

“Assessing the degree of development of dynamic capabilities theory: A systematic literature review”

AUTHORS	Arcadio Gonzalez-Samaniego  Marco A. Valenzo-Jimenez   Jaime Apolinar Martinez-Arroyo   Salvador Antelmo Casanova Valencia 
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Arcadio Gonzalez-Samaniego, Ph.D., Postdoctoral Research, Department of Scientific Research Coordination, Faculty of Accounting and Administrative Sciences, Michoacan University of Saint Nicholas of Hidalgo, Mexico. (Corresponding author)

Marco A. Valenzo-Jimenez, Ph.D., Research Professor, Department of Scientific Research Coordination, Faculty of Accounting and Administrative Sciences, Michoacan University of Saint Nicholas of Hidalgo, Mexico.

Jaime Apolinar Martinez-Arroyo, Ph.D., Research Professor, Department of Administration, Faculty of Accounting and Administrative Sciences, Michoacan University of Saint Nicholas of Hidalgo, Mexico.

Salvador Antelmo Casanova Valencia, Ph.D., Associate Professor, Coordination of Accreditation and Continuous Improvement Department, Faculty of Accounting and Administrative Sciences, Michoacan University of Saint Nicholas of Hidalgo, Mexico.



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Arcadio Gonzalez-Samaniego (Mexico), Marco A. Valenzo-Jimenez (Mexico), Jaime Apolinar Martinez-Arroyo (Mexico), Salvador Antelmo Casanova Valencia (Mexico)

ASSESSING THE DEGREE OF DEVELOPMENT OF DYNAMIC CAPABILITIES THEORY: A SYSTEMATIC LITERATURE REVIEW

Abstract

Dynamic capabilities theory has become one of the most widely accepted theories of business strategy. The study aims to determine the degree of development of the dynamic capabilities theory. A meta-analysis was carried out through a bibliometric analysis and a systematic literature review. Documents published in Scopus and Web of Science between 1997–2023 were analyzed using VOSviewer software. 49 documents met the analysis requirements, with a maximum of 11 published in 2022. Keyword co-occurrences were also analyzed. 222 were found, and 26 were selected with at least two co-occurrences. The documents were grouped into six clusters by these keywords and analyzed to determine the degree of development of the theory. The results have shown popularity among researchers in different science branches, indicating a high degree of development. However, the study noted a lack of theoretical consistency in elaborating constructs for measuring variables in empirical investigations. As a result, this leads to a lack of consistency and generalization of the results. Hence, the theory is not considered fully developed in terms of lack of internal coherence, falsifiability, and predictability. Tools for the empirical measurement of variables need to be theoretically and empirically validated to ensure their application in different contexts. The confrontation of results from validated measurement tools in diverse environments will contribute to developing dynamic capabilities theory.

Keywords

theory of business strategy, keywords co-occurrences, tautology, conceptual consistency, empirical validation, bibliometric analysis, VOSviewer

JEL Classification

M10, M19, L21

INTRODUCTION

The dynamic capabilities theory has become one of the most widely used approaches in business strategy in recent years. It aims to explain the causes of business competitiveness (Teece et al., 1997). It is the most cited theory in administrative management (Schilke et al., 2018).

Since its appearance in the seminal paper by Teece et al. (1997), this theory has been criticized for being ambiguous in its theoretical definition, which causes great difficulty in its empirical application and generalization of the results without a standard in terms of measurement and implementation (Vijaya et al., 2019). Another criticism is its tautology, pointing out that dynamic capabilities theory is highly developed in companies with better performance and that they are weak or underdeveloped in companies with poor results (Arend & Bromiley, 2009).

In its conceptual formulation, an approach emerges that places them as intrinsic to the operations of high-level management (Teece, 2023).

This leads to greater complexity in their measurement and replication. On the other hand, another perspective locates them in organizational routines, allowing them to be learned and replicated. Although both perspectives converge in the conceptual foundations, they present two different approaches to implementation. This dissonance contributes to the challenge of assessing and standardizing these attributes.

The increasing research undertaken within its theoretical framework has led to literature reviews seeking to clarify the conceptualization of this theory. However, recent efforts have been lacking to consolidate and advance these reviews for more robust theory development.

1. LITERATURE REVIEW

The dynamic capabilities (DC) theory offers a framework that explains firm competitiveness (Albort-Morant et al., 2018; Kapoor & Aggarwal, 2020). DC are conceptualized as the ability of companies to maintain or increase their competitiveness in the face of changes in the technological environment where they operate (Teece et al., 1997). They are considered an evolution of the theory of resources and capabilities, which is considered static because the resources and capabilities that generate competitiveness for a company at a given time can become obsolete by changing the environment in which the company operates (Barney, 1991; Teece, 2023). Another way to conceptualize them is as the organizational and strategic routines of the firm by which they achieve new reconfigurations of their resources. At the same time, markets evolve from birth to extinction, maintaining or increasing their competitiveness (Eisenhardt & Martin, 2000). However, although the two visions of conceptualizing them may be complementary, they become different theoretical approaches to the question of whether they are a sustainable competitive advantage in themselves or whether it is just another source of competitiveness (Peteraf et al., 2013). Likewise, the different characteristics of the markets are relevant in terms of their dynamism, as well as the particular properties of the firms that act in them; thus, DC can be a source of competitive advantage depending on the company and its situation in the market (Pisano, 2017).

DC are imbued in the organization's routines and processes, where managing knowledge is fundamental to reconfiguring its base resources through seeking better levels of competitiveness (Di Stefano et al., 2010; Zollo & Winter, 2002). The

organizational structure of the companies is a determining factor for the development of DC, as well as how the management acts within it (Helfat & Peteraf, 2015; Schilke et al., 2018; Vijaya et al., 2019). They are heterogeneous, where one can differentiate between those implicit in the signature against those identified with the best practices in the industry (Barreto, 2010).

