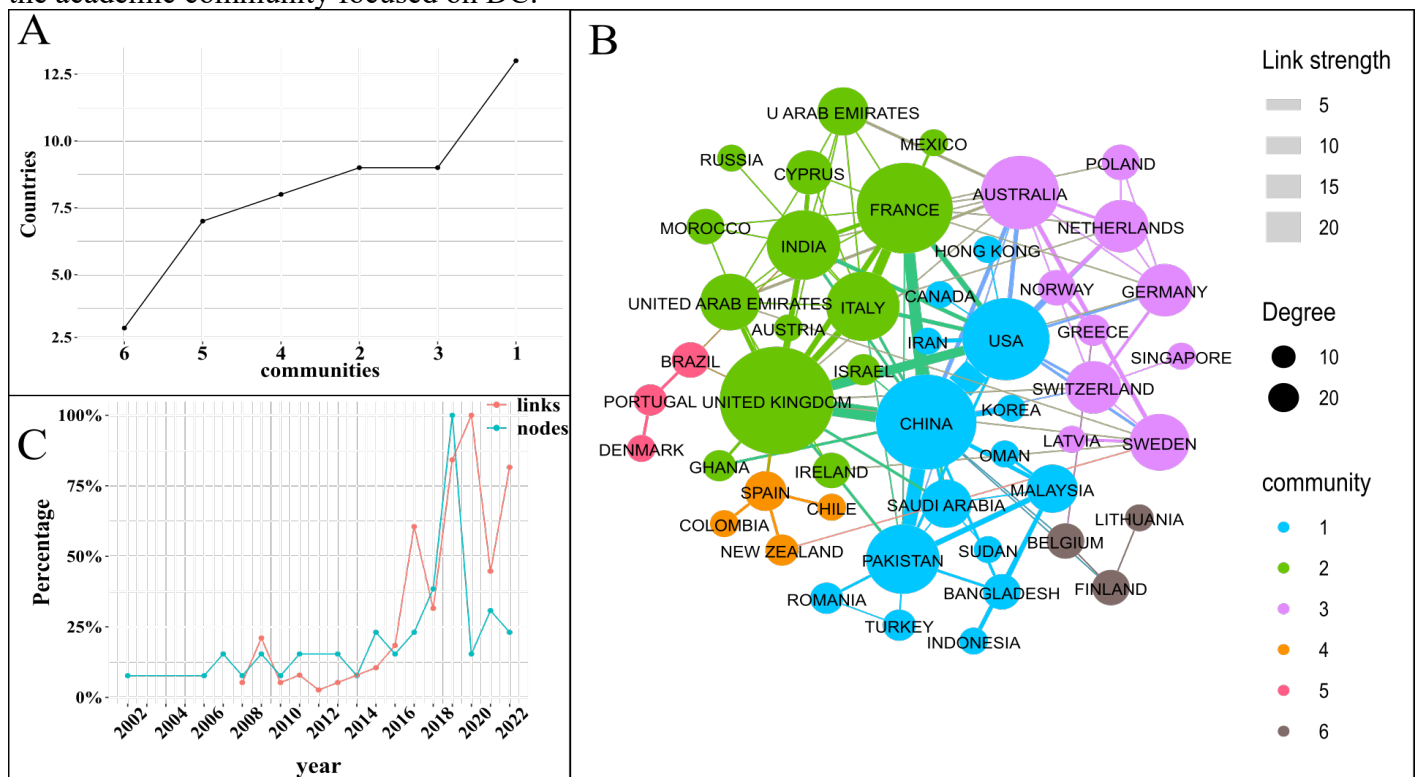


Figure 2. Global collaboration patterns: analyzing country networks in scientific research. 2A, the total number of communities by size. 2B, Nodes, and links over time. 2C, scientific collaboration network of countries.

Source: Own elaboration based on data from the WoS and Scopus.

