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Navigating Digital Transformation: exploring frameworks for organizational success through a systematic literature review

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Navigating Digital Transformation: exploring frameworks for organizational success through a systematic literature review

1 Introduction

Digital technologies are rapidly and profoundly changing the world in both promising and threatening ways. Technologies such as big data, artificial intelligence, machine learning and blockchain are having a disruptive effect on sectors, business models and the way people interact with each other in society (Lopes, 2019). Furthermore, the frequent use and dependence on digital technologies causes a myriad of important changes in business and society (Schuh et al., 2017; Veldhoven, 2022), in that technology and society are so deeply interconnected that the technology that emerges from this existing cultural structure shapes the society in which we live (Nadoleanu et al., 2022). These transformations occur in both business models and organizational structures, resulting in significant social change driven by technology (Schuh et al., 2017).

This phenomenon, known as Digital Transformation (DT), has had positive impacts on the economy, with the emergence of new business models, such as those based on platforms, the reduction of production costs through automation, and the expansion of the concept of shared economics, enabling more sustainable models (Yoo & Yi, 2022). In this context, new digital platforms, many of them originating from digital disruptors, have driven innovations that offer customers improved experiences and more affordable prices (Downes & Nunes 2013; Wysokińska, 2021). This dynamic of continuous innovation and possibilities for better customer experiences underscores the importance of understanding DT not just as a series of technological changes, but as a comprehensive process that reshapes the way businesses operate and create value.

DT is a process that aims to maximize the use of digital technologies to promote changes and innovations in business (Pan, 2022; Schuh et al., 2017). It represents a response by organizations to changes in their environment, through the use of digital technologies to remodel their value creation processes (Vial, 2019). Given its procedural nature, the effectiveness of DT implementation crucially depends on the meticulous planning of the steps of this process, including their sequence, and inputs and outputs. This careful planning paves the way for a successful path to DT in organizations (Pan, 2022).

A DT strategy plays a crucial role in maintaining the competitive advantage of incumbent companies (Han & Zheng, 2022), as it is an effective approach to dealing with the challenges of the highly competitive business environment (Orbik, 2019). Furthermore, DT has a significant impact on the creation, delivery, and capture of value in virtually every industry (Vaska, 2021). Digitally mature organizations are 26% more profitable than their average industry competitors, due to their ability to combine the intensity of digital and transformational management (Westerman et al., 2012), and expose new avenues in which the organization can be in touch with customers and thus create value for them (Lemon & Verhoef, 2016).

Despite the new opportunities that digital transformation has brought to organizations, it has created pressure to develop the appropriate capabilities to carry out these transformations (Horlach et al., 2016). One of the explanations for this lack of capability is due to the fact that DT is still in its early stages in all sectors, and most companies lack complete practical experience in the topic (Han & Zheng, 2022).

Recognizing these challenges, companies from various industries have mobilized to overcome barriers to progress, initiating efforts to harness the benefits of new digital technologies. This process involves key transformations in business operations and affects both organizational structures and management concepts (Matt, 2015). For companies that are starting their DT, it is

recommended that they adopt an incremental approach with smaller initiatives that take advantage of the direct benefits of technology to improve the efficiency of their operations and offerings to the market (Saarikko, Westergren & Blomquist, 2020). However, this movement towards change also presents challenges, particularly in the widespread adoption of new technologies by large organizations, due to existing legacy systems and structural inertia (Zhu, 2006).

The International Data Corporation (IDC) mentions that the main obstacle for corporate DT is the limit that organizations have in their ability to use digital technology to transform their business processes (Pan, 2022). Furthermore, a lack of understanding of DT processes increases the risk of failure in transformation programs, resulting in high organizational costs and limited knowledge of strategies for doing so (Dang-Pham, 2022). According to Deschamps and Nelson (2014), most companies fail to innovate due to a lack of commitment and engagement from senior management. The absence or uncertainty of a digital strategy, made by leaders, is one of the most significant barriers, especially in the early stages of transformation (Kane et al., 2015).

The key drivers for DT are not the technologies themselves, but business factors, strategy, culture, and talent development. Effective digital strategies are less about acquiring and implementing new technologies and more about reconfiguring businesses to utilize the informational advantages that these technologies give to organizations (Kane, 2015). This implies that digital transformation transcends technological adoption, requiring an integrated and holistic approach to several factors. Hadjielias et al. (2021) highlight the importance of knowledge management systems and the formation of digital innovation teams that combine complementary skills, highlighting collaborative culture as essential for innovation.