Under the frame of the theory, the micro-fundamentals of sensing can be recognized, with opportunities and threats to the environment where the company operates. Seizing is when resources are used to take advantage of opportunities, innovating in processes, business models, products, or any aspect that can generate a competitive advantage. Transforming reconfigures tangible and intangible resources to maintain or increase the competitiveness of the company (Cruz-Sanchez et al., 2020; Teece, 2007). Accordingly, absorption, innovation, and adaptation capacities are established in the micro-foundations of DC (Wang & Ahmed, 2007).

In environments of high market uncertainty, such as those generated by the economic crises of 2009 and the one generated by the COVID-19 pandemic in 2020, companies with strong DC can maintain their profitability and respond to changes in the market, even going so far as to create them (Franco et al., 2021; Teece & Leih, 2016). To the extent that the company is aware of changes in the environment in which it operates, it can foresee and generate changes within the organization that allow it to preserve its competitive advantage (Sheng, 2017).

Since 1997, studies have been yearly, focusing on different industries, countries, and companies mainly installed in developing countries (Bari et al., 2022; Fabrizio et al., 2022; Gruchmann et al., 2021). The first studies were mainly conceptual,

seeking to clarify its foundations (Talaftidaryani, 2021). The incipient empirical investigations that sought to identify the variables that compose them were carried out with case studies on large, mainly transnational companies that achieved better performance than their competitors, noting in them the characteristics that are postulated as a fundamental part of the DC (Di Stefano et al., 2010). However, there was no uniformity in measurement, and contradictory results, as well as a criticism about the tautology of the theory when measured in terms of the companies' results (Ambrosini & Bowman, 2009; Arend & Bromiley, 2009; Easterby-Smith et al., 2009; Laaksonen & Peltoniemi, 2018).

Recent research uses quantitative statistical techniques, collecting and analyzing primary data on samples of firms in a certain industry sector, seeking to generalize results and strengthen the theory (Bag et al., 2020; Dyduch et al., 2021; Singh & Rao, 2016). Nevertheless, there is no consensus on conceptualizing and empirical measurement of variables (Wilden et al., 2016). One potential reason for this inconsistency is the diverse approaches employed across various industry domains without a consensus on their operationalization (Wójcik, 2020).

The extensive adoption of the theory's principles and the abundance of research conducted across various scientific disciplines within its framework are indicators of a consolidated scientific theory. However, the lack of consistency in conceptualization and empirical measurement of its variables suggests a theory in its early stages of development. This paradox remains to be explored by researchers in the area. Therefore, this study aims to determine the degree of development of the dynamic capabilities theory.

2. METHODS

To achieve the research objective, a bibliometric analysis and a systematic literature review were performed based on published research of systematic reviews or bibliographic reviews about the theory of DCs (Figure 1). A bibliometric analysis measures and analyzes literary production in a specific field of science using quantitative techniques (Kraus et al., 2022). A systematic literature

review shows the verifiable procedure that seeks to compile the relevant documents that meet the criteria previously set by the researcher and the answer to a specific research question, developing a review and critique of the analyzed literature (Mayring, 2014). A fundamental aspect of this approach is that it is replicable by other researchers. An adaptation of the methodology proposed by Tranfield et al. (2003), commonly used by researchers in administrative sciences (Linnenluecke et al., 2020), was used (Figure 1). The VOSviewer software was used, which analyzes the similarities based on co-citations creating maps that allow them to be visualized and creating clusters that allow their subsequent analysis (Jan van Eck & Waltman, 2022).

The first stage consisted of developing the research protocol. A preliminary literature review was realized to shape the research design. The period analyzed was between 1997 and 2023 because the DC theory arose in 1997. The language in which the document was published was not limited, considering that although most scientific literature is written in English, there is growing research in other languages. It was observed that they were available online and indexed in the Elsevier Scopus (Scopus) and Clarivate Web of Sciences Core Collection (WoS) databases, which are the most used to carry out similar studies based on the quality of the documents they house (Espinoza-Torres & Segarra-Oña, 2022; Woltés & Fernández-Mesa, 2023). It was determined that the keywords to be used in the review were “dynamic capabilit*” and “review”, in order to include all endings, such as “capability”, “capabilities”, etc. The word “review” appeared in the documents that carried out explorations in their different conceptualizations, whether a systematic literature review or a bibliographic review.

In the second step, the following combination of a search query was implemented: TITLE-ABS-KEY (“dynamic capabilit*” AND “review”), because it was found in the previous analysis that there were articles that did not include the word “review” in the title or keywords, although the article did focus on it. The documents were not limited to a particular type, so the sample included all kinds of research (Frank & Hatak, 2014; Weiss & Kanbach, 2022). The analysis was not limited to the subject areas because of the wide scope of application of