### Journal analysis

The analysis of journals in Table 3 indicates that 70 % hold a Q1 ranking, with the "Journal of Business Research" leading in this aspect, underscoring the notable caliber of publications within the domain of DC. A recent study in the "Journal of Business Research" is noteworthy for examining the intersection of social media applications, firm capabilities, and performance from the perspective of DC. Close behind is the publication

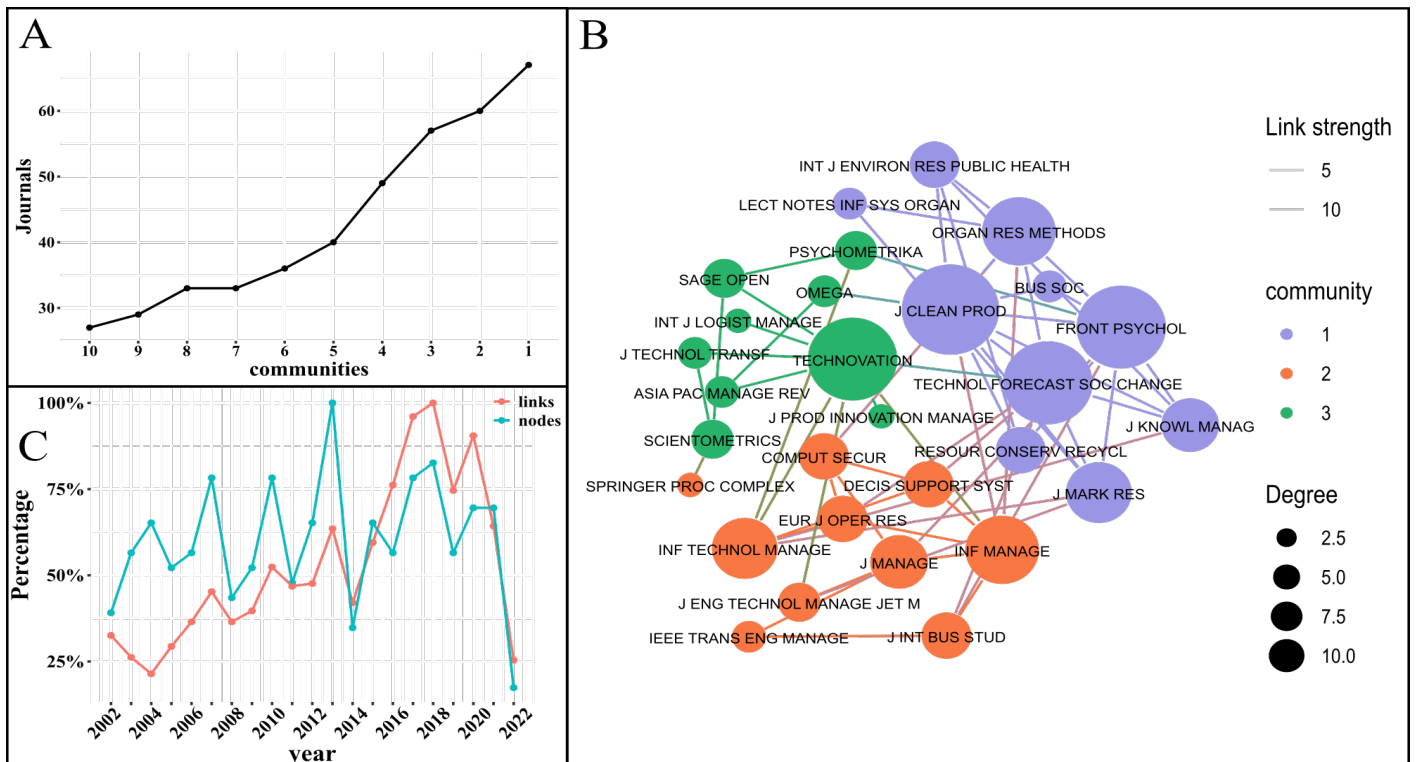
"Sustainability," which has focused on the environmental dimensions of DC (Mao & Lu, 2023; Munir et al., 2023) as well as its implications for small businesses (Rodrigues et al., 2021; Uddin et al., 2023). "Industrial Marketing Management" has also contributed significantly to the discourse, particularly in exploring DC's impact on financial performance and the broader social and environmental ramifications for firms during the post-COVID era (Chatterjee et al., 2023).