Balakrishnan and Das (2020) argue that digital transformation or Industry 4.0 must involve strategic changes, covering strategies, structures, processes, resources, and organizational culture. Similarly, Kane et al. (2018) emphasize digital maturity as a concept that synchronizes talents, organizational structure, and culture with digital environments, taking advantage of technological opportunities. These studies collectively indicate that there are a diversity of factors that impact DT, in addition to the technology itself, and that the analysis of a combination of these factors in an integrated view is necessary. This emphasizes the need for structured tools to guide organizations on this journey.

Although DT has been widely adopted in several areas, at the time of carrying out this research, there was not a widely recognized framework, based on relevant theories, that could be used to guide or analyze the process of digital transformation in organizations (Xu, 2022).

A conceptual framework is a synthesized representation created by the researcher to explain a specific phenomenon. This synthesis is demonstrated by establishing connections between specific variables that were used in the research (Regoniel, 2015). Through this, it is possible to identify the concepts included in a complex phenomenon and their relationships, which are often presented visually in a diagram or another type of scheme (Glatthorn, 2005).

In line with the need to structure complex research, recent systematic reviews have contributed to a better understanding of DT, a field that exemplifies the complexity that conceptual frameworks seek to organize. Vial (2019) and Verina and Titko (2019) delved deeper into the concept of DT and explored the factors that influence it in general. Pihir and Tomičić (2019) developed a framework for DT, addressing technologies and approaches (Digital Transformation Playground). Trenerry et al. (2021) also identified and created a framework with the main factors for an organization's DT, from the perspective of employees, considering individual, group and organizational factors. Hanelt et al. (2021) provided a framework that synthesizes current

knowledge about DT from the perspective of organizational change, exploring adaptive organizational design.

Therefore, this study seeks to bring together broad and current knowledge about frameworks for digital transformation to answer the following questions: What are the frameworks for managing the digital transformation of organizations? What are the key constructs (or factors) of its success? Thus, the objective of the research was to identify the constructs that are being used in frameworks proposed for DT in organizations. Additionally, we sought to analyze the relation between processes and constructs that are being used in frameworks proposed for DT.

The work that comes closest to the objective proposed in this study is that of Aghamiri et al. (2022), whose objective was to find the advantage of the models and frameworks proposed in recent years. However, they found a limited number of systematic literature reviews - just 16 - which made it impossible to identify specific advantages for companies or organizations.

A framework is used to provide a structure within which strategies for the research project can be determined and fieldwork can be carried out (Leshem & Trafford, 2007). This methodological tool is proven to be fundamental in organizing research in vast fields, serving as a conceptual map that guides the investigation. A specific framework for DT plays a crucial role in offering clear guidelines and highlighting the necessary changes in the organizational structure, serving as a strategic basis during the transformation process (Schindlwick, 2021). It plays a fundamental role in helping to visualize solutions and alternatives for the organizational structure and IT area, as well as in organizing the development of a DT program and providing a guide for decision-making in the organization's design (Nandico, 2016).

2 Methodology

In order to achieve the objectives proposed in the research, a systematic review of the literature was used. A systematic review is a study that uses systematic and explicit methods to identify, select and critically evaluate relevant research and to collect and analyze a set of data included in the review (Cochrane Handbook, 2001). In this sense, the research was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. PRISMA was created to ensure transparent and complete reporting of systematic reviews, allowing results to be assessed for their reliability and applicability (Moher et al., 2009). Although PRISMA was initially designed for reviews of health interventions, its criteria apply to systematic reviews of any other area, such as applied social sciences (Page et al., 2021).

The searches were carried out in the Clarivate databases, using the Web of Science (WOS). WOS is one of the most famous scientific citation index databases in the world (Wang et al., 2016). Its databases are selective and cover the most influential journals in different fields of research (Vanderstraeten & Vandermoere, 2021).