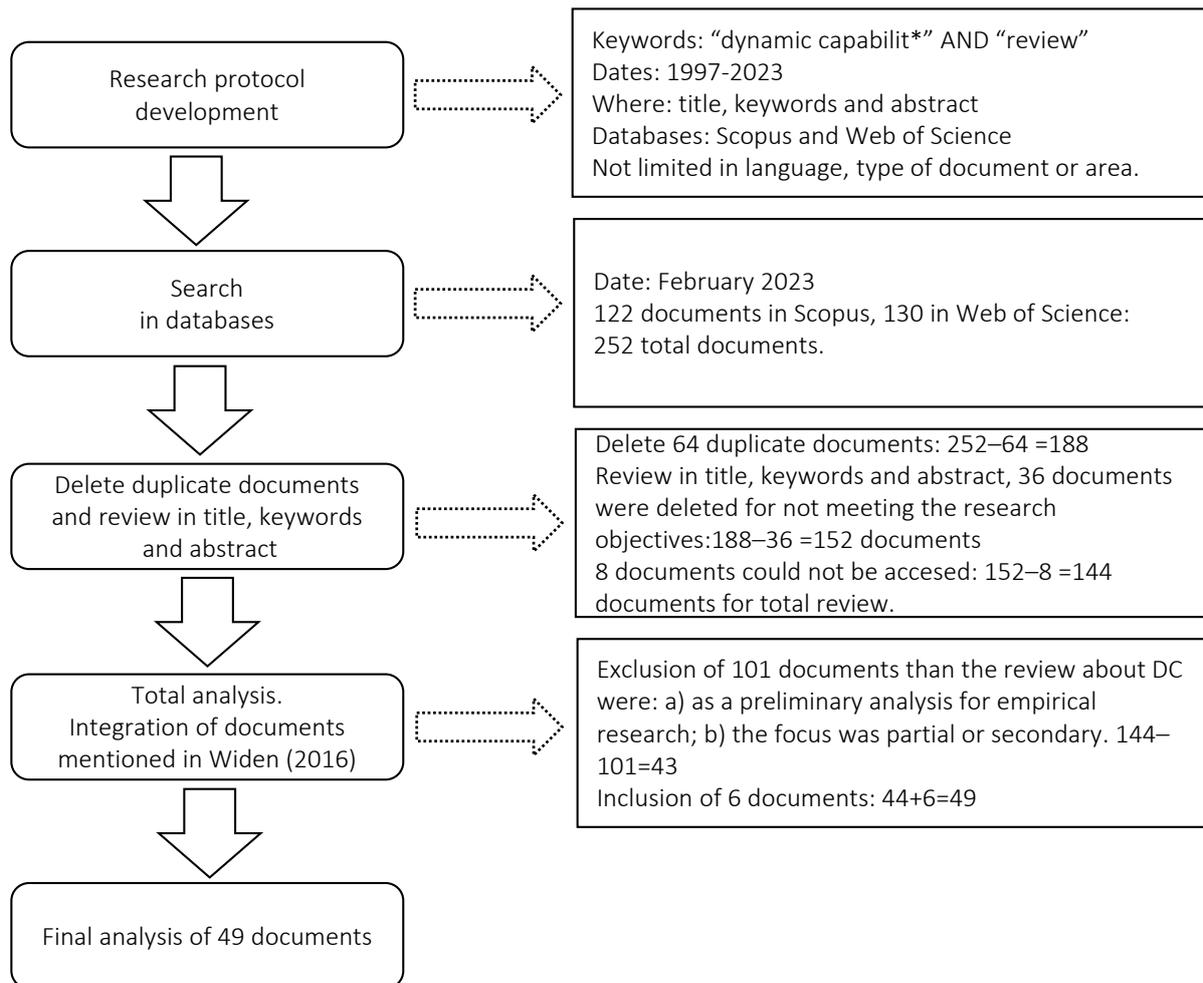


Figure 1. Procedure of investigation

DC. The time frame was 1997–2023. The search was conducted in February 2023. A total of 122 documents were found in Scopus and 130 in WoS.

Based on the documents found in Scopus, the next step was to find the duplicate documents (a total of 64), giving a total of 188 documents. Next, the title, keywords, and abstract of the remaining articles were reviewed to comply with a systematic literature review or bibliometric analysis on the DC, without excluding other topics where they are applied, considering that its theoretical framework has served to analyze other branches of science. 36 articles were excluded in which a systematic literature review or bibliometric analysis was not their primary objective or that did not have DC as their main theme. The remaining articles were 152 documents.

A total of 144 documents were analyzed to meet the objective of the investigation. Considering the re-

sources available to the authors, eight documents could not be accessed, representing a limitation of the present research. The study excluded the papers in which the review was: a) a preliminary analysis for empirical research, whether quantitative or qualitative; (b) the focus on DC was partial or secondary. Although the article by Bernardo et al. (2017) seeks to verify the resulting model in a case study, the bulk of the research is an analysis of the literature and the results, so it was decided to keep it in the study. The resulting articles totaled 43. A comparison was made with the documents mentioned in Wilden et al. (2016), who conducted a review that assessed the existing literature on DC by analyzing 133 articles, out of which 37 were a systematic literature review. Following this, six documents that met the requirements set in the investigation were incorporated, leaving a total of 49 final documents that were analyzed in this document.

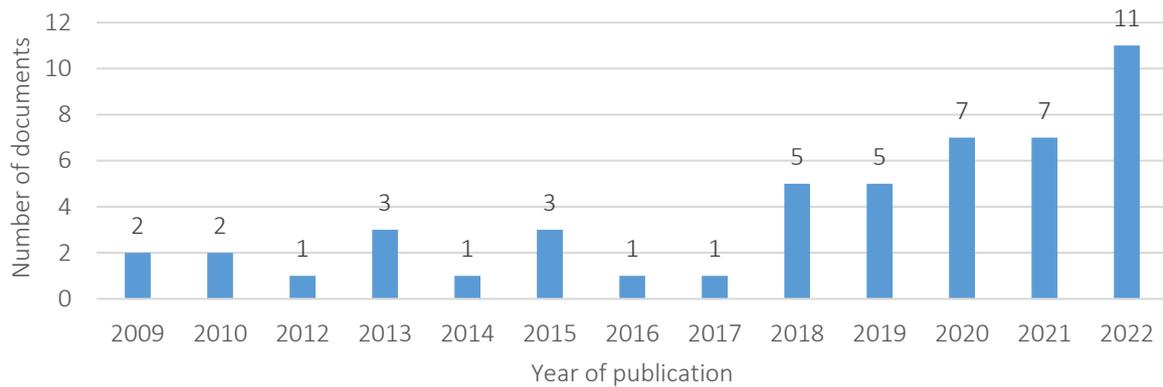


Figure 2. Trend on publications about DCs by year

3. RESULTS

The number of documents published annually allows for identifying the trend of a topic in science, particularly if they review documents that identify and group previous research on the subject. The results show the wide acceptance of DC in various fields of science, especially considering that literature reviews were analyzed. Accordingly, publications met the requirements from 2009, with at least one document until 2017, with a growing trend from 2018, with a maximum of 11 research in 2022 (Figure 2). It shows that there is a growth and strengthening of the field of theory. It is important to note that no documents were found in 2011.