**Table 3.** Comparative analysis of journal metrics across Web of Science and Scopus: Impact and H-Index.

Journal	WoS	Scopus	Impact Factor	H Index	Quartile
Journal Of Business Research	10	10	2.9	236	Q1
Sustainability	0	9	0.66	136	Q1
Industrial Marketing Management	5	6	2.66	161	Q1
Frontiers In Psychology	5	0	0.89	157	Q2
Information And Management	0	5	2.69	182	Q1
Management Decision	5	5	1.35	116	Q1
Proceedings Of The Annual Hawaii International Conference On System Sciences	0	5	0	95	-
Technology Analysis And Strategic Management	0	6	0.77	78	Q2
European Journal Of Radiology	2	0	0.94	127	Q1
Technological Forecasting And Social Change	4	4	2.64	155	Q1

**Source:** Own elaboration.

Figure 3 shows three broad themes encompassing the journals published in DC. The first group presents more general topics, such as achieving competitive advantages through social responsibility (Sarwar et al., 2023) and attaining innovation in circular business models via innovative practices (Van Eechoud & Ganzaroli, 2023). The second group adopts a more strategic management focus, with studies on aligning strategic technologies (L. Li et al., 2022; Van Eechoud & Ganzaroli, 2023). The third cluster is more oriented towards case studies, exemplified by the works of Jiraphanumes et al. (2023) and Cautela et al. (2022), providing real-world applications and insights into DC.



**Figure 3.** Scholarly communication networks: Journal interconnectivity and influence over Time. 3A. Total number of communities by size. 3B. Nodes and connections over Time. 3C. Scientific collaboration network among journals.

**Source:** Own elaboration based on data from the WoS and Scopus.

**Author collaboration network**

Table 4 identifies the most prolific researchers and provides a snapshot of the academic community engaged in DC research. Table 4 lists the top ten productive scholars, with Professor Patrick Mikalef leading the charge with significant contributions related to DB (Mikalef et al., 2020, 2021). Professor Yong Wang stands out for his research in the realm of family businesses and their DC (Wang, 2016). Overall, the table highlights authors with high h-index scores, such as Ohno Y. (56) and Krogstie J. (40), who have made substantial contributions to the DC literature.