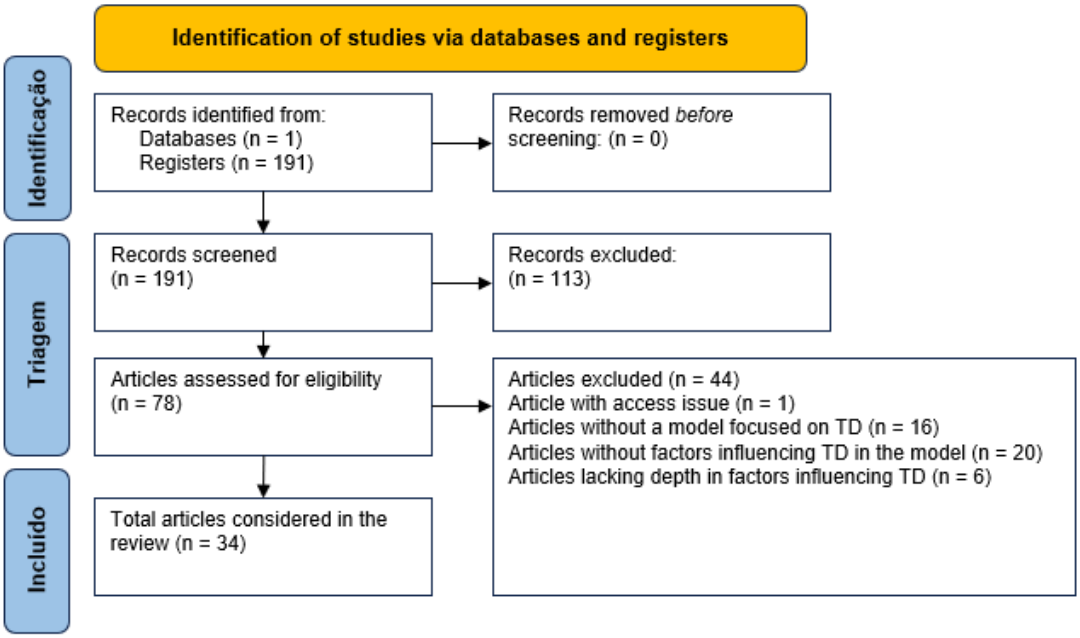
The eligibility criteria for this study were designed to select types of documents that were articles, freely accessible to the public (thinking about those who do not have access to paid databases), which contained the keyword “digital transformation” in the title and the words “management”, “framework” or “model” in the title, abstract, author keywords or expanded keywords. Expanded Keyword Search is a unique feature of Clarivate databases, and uses algorithms to find words that frequently appear in an article's reference titles but are not present in the article title itself. It was decided not to include systematic reviews or conference records in the database, so as to prioritize the deepening of the frameworks and their constructs through articles submitted to peer review. No period or language restrictions were used either.

Using pre-established criteria, 191 articles were identified. A preliminary analysis of titles and abstracts resulted in the exclusion of 113 articles, leaving 78 for further evaluation. During this

phase, articles were excluded for the following reasons: a) lack of proposal for a specific framework for Digital Transformation (DT); b) the article's focus is not centered on DT, but rather on isolated technological aspects without integration with management; c) limiting the scope to identifying barriers without proposing an implementation model; and d) exclusive focus on the benefits of DT without discussing operationalization structures. In the next phase, the following were examined: introductions, frameworks and conclusions; and in some cases, the full text, to identify the proposed frameworks, their objectives, approach and variables. This resulted in the exclusion of a further 44 articles, leaving 34 documents for inclusion in the systematic review (Figure 1).

Figure 1

Article screening process



Source: based on Haddaway et al. (2022).

The reasons for excluding the 44 articles were: 16 articles did not present a framework focused on digital transformation; 20 lacked direct influencing factors in digital transformation; six did not detail these factors sufficiently; one was in the process of being retracted and another was inaccessible (access closed).

The 34 selected articles, published between 2018 and 2022, demonstrated an average of 30 citations per work, totaling 95 authors involved. The methodological analysis revealed 23 qualitative, 9 quantitative and two mixed-approach studies. The three most recurrent expanded keywords in the selected articles were "management", "innovation" and "digital capabilities".

To organize the data, an Excel spreadsheet was used to create the tables, and Gephi software, a graph and network visualization and exploration tool, was used to create the network graph (Figure 1).

3 Frameworks for managing Digital Transformation

3.1 Key constructs

Table 1 lists the various key constructs identified in the literature, such as Technology, Organizational Structure, Leadership, Management, among others. The frequency with which each construct appears in the reviewed studies (Qty column) reveals the aspects of digital transformation

that were most emphasized in academic research. For example, Technology and Organizational Structure appear in eight studies out of the 34 studied, indicating a significant focus on this aspect.