Analyzing the most cited documents in the databases investigated, it was found that the publications of Ambrosini and Bowman (2009), Barreto (2010), and Schilke et al. (2018) are the most cited with 980, 838, and 423 citations, respectively, with 10 articles with more than 100 citations (Table 1). In the network created with the documents analyzed, the influence of the articles by Ambrosini and Bowman (2009), Barreto (2010), Helfat and Martin (2015), Peteraf et al. (2013), Schilke et al. (2018), and Vogel and Güttel (2013), as the main nodes (Figure 3), is appreciated. The article written by Schilke et al. (2018), although it was published in 2018, is already the third most cited article.

Table 1. Most cited research publications about DCs and year of publication

Authors	Title	Source	Year	Citations
Barreto	Dynamic Capabilities: A review of past research and an agenda for the future	Journal of Management	2010	980
Ambrosini and Bowman	What are dynamic capabilities and are they a useful construct in strategic management?	International Journal of Management Review	2009	838
Schilke et al.	Quo vadis, dynamic capabilities? A content-analytic review of the current state of knowledge and recommendations for future research	Academy of Management Annals	2018	423
Vogel and Güttel	The dynamic capability view in strategic management: A bibliometric review	International Journal of Management Review	2013	368
Helfat and Martin	Dynamic managerial capabilities: Review and assessment of managerial impact on strategic change	Journal of Management	2015	352
Peteraf et al.	The elephant in the room of dynamic capabilities: Bringing two diverging conversations together	Strategic Management Journal	2013	304
Di Stefano et al.	Dynamic capabilities deconstructed: A bibliographic investigation into the origins, development, and future directions of the research domain	Industrial and Corporate Change	2010	248
Arend and Bromiley	Assessing the dynamic capabilities view: Spare change, everyone?	Strategic Organization	2009	173
Wilden et al.	The architecture of dynamic capability research identifying the building blocks of a configurational approach	Academy of Management Annals	2016	169
Eriksson	Processes, antecedents and outcomes of dynamic capabilities	Scandinavian Journal of Management	2014	164

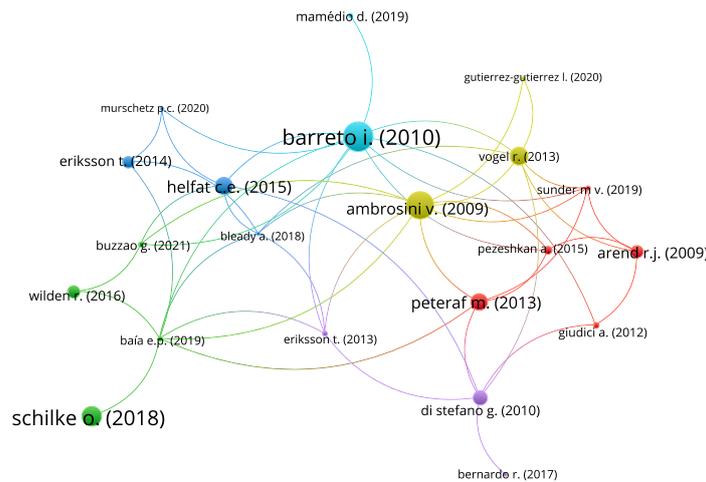


Figure 3. Leading authors on research publications about DCs and networks created

Journals focusing on business or management are where systematic literature reviews on DC are generally published. Eight journals have two published review articles, located in Q1 and Q2, indicating the relevance of journals that publish systematic literature reviews focused on DC theory (Table 2). The study found eight publications in journals whose principal focus is not administrative sciences but which conduct research reviews with the framework of the DC, showing their relevance in other areas of science. Of the 49 documents published, 45 are in scientific journals, two are conference proceedings, and two are book chapters, with research published in Portuguese.

The United Kingdom and the United States of America (the USA) are the host countries for journals with two articles, located in quartiles Q1 and Q2. A map was made with the publications according to the country where they were realized, considering a minimum of two documents, finding that India and Iran appear on par with Germany

according to the most current publications (Figure 4). The map created by VOSviewer shows in lighter colors the nodes with more current dates and, on the contrary, darker nodes for the documents with more distant dates. Although initially, the theory focused on analyzing companies located in developed economies, there has been a growing interest in recent years to study DC in countries with emerging economies.

The co-occurrence analysis of keywords was performed, which shows the frequency with which they appear in different publications, grouping them into clusters (Jan van Eck & Waltman, 2022). A total of 222 keywords were found. According to the nature of the research, it was decided to use at least two co-occurrences to analyze the approach given by the reviews on the DC and its link with different areas of knowledge. The result was 34 keywords for the analyzer. From the resulting table, the words: “systematic literature review”, “literature review”, “bibliometric analysis”, “text

Table 2. Journals with 2 or more publications about DCs and impact factor

Journal	Country of publication	Quartile	SJR 2021	H-Index	Total
Academy of Management Annals	USA	Q1	14.78	82	2
Journal of Management	USA	Q1	7.12	2.41	2
International Journal of Management Reviews	United Kingdom	Q1	3.85	116	2
Strategic Organization	United Kingdom	Q1	2.72	64	2
European Business Review	United Kingdom	Q1	2.39	47	2
Management Research Review	United Kingdom	Q2	0.67	59	2
Baltic Journal of Management	United Kingdom	Q2	0.69	31	2
Journal of Strategy and Management	United Kingdom	Q2	0.61	25	2