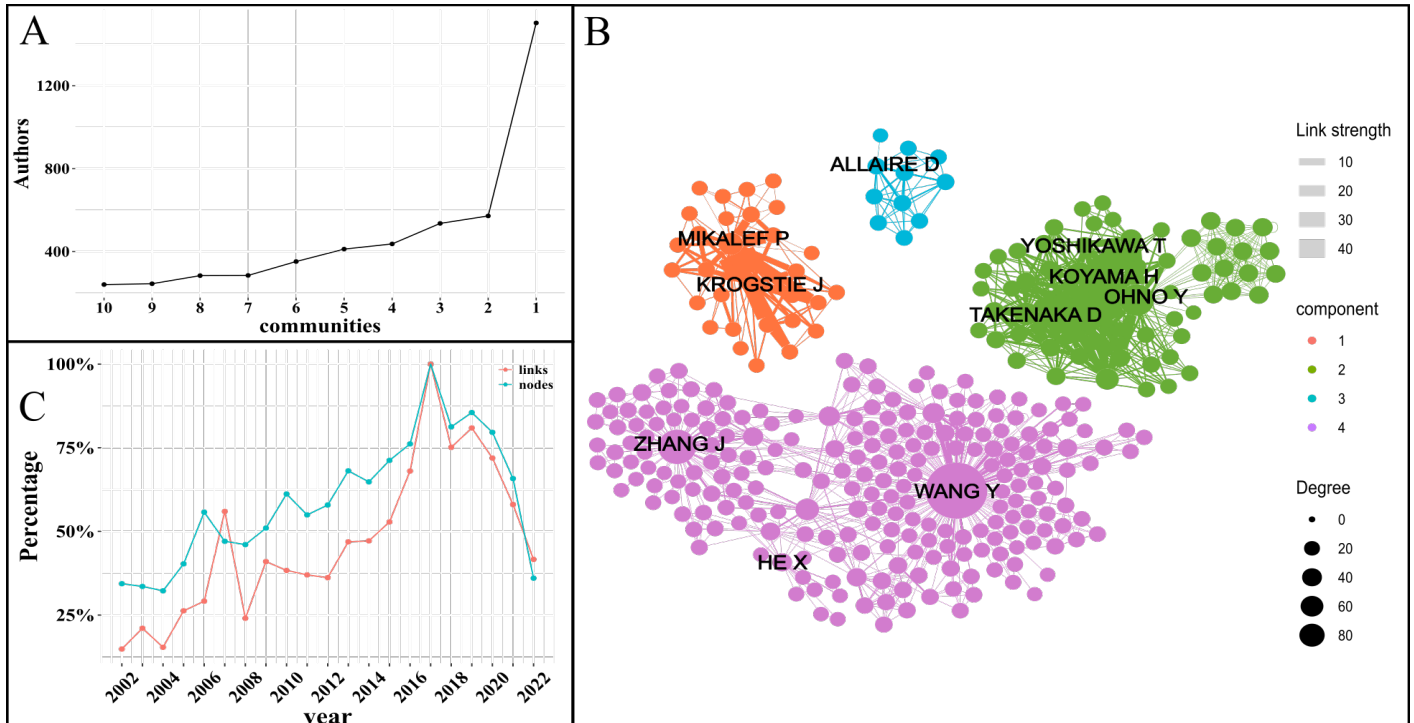
**Table 4.** Production by author

No	Researcher	Total Articles	Scopus h-Index	Affiliation
1	Mikalef, P.	7	36	Norwegian University of Science and Technology - NTNU
2	Ohno, Y.	6	56	Fujita Health University
3	He, X.	5	3	Lanzhou University
4	Koyama, H.	5	37	Hospital De La Policia De Osaka., Osaka, Japon
5	Krogstie, J.	5	40	Norwegian University of Science and Technology - NTNU
6	Takenaka, D.	5	41	Fujita Health University
7	Wang, Y.	5	11	University of Wolverhampton
8	Yoshikawa, T.	5	34	Fujita Health University
9	Zhang, J.	5	4	Nanjing University
10	Allaire, D.	4	21	Texas A&M University

**Source:** Own elaboration.



The scientific collaboration network helps identify communities among researchers within a given field. Figure 4 illustrates the scientific collaboration on DC within the personal networks of the ten most productive researchers; this network reveals that Component 1 (purple) consists of researchers Zhang J., Wang Y., and He X. While the figure does not show direct connections between them, meaning they have not co-authored papers, it does suggest they share common connections. Component 2 (green) consists of researchers Yoshikawa T, Koyama H, Ohno Y, and Takenaka D, linked by geographical proximity (Japan). Mikalef P. and Krogstie J. are Norwegian academics who have conducted research on DC and DB within organizations (Mikalef et al., 2021). The nodes and links graph indicates the yearly ratio of new authors to new links; this graph reveals that in 2016, the ratio of nodes to links was equal, marking a significant moment when the community around DC began to coalesce. Overall, there exists a predominant community (shown in the "communities by size" figure) in the DC field that stands out from the rest in terms of size.



**Figure 4.** Network dynamics and community structures in scholarly research: A scientometric analysis. 4A. Total number of communities by size. 4B. Nodes and connections over time. 4C. Scientific collaboration network by authors.