Table 1

Main Constructs in framework studies for Digital Transformation

Construct	Author(s)	Qty
Technology	Ivančić, Vukšić & Spremić, 2019; Zhang, Xu & Ma, 2022; Bodrožić & Adler, 2022; Urbinati et al., 2021; Wu, 2021; Agostino & Costantini, 2021; Marino-Romero, 2023; Pan et al. 2022;	8
Organizational structure	Ivančić, Vukšić & Spremić, 2019; Porfírio, et al., 2021; Zhang, Xu & Ma, 2022; Bodrožić &Adler, 2022; Imran, et al., 2021; Faro, Smith & Jones, 2021; Pan, et al., 2022; Xu, 2022	8
Leadership	Wrede, Velamuri & Tobias Dauth, 2020; Imran, Shahzad, Butt & Kantola, 2021; Dörr, et al., 2021; Stoianova et al., 2020; Weber et al, 2022; Zivkovic, 2022; López-Muñoz, et al., 2022	7
Management	Porfírio; et al., 2021; Smith & Beretta, 2020; Bodrožić & Adler, 2022; Kim & Kim, 2022; Anshin V. and Bobyleva A, 2021; Stoianova et al., 2020; Pan et al. 2022	7
People	Ivančić, Vukšić, & Spremić, 2019; Wengler, Hildmann, & Vossebein, 2020; Zhang, Xu & Ma, 2022; Kim & Kim, 2022; Agostino & Costantini, 2021	5
Strategy	Ivančić, Vukšić & Spremić, 2019; Agostino & Costantini, 2021; Fang et al., 2020; Han et al, 2022; Pan et al. 2022	5
Business process	Wengler, Hildmann & Vossebein, 2020; Agostino & Costantini, 2021; Stoianova et al., 2020; Han et al, 2022	4
Knowledge management	Smith & Beretta, 2020; You & Yi, 2021; Marino-Romero, 2023	3
Culture	Philippart, 2022; Imran, Shahzad, Butt & Kantola, 2021; Stoianova et al., 2020	3
Environmental factors	Zhang, Xu & Ma, 2022; Kim & Kim, 2022; Xu, 2022	3
Dynamic Capabilities	Warner & Wäger, 2019; Wu, 2001; Sánchez & Zuntini, 2018	3
Value Chain	Ivančić, Vukšić & Spremić, 2019; Sánchez & Zuntini, 2018; Xu, 2022	3
Client	Ivančić, Vukšić, & Spremić, 2019; Agostino & Costantini, 2021	2
Resource	Sánchez & Zuntini, 2018; Kim & Kim, 2022	2
Data	Wengler, Hildmann & Vossebein, 2020; Stoianova et al., 2020	2
Innovation management	Marino-Romero, 2023	1
Investment	Agostino & Costantini, 2021	1
Public policy	Bodrožić & Adler, 2022	1
Non-cognitive dynamic capabilities	Ates & Acur, 2022	1
Organizational Ecosystem	Sánchez & Zuntini, 2018	1
Infrastructure	Han et al, 2022	1
Ambidexterity	Smith & Beretta, 2020	1
Digital Capabilities	Urbinati et al., 2021	1
Organizational Competence	González-Varona, et al., 2021	1
Boundary Management	Urbinati et al., 2021	1
Digital Platform	Wu, 2021	1
Innovation	Ivančić, Vukšić & Spremić, 2019	1
5 Forces Model	Sánchez & Zuntini, 2018	1
External Triggers	Warner & Wäger (2019)	1
Internal Enablers	Warner & Wäger (2019)	1
Internal Barriers	Warner & Wäger (2019)	1
Governance	Philippart, 2022	1

In total, 32 constructs were identified in the articles investigated. This wide variation in constructs on the topic of digital transformation reflects the complexity and multidimensionality of the phenomenon. One of the reasons for this complexity comes from the fusion between business and digital technology (Ates & Acur, 2022).

Given the presence of this wide range of constructs, it is necessary to adopt an integrated and comprehensive methodology for effective management of digital transformation (DT). This is due to the fact that the complexity inherent to digital innovations implies substantial changes in organizational structures to generate the necessary capabilities that will reap the benefits of digital technologies (Porter & Heppelmann, 2015).

Digital transformation, far from being a homogeneous process, encompasses organizational, technological, cultural, and strategic aspects, among others. Thus, DT requires a holistic approach, considering the organization as a whole, to implement effective technology-driven changes (Imran et al., 2021).

3.2 Combination of constructs

To analyze the combination of constructs, focusing on better visualization, Table 2 and Figure 2 were created.

Table 2 illustrates the variety of combinations of constructs used in the models covered by the articles analyzed. This table is divided into three columns: 'Constructs', which details which constructs are used; 'Authors', which identifies the authors of the respective articles; and 'Total', which indicates the total number of articles that used the combinations of constructs listed in the table.