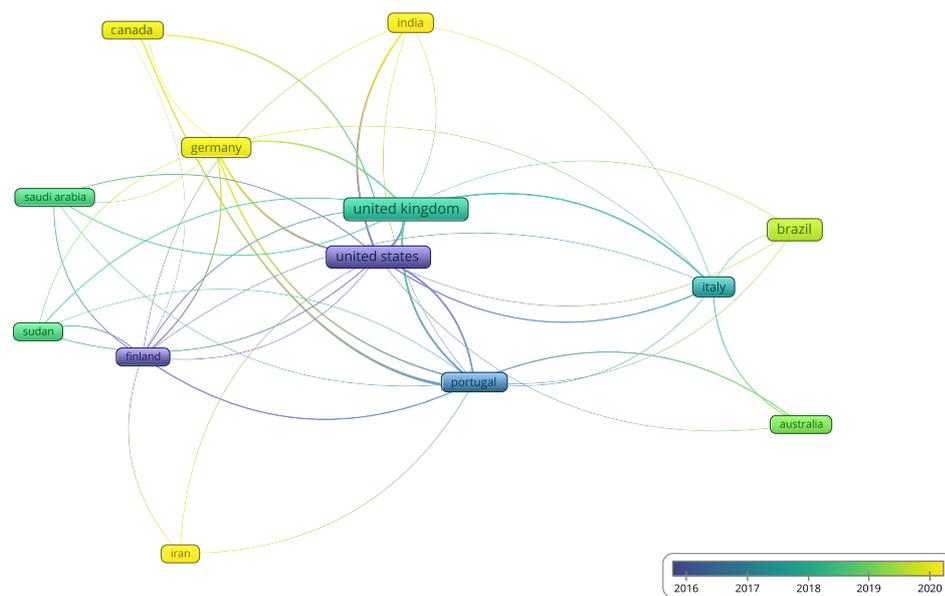


Figure 4. Countries with at least two documents on DCs

mining”, “morphological analysis”, “systematic review”, “content analysis” and “research agenda” were eliminated, which do not indicate the area of knowledge. A total of 26 words were analyzed. In the resulting map, the word “dynamic capabilities” is distinguished in the center of the six clusters created, which is consistent with the fact that the main objective of the documents investigated is the theory of DC (Figure 5). In this way, the resulting keywords are consistent with the

principal postulates of the theory, which mark its main scope of application in the performance of the firm, the environment where it operates, the knowledge processes, and the strategy followed by senior management to maintain or increase its competitiveness.

The keywords of the documents were grouped into six clusters that analyzed the most representative documents (Table 3).

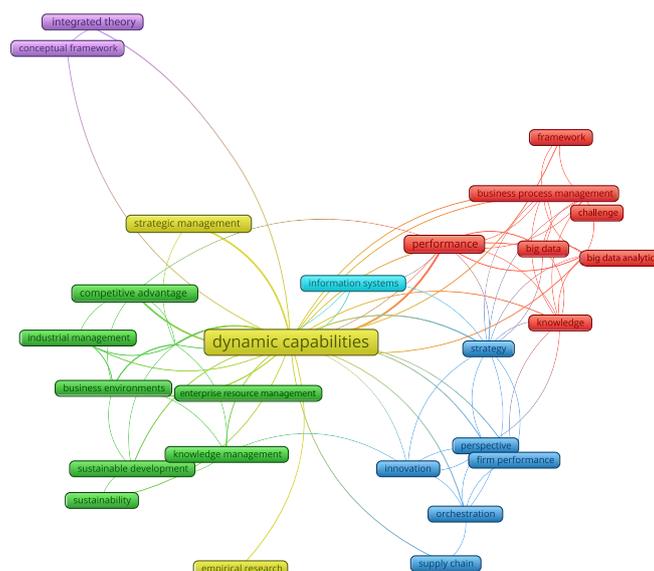


Figure 5. Co-occurrence of resulting keywords on publications about DCs and clusters created

Table 3. Clusters with representative documents on DCs

Cluster	Keywords	Representative documents
1	Big data Big data analytics Business Process Management Challenges Framework Knowledge Performance	Baía and Ferreira (2019); Bernardo et al. (2017); Bindra et al. (2023); Kaur (2023); Lu et al. (2022); Rialti et al. (2019); Rialti and Marzi (2020); Weiss and Kanbach (2022).
2	Business environments Competitive advantage Enterprise resource management Industrial management Knowledge management Sustainability Sustainable development	Aghimien et al. (2022); Bari et al. (2022); Buzzao and Rizzi (2021); Çoban et al. (2015); Venkatesh and Prashar (2021); Fabrizio et al. (2022); Gamra et al. (2021); Loureiro et al. (2021); Mamédio et al. (2019); Pulsiri and Vatananan-Thesenvitz (2018); Oliveira (2020).
3	Firm performance Innovation Orchestration Perspective Strategy Supply chain	Alzate et al. (2022); Bleadly et al. (2019); Johnson (2020); Murschetz et al. (2020); Pigola et al. (2022); Sandberg et al. (2021); Santos et al. (2018); Zhang and Yuan (2020).
4	Dynamic capabilities Empirical research Strategic management	Ambrosini and Bowman (2009); Araújo et al. (2018); Arend and Bromiley (2009); Bleadly et al. (2018); Di Stefano et al. (2010); Eriksson (2013, 2014); Giudici and Reinmoeller (2012); Gutierrez-Gutierrez and Antony (2020); Helfat and Martin (2015); Leemann and Kanbach (2022); Pezeshkan et al. (2016); Peteraf et al. (2013); Schilke et al. (2018); Vogel and Güttel (2013).
5	Conceptual framework Integrated theory	Barreto (2010); Vijaya et al. (2019); Wilden et al. (2016); Wójcik (2020)
6	Information systems	Bagus et al. (2021); Steininger et al. (2022); Talafidaryani (2021).

4. DISCUSSION

The theoretical framework of DC allows its application by various sectors of science and industry. The documents were grouped into six clusters, which were analyzed in depth (see Table A1).

Cluster 1 shows the micro-fundamentals of DC, which are sensing, seizing, and transforming. These are key to business management processes, as they contribute to organizational change seeking to achieve a competitive advantage (Bernardo et al., 2017; Teece, 2007). Thus, although there are different approaches to operationalizing DC, they are usually valued in the company's results, where, without undermining their importance, it is recognized that they are not the only factor in achieving them (Baía & Ferreira, 2019; Weiss & Kanbach, 2022). In its measurement, the particular context in which companies work is decisive, so it is difficult to standardize the results of empirical research. In knowledge management, companies make innovations to increase their competitiveness and reduce risks (Bindra et al., 2023; Kaur, 2023).