**Source:** Own elaboration based on data from the WoS and Scopus.

## Tree of Science

### Root

One foundational work on DC is the model proposed by Professor Barney (1991), which underscores how a firm's resources can cultivate a sustainable competitive advantage grounded in four key indicators: value, rarity, inimitability, and non-substitutability. Teece et al. (1997) introduced the first study discussing DC, expanding upon the theory of firm resources to assert that a company's competitive edge hinges on distinctive processes and hard-to-trade knowledge. For Teece et al. (1997), the foundational article defines the assets relevant to the DC theory as those that are intangible and do not have market value; this definition is crucial because it delimitates the study object of DC theory. Eisenhardt & Martin (2000) further delineate that DC manifestation varies depending on market dynamics, with moderately dynamic markets exhibiting DC resembling routine processes, while highly dynamic markets feature evolutionary processes emphasizing variation. These seminal studies serve as cornerstones in DC theory because they opened this field for future research since publication.



Foundational contributions to DC encompass diverse models. For instance, Zollo & Winter (2002) propose a model emphasizing deliberate learning through experience, intervention, articulation, and codification. Winter (2003) outlines a model predicated on routines, resources, rules, and results to adapt to the environment and foster sustainable competitive advantages.

Other propositions center on different types of enterprises; Zahra et al. (2006) posit that ventures endowed with DC are better poised to exploit opportunities in changing environments, and Teece (2007) adds that they can also drive sustainable economic performance.

In summary, DC positively influences various business types and directly impacts organizational profitability; foundational investigations on DC foster new empirical investigations that reinforce the field with several applications disclosed in the next paragraphs.

### **Trunk**

Li & Liu (2014) found a positive correlation between DC and competitive advantage in their study involving 217 Chinese companies. They argue that environmental conditions amplify DC rather than moderating them. Pezeshkan et al. (2016) discovered that 60 % of studies supported the hypothesis that DC positively impacts performance, compared to 53 % for resource-based theory. Mikalef & Pateli (2017) propose that information technologies can bolster organizational DC, particularly regarding learning capacity, responsiveness, and integration. They suggest that the impact of information technologies on performance is indirect, mediated by variables such as innovation, market orientation, and learning orientation.

Wamba et al. (2017) investigated the impact of DB analytics capabilities on company performance, focusing on the mediating role of DC. Their online survey of 297 IT managers and analysts revealed that DC significantly mediates the enhancement of knowledge and company performance within this relationship. In a study by Mikalef et al. (2019), the analysis aimed to understand how data analytics capabilities contribute to knowledge generation through the interaction of talent, technology, and data resources. Surveys involving 175 IT executives and managers indicated that DC mediate in the influence of DB analytics capabilities on radical and incremental innovation capabilities.

Rialti et al. (2019) conducted a literature review exploring the impact of DB and DB analytics capabilities on organizational performance within the framework of DC. They identified four key areas of evolution in the field: decision-making, process management, DB analytics, and supply chain management. Pattanasing et al. (2019) investigated the association between DC and high-performing organizations in the hotel sector, surveying 109 businesses. Their findings suggested that the nature of the hotel establishment influences DC and subsequent performance outcomes.

Shamim et al. (2019) suggest examining the impact of Big Data decision-making capability on decision quality within Chinese companies. Their study posits a relationship between Big Data (DB) and decision-making capabilities within the framework of DC. They argue that investments alone are insufficient for improvement; internal organizational resources like culture, technology, managerial skills, and technical abilities are also necessary. The study concludes that effective management of DB positively influences decision-making capabilities derived from DB, thereby aiding companies in enhancing their dynamic capabilities.

### **Branch identification**

Researchers identified three main branches or trends: "Dynamic Capabilities: Driving Performance and Innovation in Rapidly Changing Technological Environments," "The Role of Supply Chain DC in Achieving Competitive Advantage and Enhanced Performance," and "Digitalization Prioritization: The Role of Big Data (DB) in Advancing Organizational Agility and Learning." The following sections detail the methodology, present the main results, and conclude the findings.