The network graph (Figure 2) illustrates the relationship between the constructs that influence DT. Each node in the network represents a construct and the relationship between one construct and another is represented by the edges. The edges were obtained from the mention of the constructs in the articles investigated.

Analyzing Figure 2, it appears that there are a total of 85 relationships or edges between the constructs, with an average of 5.7 connections that each construct establishes with other constructs in the network, which suggests moderate connectivity. The construct 'Technology' presents the highest number of connections, totaling 17, followed by 'Management' with 13, 'People' with 12, 'Value Chain' with 11 and 'Organizational Structure' with 10. These numbers highlight the constructs that occupy central positions in the network, pointing to areas that have potentially significant influence on DT.

Table 2

Combinations of constructs that impact Digital Transformation

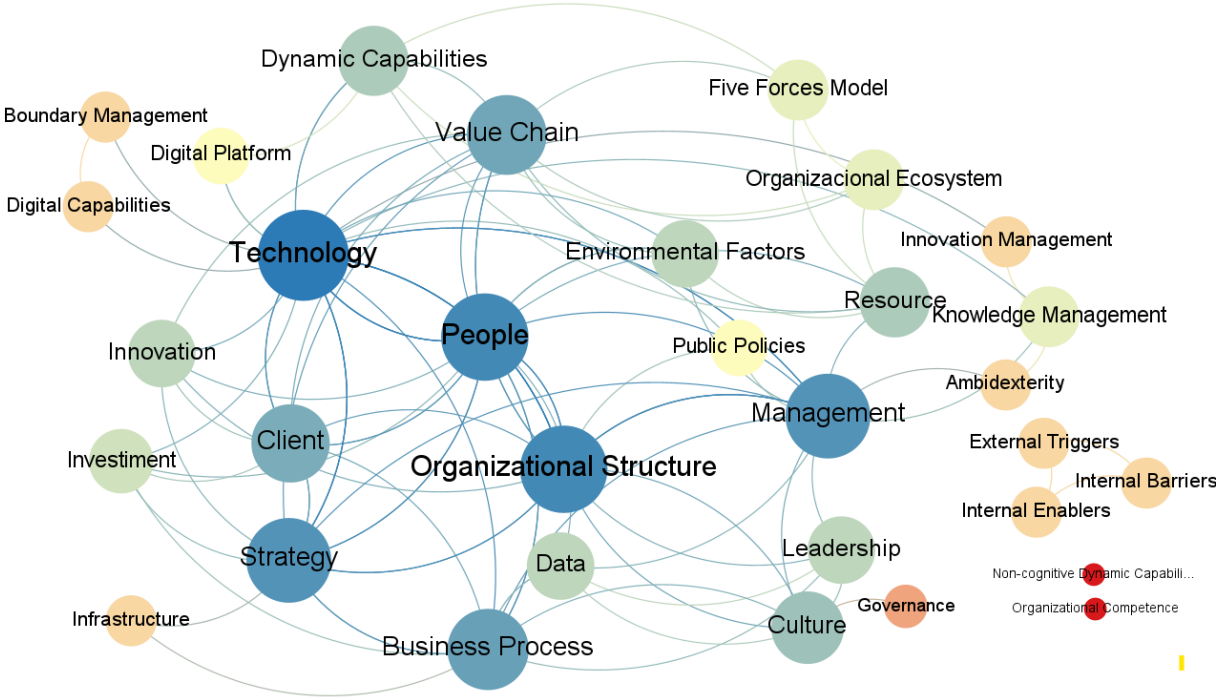
Constructs	Authors	Total
Articles with 1 construct		
Organizational Competence; Strategy; Organizational structure; Leadership; Non-Cognitive Dynamic Capabilities; Management	You & Yi (2021); González-Varona, et al., 2021; Fang et al., 2020; Faro, Smith & Jones, 2021; Zivkovic, 2022; Ates & Acur, 2022; Dörr, et al., 2021; Weber et al. (2022); Anshin & Bobyleva (2021); López-Muñoz, et al. (2022); Wrede, Velamuri & Tobias Dauth (2020).	11
Articles with 2 constructs		
Management and Organizational Structure	Porfírio et al. (2021)	1
Articles with 3 constructs		
Knowledge Management, Innovation and Technology Management; People, Processes and Data; Leadership, Organizational Structure and	Marino-Romero (2023); Wengler, Hildmann, & Vossebein (2020); Imran, et al. (2021); Smith & Beretta (2020); Urbinati et al. (2021);	8