Recent areas of application within the framework of the DC are research on the sustainable supply

chain and its relationship with the circular economy, which resulted in organizations adapting quickly to maintain their competitiveness (Rialti & Marzi, 2020). Another aspect is the analysis of Big Data and Industry 4.0, which is a tool that allows organizations to develop new strategies to achieve their objectives (Lu et al., 2022; Rialti et al., 2019).

Cluster 2 states that changes in the environment where companies interact cause instability; however, these changes can be used to generate competitiveness (Pulsiri & Vatananan-Thesenvitz, 2018). The firm's competitiveness can be achieved through factors such as strategic foresight, intellectual capital, innovation, organizational culture, and learning, influenced by the availability of resources, where the company size should not be a limitation (Fabrizio et al., 2022).

Competitive advantage has evolved from production systems or the product itself toward knowledge and information management, with human capital and social capital being resources that allow the development of DC (Loureiro et al., 2021; Oliveira, 2020). The innovation capacity when operationalizing resources, as well as the capac-

ity for transformation and environmental dynamism, generates a competitive advantage, with the rapid adoption of digital technologies as a factor (Aghimien et al., 2022).

Empirical studies have focused on senior management, according to the postulates of the DC (Buzzao & Rizzi, 2021; Teece et al., 1997). The survey is the usual instrument for collecting data (Venkatesh & Prashar, 2021), using proxy data for its measurement mainly in a company's results (Baía & Ferreira, 2019), as well as in developed countries and large companies (Bari et al., 2022). Thus, to reduce the abstraction of DC terminology and the tautology of the theory, as well as generalize research conclusions, the empirical research should be increased in a greater diversity of countries, with quantitative and longitudinal approaches (Çoban et al., 2015; Fabrizio et al., 2022; Gamra et al., 2021; Mamédio et al., 2019).

In Cluster 3, there is a diversification in research on DC in different areas of industry, with the manufacturing sector as the main field of application (Bleady et al., 2019). Companies follow it focused on information technology and media, sectors with accelerated change due to the disruption of new forms of entertainment that have modified the traditional way of operating the industry (Murschetz et al., 2020). Research on the pharmaceutical biotechnology industry is also highlighted in this cluster; generally, it targets large and globalized companies with strong innovation burdens, according to the basic postulates of the DC (Johnson, 2020; Teece, 2018). Design management is another sector where, due to its implicit processes of learning, coordination, and skills, the micro-foundations of DC can be identified (Santos et al., 2018).

A robust DC ecosystem contributes to making organizations more agile and flexible by exploring their means to find new technologies and developing new practices to achieve competitive advantages (Alzate et al., 2022; Pigola et al., 2022; Zhang & Yuan, 2020). Thus, clarifying the conceptual framework of DC would allow its better operationalization (Sandberg et al., 2021).

Cluster 4 states that the DC theory was constructed with two theoretical currents with different conceptualizations, contributing to their confusion

in terms and empirical application (Eisenhardt & Martin, 2000; Peteraf et al., 2013; Teece et al., 1997). These differences were the cause of the wealth of conceptual research that seeks to clarify them (Giudici & Reinmoeller, 2012; Schilke et al., 2018; Venkatesh & Prashar, 2021). To clarify the conceptual contradictions (Di Stefano et al., 2010), the incipient empirical studies carried out until 2010 found DC developed in companies with better performance and, on the contrary, found them weak in companies with lower results, which contributed to their tautology (Ambrosini & Bowman, 2009; Arend & Bromiley, 2009). It was difficult to standardize its measurement when DC was immersed in the processes of companies (Bleady et al., 2019).

There was no consensus about the empirical measurement of DC, with a wide range of variables to measure the same construct (Bleady & Ali, 2018). The environment dynamism, the best practices in the industry, and the type of management are relevant contingent variables to consider in research (Peteraf et al., 2013). Thus, contradictory results can result from companies' different resources (Giudici & Reinmoeller, 2012).

The contrast between the results from quantitative and qualitative techniques would increase knowledge of the performance of DC and its processes, as well as recognize its limitations (Eriksson, 2014). Although the most recent research has an empirical and quantitative approach (Araújo et al., 2018), it is necessary to increase them with emphasis on the processes of creation, accumulation, and management of knowledge (Eriksson, 2014), social and human capital with significance on strategic change and the performance of companies in conditions of change (Helfat & Martin, 2015).

A weakness of the research is the methodologies used, which do not allow replication by other researchers (Pezeshkan et al., 2016), as well as the small samples used and, above all, the failure to carry out longitudinal studies that identify changes in the processes (Eriksson, 2013; Gutierrez-Gutierrez & Antony, 2020).

Companies must align their competencies to adapt to their environment and identify and predict scenarios, especially in unstable or crisis economies (Makkonen et al., 2014; Vogel & Güttel, 2013). The

adaptation capability is fundamental regardless of the company size, the industrial sector, or the cultural and business environment where the companies are located (Leemann & Kanbach, 2022). It is necessary to consider the imitation of routines and processes as an alternative to acquiring knowledge so that the cost of acquiring or generating knowledge decreases, contributing to better income for the company.

In Cluster 5, the documents that seek to clarify the tautology of DC are grouped. They define its theoretical construct as a multidimensional grouping of the different studies (Barreto, 2010). Their operationalization is not only the aggregate of each of the parts; research analyzes them as independent parts in such a way as to facilitate their measurement and application (Fabrizio et al., 2022; Gamra et al., 2021; Mamédo et al., 2019). However, there was a disparity in their implementation (Schilke et al., 2018). Although there is a large amount of research with a conceptual approach (Wilden et al., 2016), there is a trend toward empirical research with primary data (Vijaya et al., 2019). They may be due to the broad field of application of DC (Wójcik, 2020); and the very different characteristics of companies, both internally and in the position they occupy in their market (Eriksson, 2014).