### **Branch 1 - Dynamic capabilities: Driving performance and innovation in rapidly changing technological environments**

Research on DC explores their influence on organizational performance and innovation. Evidence suggests that DC contribute to improved corporate performance and innovation, offering advantages in rapidly evolving technological landscapes, especially with the rise of artificial intelligence. Several studies shed light on this relationship.

Cataltepe et al. (2022) investigated the connection between DC and marketing capabilities in Turkey's automotive sector, finding a significant correlation with corporate performance. Utomo et al. (2023) examined factors like organizational culture, technology, communication, intellectual capital, and innovation reengineering in the hotel industry, concluding that only innovation reengineering and organizational culture significantly affect hotel performance. Phan et al. (2022) explored employee DC, financial technological tools, and innovative behavior in Vietnam's financial sector, revealing a positive impact of employee DC on Fintech applications, innovation behavior, and performance. Additionally, Li et al.(2022) proposed that religious culture shapes DC by influencing behaviors and values toward learning and innovation.

Xiaoran et al. (2019) explored how organizational innovation affects corporate performance within the DB context. Their study investigated workplace organization, external relationships, innovation, and organizational performance, affirming a positive relationship between DC and enhanced organizational performance. Wendra et al. (2019) examined the relationship between intellectual capital, innovative performance, and DC in Indonesian small and medium-sized enterprises (SMEs) were analyzed. The researchers present a model where intellectual capital acts as a partial moderating variable between innovative performance and DC.

### **Branch 2 - The role of supply chain dynamic capabilities in achieving competitive advantage and enhanced performance**

In today's globalized landscape, organizations need DC to adapt swiftly to the international environment. The following studies underscore the importance of this domain. Efrat et al. (2018) analyzed how a company's export performance improves by DCs like adaptability, innovation, uncertainty management, and task flexibility. Results indicated that despite uncertainty's negative impact, the other three factors positively influenced export performance.

Bahrami & Shokouhyar (2021) investigated supply chain resilience and company performance through DB analysis capabilities; their findings revealed a positive relationship, with supply chain resilience improving alongside enhanced data analysis capabilities. Munir et al. (2023) examined the impacts of data analytics and ambidexterity on sustainability and supply chain DC; ambidexterity involves leveraging existing resources and exploring new options, while analytic capabilities refer to a data-oriented cultural skill set. These studies concluded that investing in data analytic capabilities improves corporate performance and competitive advantage.

Lyu et al. (2021) explored how supply chain DC influences financial performance and sustainable competitive advantage, finding that agility and adaptability positively impact competitive advantage. Lastly, Junaid et al. (2023) conducted a study in Pakistani hospitals to assess the effect of supply chain DC on resilience, competitive advantage, and performance, affirming a positive impact.

### **Branch 3 - "Emphasizing digitalization: The impact of big data on promoting flexibility and organizational learning."**

The technological revolution has significantly impacted research on DC, focusing on the influence and case studies of DB. For instance, Naseer et al. (2023) investigated the integration of DB in identifying DC within

a bank in a cybersecurity context. Results showed that merging DC with DB enhanced processes and security incidents, fostering agile characteristics like flexibility, speed, and organizational learning.

Pedota (2023) further supported this notion, revealing that factors such as digitalization prioritization are linked to DB implementation and are especially impactful in smaller companies. These findings emphasize the importance for firms to adopt DB to bolster their DC and adapt to technological shifts, thereby seizing opportunities in the digital realm.

The evolution of DB capabilities within organizations has reshaped value creation and organizational structures. Munir et al. (2022) demonstrated that an organization's DB capabilities directly affect performance, moderated by organizational culture and mediated by knowledge management. Consequently, organizational structure plays a pivotal role in DB implementation, potentially leading to organizational reconfiguration to enhance knowledge management and foster sustainable competitive advantages (Karami et al., 2023).