Culture; Knowledge Management, Management and Ambidexterity; Technology, Digital Capabilities, Boundary Management; Technology, Dynamic Capabilities and Digital Platform; Organizational Structure, Environmental Factors and Value Chain; Processes, Strategy and Infrastructure	Wu (2021); Xu (2022); Han et al. (2022)	
Articles with 4 constructs		
Technology, Organizational Structure, Strategy, Management; Technology, Organizational Structure, Management, Public Policies; People, Management, Resources, Environmental Factors; People, Technology, Organizational Structure, Environmental Factors;	Pan et al. (2022); Bodrožić & Adler (2022); Kim & Kim (2022); Zhang, Xu & Ma, 2022	4
Articles with 5 constructs		
Leadership, Business Processes, Culture, Management, Data; Resource, Organizational Ecosystem, Dynamic Capabilities, Value Chain, 5 Forces Model	Stoianova et al. (2020); Sánchez & Zuntini (2018)	2
Articles with 6 constructs		
People, Customer, Technology, Business Process, Strategy, Investment	Agostino & Costantini (2021)	1
Articles with 7 constructs		
People, Customer, Technology, Organizational Structure, Strategy, Innovation, Value Chain	Ivančić, Vukšić & Spremić (2019)	1

At the center of the network of constructs (Figure 2) and in agreemnent with Table 1, Technology emerges as one of the main drivers of Digital Transformation (DT), as highlighted in the literature (Pirola et al., 2020).

Figure 2

Network graph of the relationships between the constructs that influence DT



Technologies such as artificial intelligence, internet of things, big data, robotics, digital platforms, social media, and blockchain have the potential to greatly reshape vast areas of human activity (Bodrožić & Adler, 2022), and organizations capable of quickly adapting to technological innovations in innovative ways can achieve a significant competitive advantage (Nadeem et al., 2018). According to Kaldero (2018), the incorporation of technology is not only advantageous, but essential to the survival of companies in the context of the digital economy. Finally, Heavin & Power (2018) consolidate this vision by positioning technology at the heart of successful DT.

Despite the importance of technology as a driver for DT, this transformation should not be limited to technology. It can also be associated with strategic changes in companies and organizational management, including strategy, structures, processes, resources, and culture (Balakrishnan & Das, 2020). Figure 2 illustrates this well when observing constructs such as People, Strategy, Management, Organizational Structure, Business Processes connecting with Technology and other relevant constructs within a network of connections.

Although there is great connectivity between the constructs, when examining Table 2, it is observed that most articles focus on a single construct when addressing DT. Of a total of 28 articles analyzed, eleven focus on this singular approach. However, it must be considered that the implementation of DT is a complex process, accompanied by many internal and external factors, and the existence of these factors will probably lead to the success or failure of DT (Zhang et al., 2022)

Just like “Technology”, the construct of “Organizational Structure” emerges as a central element in the different combinations of constructs, being present in groups with 1, 2, 3, 4 and 7 constructs in Table 2. This recurrence highlights the importance of Organizational structure in the context of digital transformation, suggesting an intrinsic relationship with the processes and strategies involved in this transformation.

It is also observed that constructs such as “Ambidexterity”, “Organizational Competence” and “Data” appear less frequently in the set of articles examined. This observation suggests that such areas have been relatively less explored in the field of digital transformation. This trend indicates that these themes may represent fertile fields for future investigations. The scarcity of literature focused on these constructs can be interpreted as an opportunity for researchers seeking to contribute new insights and perspectives, thus filling an important gap in the comprehensive understanding of digital transformation.

A clear example of this is related to the “Data” construct, according to the Statista website (2020), an online platform specialized in data collection, there is a forecast that the total amount of data created globally will reach 180 zeta bytes in 2025. This means the creation of 90 times more data than was created in 2010. The growing production of data makes data analysis and management tasks essential for companies and the use of big data and artificial intelligence technologies affects business processes and how decisions are made (Sánchez et al., 2018).

Digital technologies can support open innovation by utilizing data ingestion and analytics to design innovative products and services that better meet customers' needs and difficulties (Han, 2020; Ubirnati et al., 2020). With the acceleration of digitalization processes, companies are urgently exploring the path of transformation through the use of big data, cloud computing and artificial intelligence in order to obtain a sustainable competitive advantage (Xu et al., 2022).

Analysis of the data in Table 2 also reveals that the “leadership” construct plays a significant role in digital transformation studies, being present in seven of the 28 articles examined. However, a more detailed observation shows that its presence is concentrated in just three types of construct combinations, appearing in studies with one, three and five constructs.