In Cluster 6, DC research focused on the information technology sector, which is significant to achieving the objectives of companies, via innovation and management of information technologies, as well as the analysis of Big Data, with increasing research within the framework of DC

(Bagus et al., 2021; Rialti & Marzi, 2020; Steininger et al., 2022). The transformation capacity is relevant since, due to the characteristics of the industry, it is constantly changing, and companies must adapt to achieve their objectives by monitoring what happens in their environment, allowing continuous learning that allows the firm to reconfigure its base resources (Talaftidaryani, 2021).

The next step was to determine the degree of development of the DC theory according to the objective research.

The degree of development of a scientific theory can be approached with different criteria, such as the internal coherence of its constructs, the ability to predict a phenomenon, resistance to refutation or falsifiability, and its acceptance by the scientific community (Kuhn, 2004; Lakatos, 1989; Popper, 1991). Accordingly, the level of compliance with the previous criteria, the theory of DC has a high degree of development based on the prominent acceptance by the scientific community, as demonstrated by the growing amount of research in different science sectors (Bleady et al., 2019; Wilden et al., 2016; Wójcik, 2020). Although the DC shows coherence in being an evolution of the theory of resources and capabilities (Vogel & Güttel, 2013), though there is growing empirical research, there is no uniformity in the formulation of the constructs, resulting in being difficult to generalize (Bleady et al., 2018; Pezeshkan et al., 2016; Schilke et al., 2018). Due to this, the development of the DC in the issues of internal coherence, falsifiability, and predictability is considered still in development.

CONCLUSION

The study aimed to determine the degree of development of the dynamic capabilities theory. A meta-analysis was performed based on systematic literature reviews to achieve this objective. Forty-nine literature reviews published on the Web of Science and Scopus databases were analyzed in depth. The results showed that despite a large amount of research on dynamic capabilities in different contexts, it has not been possible to eradicate its tautology or the discrepancy in the theoretical foundations. Consequently, the theory cannot be contemplated as fully developed.

The literature review showed that research seeking to validate the theory has evolved from a theoretical perspective to increasingly empirical studies that use statistical techniques to analyze the results, proposing new measurement forms. Furthermore, empirical studies have undergone a shift in focus. Initially, they primarily targeted large companies in developing countries operating within sectors characterized by high technological change. The methodological approach involved qualitative tech-

niques, particularly case studies based on interviews with senior managers and the analysis of company results. However, there has been a notable increase in studies concentrating on small and medium-sized enterprises (SMEs). These studies now encompass countries with late development and exhibit a significant diversification of sectors within the economy. Nevertheless, a consensus on a standardized conceptualization has not yet been fully achieved. In order to enhance the theory and enable the generalization of the findings, it is imperative to establish congruence in the variables employed during its empirical application.

A future line of research is a comparative analysis of the empirical instruments used to collect the primary information. Additionally, it is crucial to validate these instruments and replicate the investigations employing them, thereby fortifying the theory with the resulting findings.

AUTHOR CONTRIBUTIONS

Conceptualization: Arcadio González-Samaniego, Marco A. Valenzo-Jiménez.

Data curation: Jaime Apolinar Martínez-Arroyo.

Formal analysis: Arcadio González-Samaniego.

Funding acquisition: Marco A. Valenzo-Jiménez.

Investigation: Arcadio González-Samaniego.

Methodology: Arcadio González-Samaniego, Marco A. Valenzo-Jiménez.

Project administration: Marco A. Valenzo-Jiménez.

Resources: Jaime Apolinar Martínez-Arroyo.

Software: Salvador Antelmo Casanova Valencia.

Supervision: Jaime Apolinar Martínez-Arroyo.

Validation: Salvador Antelmo Casanova Valencia.

Visualization: Salvador Antelmo Casanova Valencia.

Writing – original draft: Arcadio González-Samaniego, Marco A. Valenzo-Jiménez.

Writing – review & editing: Jaime Apolinar Martínez-Arroyo, Salvador Antelmo Casanova Valencia.

