

Driving Factors in the Implementation of Digital Transformation Strategy



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ABSTRACT: The objective was to identify the factors that drive the implementation of the digital transformation strategy. It was based on the theories of organization, strategic management, and digital technologies. The method, a qualitative analysis and systematic review of recently published and high impact documents was carried out. As a result, a model was proposed that relates the factors and the strategy through propositions at four levels of analysis: individual, organization, ecosystems, and geopolitics. Originally, the knowledge of digital transformation is expanded by associating it with the theoretical perspectives of strategy, organizations, and management.

KEYWORDS: Digital transformation, strategies, companies, organizations, digital technology.

Classification JEL: M1

I. INTRODUCTION

In the present, great transformations are being carried out in the economy, geopolitics, technology, and health, which affects markets, organizations, and individuals, that are driven by digital technologies. These are the new strategies that are creating radical changes in organizations, in society and in the industrial sectors, creating opportunities to achieve a competitive growth advantage in the markets. Digital transformation (DT), a new strategy, affects changes in individuals, organizations, ecosystems, and international geopolitics (Hanelt, Bohnsack, Marz and Marantre, 2021; Ebuja and Bracci, 2022).

DT in its practical application is directly related to information and communication systems, marketing, software engineering and innovation management (Bosch and Olsson, 2021; Wrede, Velamuri and Dautth, 2020). The document emphasizes that DT as a strategy that has its foundations in the theory of strategic management, in the theory of organization and administration (Mens, et al. 2021; Hanelt, Bohnsack, Marz and Marantre, 2021; Schroder, 2021; Matsumoto, Leame and Selerno, 2022; Firk, Henning, Meyer and Wolff, 2022; Mikalef and Parmiggiani, 2022).

Various authors have proposed advances in the conceptualization of DT (Gong and Ribiere, 2021; Wrede, Velamuri, and Dautth, 2020; Ebuja and Bracci, 2022; Hanelt, Bohnsack, Marz and Marantre, 2021; Dabrowska, et al. 2022). This document proposes the definition: the processes that generate and accelerate profound and significant changes in societies, organizations, and individuals, through the strategic use that combines information, computing, communication, and technologies. connectivity (digital). We focus attention on the strategic transformation of organizations, on business activities, processes, competencies, and models using technological resources and organizational capabilities (He, Meadows, Angwin, Gomes and Child, 2020).

The following sections are presented in the document. In the first section the digital transformation is explained as a strategy, in the second part the factors that affect the implementation of the TD strategy are explored, later the propositions that relate the factors and the strategy are proposed and it concludes presenting the conclusions and future studies to be carried out on the subject.

II. METHODOLOGY

We applied the systematic review of the literature (Tranfield, Denyer, and Smat, 2003) as the methodology for the study and proceeded in three stages: (1) planning the review, (2) conducting the review, and (3) reporting and dissemination of information. Information sources were limited to high-impact documents published in the last five years. In stage I, review planning, the needs of the literature review, preparation of the review proposal and the development of the research protocol were identified. In stage II, conducting the review, the sources of information were identified, high-impact journals, documents were selected, the quality of the documents was evaluated, the information was extracted from the documents considering the factors that affect

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the implementation of the digital transformation strategies, a content analysis of the documents was carried out. Finally, in stage III, report and dissemination of information, the research report was made; this methodology allowed the model to be built inductively, it began by building a conceptual map with the concepts under study as a starting point, it was strengthened with the new findings of recently published documents.

III. RESULTS

III.1. The Digital Transformation Strategy

DT is a strategy for organizations with different characteristics (Furr, Oscan and Eisenhardt, 2022), it is holistic since it encompasses the entire organization and is related to the business model, marketing, administration, and leadership; These strategies are generally initiated by the top managers of the companies (Schneider and Kokshagina, 2021). Digital strategies require interrelationships with other technologies, culture, leadership, and organizational structure and culture (Ehua and Bracci, 2022).

The implementation of the DT strategy requires digital technological resources and organizational capabilities. In the organization theory, the perspectives of the resources of Barney (1991) are highlighted and the resource dependence theory states that organizations to survive develop skills to obtain resources from the environment (He, Meadows, Angwin, Gomes and Child, 2020). These authors refer to the resources in general used by organizations to achieve their goals. Giustiziero, Kretschmer, Somaya and Wu (2021) proposed the theory of digital companies that highlights the use of technological resources to drive digital transformation. Digital technologies include: digital devices (smartphones, instant messaging and video call applications, Skype, WhatsApp and Zoom); digital devices and platforms (Customer Relationship Management (CRM), digital Cowork, Android, iOS, wordpress.org, social networks, electronic commerce systems); digital infrastructure (Cloud computing, Internet of things, Big data, Artificial intelligence (AI), advanced robotics, Blockchain, machine learning) (Baier, Walsh and Mulder, 2021; Sturgeon, 2021; Wimelius, Mathiassen and Holmstron, 2020 ; Nambisan, 2017; Peralta, 2021). Organizational capabilities include: 1) Artificial intelligence capabilities (Ameen, Deep, Tarba, Rao and Chopra (2022); 2) Digital and technological capabilities and skills (Wimelius, Mathiassen and Holmstron, 2021; Schneider and Kokshagina, 2020; ECLAC, 2020); 3) Digital innovation capabilities (Dabrowska, et. al. 2022; Rummel, Husing & Steinhaus, 2021; Sun, Xu, Yu, & Wang, 2022); 4) Analytical and predictive capabilities (Rummel, Husing and Steinhaus, 2021); 5) Digital entrepreneurship capabilities (Li, Su, F, Zhang, and Mao, 2017); 6) Administrative and strategic capacities to direct digital business models (Gauthier, Bastianutti and Hagege. (2018).