In this context, organizations can establish a foundation in knowledge management to integrate sustainable models that create value (Horng et al., 2022). Consequently, Gao & Sarwar (2022) propose the DataBase Management System (DBMS) model as a tool to develop knowledge management within organizations, a view also supported by Efrat et al. (2018).

As a brief dynamic capabilities investigation branch trends are complementary and transversal to business, highlighting the importance of this management theory.

## DISCUSSION

From 2000 to 2022, DC research has evolved significantly, highlighting key periods of growth, consolidation, and ongoing relevance in research, emphasizing their crucial role in addressing modern challenges and technological advancements.

### **The emergent era of DC (2000-2012)**

This period presents a growth rate of 27.65 % and two significant peaks in citations. The first peak relates to the impact generated by the study conducted by Deeds et al. (2000), wherein they examined DC in technological entrepreneurship to develop new products. The second peak refers to the work of McKelvie and Davidson (Deeds et al., 2000), where they analyzed DC and its influence in creating a competitive advantage for new enterprises. These studies underscore the importance of DC in entrepreneurial ventures within the scientific literature.

### **Consolidation and expansion in DC research (2013-2019)**

The growth in publication percentage for this period was 45.53 %, demonstrating exponential attention from the academic community. The peak in citations was driven by the study on the influence of DB on performance as an effect of DC (Wamba et al., 2017).

### **Stabilization and continuity in the era of DC (2020-2022)**

This period exhibits stability in scientific production with 3.08 % growth; however, in 2019, two significant studies emerged. One focused on DB skills and their relationship with innovation (Mikalef et al., 2019), and the other on decision-making. These studies reflect the ongoing relevance and evolution of DC in the context of modern challenges and technological advancements.

Researchers highlight that branches and trunk investigations are under the umbrella of the object of study in DC, which are "intangible assets without market value" (Teece et al. 1997). Specifically, the branches "Supply

Chain DC," "Innovation DC," and "Big Data DC" match this theory conceptualization and object of study. The development of a theory is reinforced with empirical investigations. This scientometric study proves that DC theory is currently important for academic investigations, a trend evident with the current continuity of the field.

The study of the interrelation between the tree branches discovered in this research is also a new investigation trend (Lee et al. 2024, Chenger and Pettigrew 2023, de Oliveira-Dias et al. 2023, Alzoubi et al. 2024, Aslam et al. 2024, Abdelaziz et al. 2023). These investigations support that the synergy and interrelations between different DC are currently important.

### CONCLUSION

This study presents a scientometric analysis of DC, employing two methodologies: scientometric analysis and the ToS algorithm for trend identification; findings delineate three stages of scientific production: initial emergent development, expansion, and stabilization. In the country analysis, China emerges as the leader in production, Albeit with a lesser impact attributed to its recent surge in scientific output and citation lag. Journal analysis highlights the "Journal of Business Research" as the primary contributor to DC literature.

The burgeoning interest in measuring DC within the academic sphere is evident from the exponential rise in publications since approximately 2010. Performance is a significant variable in organizational studies, particularly in understanding how DC contribute to sustainable organizational success. Notably, innovation capacity emerges as a critical DC and is crucial for bolstering performance in dynamic environments. Supply chains, characterized by internationalization and market fluctuations, represent a particularly turbulent area where DC play a pivotal role in ensuring sustainability.

A second area of study focuses on the impact of DC on organizational agility and learning, particularly through the implementation of DC. The research underscores the positive influence of DB implementation (especially when leveraging diverse data sources) in enhancing value generation and fostering sustainable competitive advantage.

The main contribution of this article unfolding the main investigation trends related to DC studies using the ToS algorithm. This will eventually help researchers to address their future investigation efforts in a specific area of interest.

#### **Declaration on conflict of interest**

The authors will declare that they are independent concerning the financing and supporting institutions and that during the execution of the work or the writing of the manuscript, no interests or values other than those usually involved in the research have been implicated.

#### **Authors' contribution**

The authors declare and express a unanimous and joint contribution in the process of developing the article.

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