It is particularly notable that of these seven articles the majority (five articles) address leadership as the sole focus of study. This trend suggests that while leadership is recognized as an important factor in digital transformation, it is often explored in isolation rather than being integrated with other constructs. This characteristic may indicate a traditional view of leadership as a distinct and independent element, in contrast to a more interdisciplinary approach that could reveal complex interactions between leadership and other aspects of digital transformation.

In analyzing Figure 2, within the Leadership relationship network, the following constructs emerge: Organizational Structure, Culture, Management, Business Process and Data. The connection between leadership and the business process and organizational culture constructs demonstrates that leadership is essential in configuring organizational culture and the scope of which business processes will be covered by digital transformation. The figure of leaders, such as the Chief Digital Officer (CDO), has a fundamental role in influencing organizational culture, encouraging the digital journey (Singh & Hess, 2017), and, simultaneously, deciding which business processes will be affected by digital technologies (Porfírio et al., 2021).

The relationship between leadership and management can indicate, for example, the ability of managers to continuously monitor market trends, perceive and take advantage of technological opportunities and transform them into business opportunities (Karimi & Walter, 2015). Leaders are charged with ensuring the right organizational structure and culture (Reck & Fliaster, 2019).

3.2 Processes for Digital Transformation

Figure 3 shows the process steps adopted in different studies on digital transformation. The steps of the process were enumerated, ranging from basic concepts such as 'Input', 'Process' and 'Output' (Han & Zheng, 2022) to more complex approaches involving seven steps (Gaffley & Pelser, 2021). This table highlights the diversity of methodological approaches adopted in studies on digital transformation, reflecting the complexity and dynamism of this field.

Figure 3

Processes for Digital Transformation

Process Steps	Authors
1. Input, 2. Process, 3. Output	Han & Zheng (2022)
1. Discover potential for improvement, 2. Analyze the current working method, 3. Generate original ideas, 4. Develop and implement the improvement plan, 5. Evaluate the new working method (iterative)	Dang-Pham et al. (2022)
1. Business needs, 2. Problem, 3. Solution, 4. Operation, 5. Management of change	Majdalawieh & Khan (2022)
1. Define the digital benchmark by identifying the digital gap, 2. Select independent variables relevant to the digital strategy, 3. Define the dependent variables and apply an impact and urgency analysis to all variables, 4. Prioritize, weight and classify digital assets from impact and urgency analysis, 5. Define a financial plan for implementation, 6. Select cross-functional teams, assign responsibilities related to KPIS and ROI, 7. Execute and review (Steps 1 to 6): define schedules, update the digital strategy and incorporate them into the overall business strategy.	Gaffley & Pelser (2021)

Hang & Zheng's (2022) research focuses on the drivers of a company's Digital Transformation (DT), examining how technical, environmental and organizational elements influence different phases of DT - informatization, datafication and intelligence. They highlight that DT goes beyond traditional business objectives, being an evolutionary process that requires integrated online and offline strategies, and a strong technical foundation in technologies such as AI and big data. Furthermore, they emphasize the importance of adapting DT to the specific stage of each company, considering the relevant driving elements for an efficient digital transition.

This study paves the way for future research in areas such as the application of emerging technologies for innovation in various industries, the impact of DT on the management practices of talent and leadership, and the digital security challenges faced during DT, proposing solutions and strategies for risk mitigation.

3.3 Combination of processes and constructs

Figure 4 offers a view of how different constructs are applied at specific stages of digital transformation processes. For example, Figure 4 shows the relationship between 'Digital Perception', 'Digital Capture', and 'Digital Transformation' with constructs such as 'Dynamic Capabilities', 'External Triggers', and 'Internal Enablers' (Warner & Wäger, 2019) .

Figure 4

Combined Processes and Constructs

Process Steps	Constructs	Authors
1. Digital Perception, 2. Digital Capture, 3. Digital Transformation	Dynamic Capabilities, External Triggers, Internal Enablers, Internal Barriers	Warner & Wäger (2019)
1. Discovery, 2. Development, 3. Demonstration, 4. Implementation	Governance and Culture	Philippart (2022)

Philippart's (2022) research emphasizes the importance of corporations looking beyond technology in their Digital Transformation (DT) initiatives. He suggests that the success of DT depends not only on business recommendations, but also on a focus on two critical dimensions: governance and culture. Through the analysis of 12 cases, the author identified four distinct stages in DT - discovery, development, demonstration and implementation - each with its specific challenges. The research highlights the need to adapt specific rules and guidelines (governance) and cultural evolution to accept DT changes. They emphasize that successful DT integrates human elements at all levels of the organization.