The TD strategy is associated with the corporate strategy to create differentiated value based on digital resources and organizational capabilities aligned with the mission, goals, strategies, strategic objectives and vision to achieve competitive advantage. This strategy in a business perspective uses digital technology, information, computing, communication, connectivity technologies. Digitization provides an instrument to transform company services in a more meaningful way at all levels. These results are achieved when the technological resources are aligned with the information systems, the structure, and the strategic processes of the company. Digital transformation uses digital technologies, it is a combination of information, computing, communication, connectivity technologies with organizational capabilities. Digitalization are the strategies and actions that allow the implementation of digital technologies in organizations, in society, in the productive sectors and in the State (Dabrowska, et al, 2022).

In organizations, it allows achieving organizational, technological, and strategic objectives, generating changes in structure and culture, transforming, reconfiguring, innovating administrative, production and marketing processes, promoting the recombination of resources and capabilities, promoting changes in knowledge and organizational learning (Lanzolla, Pesce and Tucci, 2021).

The implementation of the digital transformation strategy is carried out at four levels: (1) individuals (use and adopt digital technologies), (2) organizations (perform strategic management and coordination inside and outside the organization), (3) ecosystems (set of organizations and participants that take advantage of digital technologies in the co-production of value), and (4) geopolitical (regulation of the environments in which people and organizations are inserted), at each level innovation processes are facilitated and supports the formation of digital skills and decision making; changes in levels are gradually implemented (Parmiggiani and Milkalef, 2021; Dabrowska, et al., 2022). At the organizational level, it is important that the digital transformation is aligned with the objectives and strategies to achieve results, create value and have an impact on the environment. The ecosystem level encompasses a broad set of different public and/or private organizations that operate in a sector or market segment, creating technological synergies by sharing technologies, data and digital information among the participants, favoring competitiveness and collaboration in digital transformation.

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III.2. Driving Factors Of The Digital Transformation Strategy

In the literature reviewed, the following factors have been identified that drive the implementation of digital transformation strategies in organizations, we present a synthesis.

Participants. Senior managers, senior management teams and information technology managers have the role of facilitating the application of digital technologies in the implementation of the DT strategy, taking into account international trends and organizational characteristics (structure, culture, leadership) and strategic management processes. (Wrede, Velamuri and Dautth, 2020; Schneider and Kokshagina, 2021; Firk, Hanelt, Oehmichen and Wolff, 2021). The interdependence and collaboration of humans and digital technology (robots and artificial intelligence (Dabrowska, et. al. 2022)

Proposition 1: The participants have a positive impact on the implementation of the digital transformation strategy at the individual, organizational, ecosystem and geopolitical levels.

The organization. The strategy, structure, process, competencies, culture, or leadership of the organization drive the implementation of digital strategies. Menz, et. al (2021) carried out an extensive review of the different perspectives, approaches, and theories of the organization, to revitalize the investigation of corporate strategy and the theory of the company considering the rapid advance of digital technologies, it is important to analyze the impact of these technologies in competitive advantage, and in the design of the internal structure. They raised the need to develop new knowledge that responds to the new realities of the digital age, which affect environments and organizations (Ebua and Bracci, 2022; Dabrowska, et. al. 2022; Baier, Walsh and Mulder, 2021)

Proposition 2: The organization has a positive impact on the implementation of the digital transformation strategy at the individual, organizational, ecosystem and geopolitical levels.

The environment. The digital economy generates great technological changes in companies, and promotes applications in industries and consumers (Sturgeon, 2021). Digital technologies increase the resilience of companies during disruptive events that impose restrictions on the movement of people and goods (Autio, Mudambi and Yoo (2021). Environmental factors (economy, society, market, technology) delimit or expand the transformation Internet access and connectivity favors market dynamics restricts or increases the availability of technical personnel with sufficient knowledge and skills to support the application of digital technologies. Characteristics of the industrial sector, government support policies affect the implementation of DT (Baier, Walsh and Mulder, 2021) The emergence of the ecosystem that affects the interdependence between organizations has implications for corporate and business strategies (Jacobides, et al. 2018).