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APPENDIX A

Table A1. Supplementary materials. List of papers for cluster analysis

Cluster	Author(s)	Title	Year
1	Elisabeth P. Baía and João J. M. Ferreira	Dynamic capabilities and performance: How has the relationship been assessed?	2019
	Ronaldo Bernardo, Simone Vasconcelos Ribeiro Galina and Silvia Inês Dallavalle de Pádua	The BPM lifecycle: How to incorporate a view external to the organization through dynamic capability	2017
	Sunali Bindra, Deepika Sharma, Rohit Bhardwaj, Sanjay Dhir and Saurabh Srivastava	Knowledge-based dynamic capability: Concept mapping, usage, and taxonomy	2023
	Vaneet Kaur	Knowledge-based dynamic capabilities: A scientometric analysis of marriage between knowledge management and dynamic capabilities	2023
	Haiyan Lu, Guoqing Zhao and Shaofeng Liu	Integrating circular economy and Industry 4.0 for sustainable supply chain management: A dynamic capability view	2022
	Riccardo Rialti, Giacomo Marzi, Cristiano Ciappei and Donatella Busso	Big data and dynamic capabilities: A bibliometric analysis and systematic literature review	2019
	Riccardo Rialti and Giacomo Marzi	Setting the stage: BDA, dynamic capabilities and ambidexterity, what we know so far?	2020
2	Lysander Weiss and Dominic K. Kanbach	Toward an integrated framework of corporate venturing for organizational ambidexterity as a dynamic capability	2022
	Douglas Aghimien, Clinton Ohis Aigbavboa, Ayodeji Emmanuel Oke, David Edwards, Wellington Didibhuku Thwala and Chris J. Roberts	Dynamic capabilities for digitalisation in the AECO sector – A scientometric review	2022
	Nadeem Bari, Ranga Chimhunduand and Ka-Ching Chan	Dynamic capabilities to achieve corporate sustainability: A roadmap to sustained competitive advantage	2022
	Giacomo Buzzao and Francesco Rizzi	On the conceptualization and measurement of dynamic capabilities for sustainability: Building theory through a systematic literature review	2021
	Veysel Çoban, Sezi Çevik Onar and Ayberk Soyer	Analyzing dynamic capabilities via fuzzy cognitive maps	2015
	Vishnu ChandarVenkatesh and Anupama Prashar	Dynamic capabilities in crises: A state of the art review	2021
	Cleomar Marcos Fabrizio, Fabíola Kaczam, Gilnei Luiz de Moura, Luciana Santos Costa Vieira da Silva, Wesley Vieira da Silva and Claudimar Pereira da Veiga	Competitive advantage and dynamic capability in small and medium-sized enterprises: A systematic literature review and future research directions	2022
	Jamel Gamra, Elaine Mosconi and Abdeslam Hassani	Collaborative innovation and dynamic capabilities: A systematic literature review	2021
	Ruben Loureiroa, Joao J.M. Ferreira and Jorge Simoes	Approaches to measuring dynamic capabilities: Theoretical insights and the research agenda	2021
	Diorgenes Mamédio, Clarissa Rocha, Dayanne Szczepanik and Heitor Kato	Strategic alliances and dynamic capabilities: A systematic review	2019
3	Nonthapat Pulsiri and Ronald Vatananan-Thesenvitz	A systematic literature review of dynamic capabilities, strategic foresight and organizational learning	2018
	Gibson Meira Oliveira	In the international literature, how the manager's role is being researched in the development of dynamic capabilities?	2020
	Isabel Alzate, Eva Manotas, Antonio Boada and Camilo Burbano	Meta-analysis of organizational and supply chain dynamic capabilities: A theoretical-conceptual relationship	2022
	Abbas Bledy, Abdel Hafiez Ali and Siddig Balal Ibrahim	Dynamic capabilities theory: Pinning down a shifting concept	2018
	Heather A. Johnson	The moderating effects of dynamic capabilities on radical innovation and incremental innovation teams in the global pharmaceutical biotechnology industry	2020
	Paul Clemens Murschetz, Afshin Omid, John J. Oliver, Mahyar Kamali Saraji and Sameera Javed	Dynamic capabilities in media management research. A literature review	2020
	Angélica Pigola, Priscila Rezende da Costa, Naiche van der Poel and Franklin Thiago Ribeiro Yamaçake	New perspectives for dynamic capabilities in meeting needs of startups' survival	2022
	Erik Sandberg, Daniel Kindström and Linnea Haag	Delineating interorganizational dynamic capabilities: A literature review and a conceptual framework	2021
	Renato dos Santos, Eduardo Veiga Bueno, Heitor Takashi Kato and Rúbia Oliveira Corrêa	Design management as dynamic capabilities: A historiographical analysis	2018
	Huixiang Zhang and Yuan Yuan	Hotspot and trend visualization analysis of enterprise dynamic capability research	2020

Table A1. (cont.) Supplementary materials. List of papers for cluster analysis

Cluster	Author(s)	Title	Year
4	Véronique Ambrosini and Cliff Bowman	What are dynamic capabilities and are they a useful construct in strategic management?	2009
	Cíntia Cristina Silva de Araújo, Cristiane Drebes Pedron and Claudia Bitencourt	Identifying and assessing the scales of dynamic capabilities: a systematic literature review	2018
	Richard J. Arend and Philip Bromiley	Assessing the dynamic capabilities view: Spare change, everyone?	2009
	Abbas Bledy, Abdel Hafez Ali and Siddig Balalibrahim,	Dynamic capabilities theory: Pinning down a shifting concept	2018
	Giada Di Stefano, Margaret Peteraf and Gianmario Verona	Dynamic capabilities deconstructed: A bibliographic investigation into the origins, development, and future directions of the research domain	2010
	Tania Eriksson	Methodological issues in dynamic capabilities research – A critical review	2013
	Tania Eriksson	Processes, antecedents and outcomes of dynamic capabilities	2014
	Alessandro Giudici and Patrick Reinmoeller	Dynamic capabilities in the dock: A case of reification?	2012
	Leopoldo Gutierrez-Gutierrez and Jiju Antony	Continuous improvement initiatives for dynamic capabilities development: A systematic literature review	2020
	Constance E. Helfat and Jeffrey A. Martin	Dynamic managerial capabilities: Review and assessment of managerial impact on strategic change	2015
	Niklaus Leemann and Dominik K. Kanbach	Toward a taxonomy of dynamic capabilities – A systematic literature review	2022
	Amir Pezeshkan, Stav Fainshmidt, Anil Nair, M. Lance Frazier, and Edward Markowski	An empirical assessment of the dynamic capabilities-performance relationship	2016
	Margaret Peteraf, Giada Di Stefano and Gianmario Verona	The elephant in the room of dynamic capabilities: Bringing two diverging conversations together	2013
5	Oliver Schilke, Songcui Hu and Constance E. Helfat	Quo vadis, dynamic capabilities? A content-analytic review of the current state of knowledge and recommendations for future research	2018
	Rick Vogel and Wolfgang H. Güttel	The dynamic capability view in strategic management: A bibliometric review	2013
	Ilídio Barreto	Dynamic capabilities: A review of past research and an agenda for the future	2010
	Vijaya Sunder M, Ganesh L.S. and Rahul R Marathe	Dynamic capabilities: A morphological analysis framework and agenda for future research	2019
6	Ralf Wilden, Timothy M. Devinney and Grahame R. Dowling	The architecture of dynamic capability research identifying the building blocks of a configurational approach	2016
	Piotr Wójcik	Paradoxical nature of dynamic capabilities research: A content analysis of literature	2020
	Heri Cahyo bagus, Ilham M, Anis Eliyana, Tanti Handriana, Nuzulul Fatimah, and Tatag Herbayu L	Dynamic capabilities information technology enabler for performance organization	2021
	Dennis M. Steinger, Patrick Mikalef, Adamantia Pateli and Ana Ortiz de Guinea	Dynamic capabilities in information systems research: A critical review, synthesis of current knowledge, and recommendations for future research	2022
	Mojtaba Talafidaryani	A text mining-based review of the literature on dynamic capabilities perspective in information systems research	2021