Thus, Philippart's (2022) study offers a valuable framework for organizational leaders to manage the evolution of DT, from inception to full implementation, and also encourages researchers to explore the challenges of DT in broader contexts, such as different national cultures, industries and technologies.

The process model proposed by Warner and Wäger (2019) for TD is based on the construction of dynamic capabilities through three main pillars: sensing capabilities, seizing capabilities and transformation capabilities. The model is triggered by external triggers such as disruptive digital competitors, changes in consumer behavior, and disruptive digital technologies. There are three core enablers—cross-functional teams, rapid decision making, and executive support—and three core barriers—rigid strategic planning, resistance to change, and high levels of hierarchy.

Insight capabilities involve developing new capacities in digital scenario planning and prospecting to identify new technological, customer and competitor trends. Leveraging capabilities refer to the ability to capture opportunities identified during the perception process. This requires strategic agility and the ability to make quick decisions to seize opportunities. Transformation capabilities address the need to reorganize internal structures and improve the digital maturity of the workforce. This involves rethinking leadership and organizational structures.

4 Final Considerations

This study addressed DT in organizations, identifying and analyzing key constructs in existing frameworks. The constructs of Technology, Organizational Structure, Leadership and Management are highlighted, emphasizing their frequency and relevance in the studies reviewed. The combination of these constructs with processes in the models revealed a multifaceted approach,

highlighting the complexity and need for integrated DT management. This analysis highlights the importance of technology and organizational structure as central elements in supporting DT.

Among the frameworks highlighted, “Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal” proposes a process model to reveal the factors that allow or hinder the construction of dynamic capabilities for DT, while Hang et al. (2022) identified six factors from the three dimensions of technology, organization and environment and developed an action mechanism model for DT. Imran et al. (2021), in their work “Digital Transformation of Industrial Organizations: Toward an Integrated Framework” indicates that leadership, structure, and culture are the main enablers of digital transformation for industrial organizations to achieve performance results. These frameworks highlight the importance of considering a variety of dimensions, including technology, organization, environment, dynamic capabilities, culture and strategy, highlighting the complexity and multiple-dimensional nature of digital transformation.

The importance of these findings lies in the detailed understanding they offer about the crucial elements that influence the success of digital transformation. By highlighting the relevance of the constructs, the study provides a solid basis for leaders and managers to better understand the critical dimensions that must be considered when implementing DT initiatives.

Additionally, by examining how these constructs combine in the different DT frameworks, the study opens new perspectives for the development of integrated models that can be adapted to the specificities of each organization. This is crucial in a context in which adaptability and organizational flexibility become decisive for survival and success in an increasingly digitalized and competitive business environment.

The insights derived from this analysis help us reflect on the need for a holistic and integrated approach to DT. This suggests that the success of digital transformation transcends the simple adoption of new technologies, and involves a comprehensive reconfiguration of organizational structure, culture, processes, people, and strategies to capitalize on the opportunities presented by the digital era. This work also highlights the importance of a systemic and adaptive approach, emphasizing that digital transformation is a continuous process of evolution, not just a goal to be achieved.

When addressing the limitations of this study, it is important to consider both the weaknesses inherent in the body of literature included in the review and other methodological constraints that may have impacted the results. A significant limitation lies in the diversity of approaches and the lack of consensus on definitions and key constructs. This may have limited the ability to perform direct comparisons and deeper syntheses of the proposed models; however, at the same time, it reflects the emerging and rapidly evolving nature of the field of digital transformation.

Given the limitations identified and the insights generated by this study, several directions for future research stand out that would advance the understanding of DT in organizations. Suggestions include: a) further investigation into how DT manifests itself in different industries may reveal context-specific insights. This helps to understand the nuances of DT in environments with unique demands and challenges; b) longitudinal studies that follow organizations over time during the digital transformation process would offer a deeper understanding of the dynamics of change, the challenges faced and strategies to overcome these. In addition it would be possible to assess the long-term impact of DT on the organization's results; and c) there is a need to develop more integrative and adaptable frameworks that consider the complexity and interconnection of

the key constructs of digital transformation. These models would enable a holistic and flexible approach to guiding organizations through their digital transformation journey.

By addressing these areas, future research can offer more robust and practical guidance for organizations to successfully navigate the complex process of digital transformation, ensuring resilience and competitiveness in the global marketplace.

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