Proposition 3: Environmental factors have a positive effect on the implementation of the digital transformation strategy at the individual, organizational, ecosystem and geopolitical levels.

Contingent factors. The COVID-19 pandemic accelerated the implementation of the DT strategy, generated changes in environmental and organizational conditions, changes in strategies and in organizational performance. The evolution of the COVID-19 pandemic worldwide has created the conditions to implement new technologies that drive changes in processes, administrative systems, and business models, allowing them to survive in adverse economic conditions (Barreto and Leomar, 2021).

Proposition 4: Contingent factors have a positive effect on the implementation of the digital transformation strategy at the individual, organizational, ecosystem and geopolitical levels

New emerging digital technologies. TD is a dominant factor in the global economy, it eliminates geographical, industrial, and organizational limits, it generates strategic alternatives for companies (Furr, Ozcan and Eisenhardt, 2022). Digital technologies based on the internet of things and artificial intelligence are the new strategies that affect the strategic and economic development of organizations (Butollo, Gereffi, Yan, Ch, and Krzywdzinski, 2022), support the strategies of open innovation and knowledge transfer (Jalowski, Julian and Moslein, 2021).

Proposition 5: The new emerging digital technologies have a positive impact on the implementation of the digital transformation strategy at the individual, organization, ecosystem, and geopolitical levels.

Business ecosystems, competitions between networks. Numerous actors interact collectively that facilitate infrastructures and digital technologies in DT. Ecosystems is a biology concept that has been adapted to the field of strategy. Teece (2007) defined as a community made up of organizations, institutions and individuals that influence companies, customers, and suppliers; it is an economic community in which actors (managers) interact, affecting each other through their activities, strategies and actions, their interaction is much broader than in a simple industry. The ecosystem represents the environment in which companies must explore or monitor and respond with their dynamic capabilities to build sustainable competitive advantage. Jacobides, Cennamo and Gawer (2016) have proposed an advance in the construction of the ecosystem theory. Tan, Ondrus, Tan and Oh, (2020) conducted a study of the digital transformation of business ecosystems in the Korean industry. Lechowski and Krzywdzinski (2022) raised the global technological ecosystem perspective of studies carried out in German companies. Hanelt, et al. (2021) conducted

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a systematic review of the literature on digital transformation from 2000 to 2018, highlighting the contextual conditions, the mechanisms (strategies) and the results.

Proposition 6: Business ecosystems, competitions between networks have a positive impact on the implementation of the digital transformation strategy at the individual, organization, ecosystem, and geopolitical levels.

Strategies, global, corporate, and business. Strategic alliances accelerate the implementation of DT by integrating resources and capabilities (He, Meadows, Angwin, Gomes and Child, 2020), geopolitical strategies and digital networks (Santaniello and Amoretti, 2014). Strategies between companies such as alliances, acquisitions, joint ventures at the international and national levels affect the implementation of digital transformation in companies. Ecosystem and geopolitical strategies have a greater impact on the implementation of digital technologies in countries. The global strategy is the analysis of the strategy in an international environment, including the issues of climate change, artificial intelligence, and geopolitics (Benito, Cuervo-Cazurra, Mudambi, Persen, and Talliman, 2022). Geopolitics influences the choice of location of multinational companies considering geographic and political factors (Shi, Horskisson and Anthea, 2016).

Proposition 7: Strategies, global, corporate, and business have a positive impact on the implementation of the digital transformation strategy at the individual, organization, ecosystem, and geopolitical levels

IV. CONCLUSIONS

The document was based on the theories of organization and strategic management and on the fundamental approaches of digital technologies. Eight propositions were proposed that relate the factors that affect the implementation of the digital transformation strategy.

Currently, digital transformation is one of the strategies associated with resources and capabilities that generates changes in individuals, organizations, ecosystems, and geopolitics (Dabrowska, et. al, 2022; Menz, et. al. 2022). In organizations digital technologies, when applied with a strategic perspective, generate changes, modifications, transformations and innovations in the organizational structure, changes in the culture, in the processes, systems, business models, logistics, in resources and capabilities. Increases the internal efficiency of organizations, through the automation of manual or repetitive tasks, expands the business portfolio, supporting the decentralization of power, generating value and competitive advantage (Rummel, Husing and Steinhäuser, 2021; Urbinati, Chironi, Chiesa and Frattini, 2018; Li, Rao and Wan, 2022; Menz, et al. 2021).

In Latin America and the Caribbean, important efforts are being made in the implementation of the digital transformation strategy and in the application of digital technologies (ECLAC, 2020). Dini, Gligo and Patiño (2021) carried out a study of the advances in the TD penetration of the mipynes of Brazil, Chile, Ecuador and Mexico for the design of policies. Peralta (2021) analyzed the application of digital technologies in tourism in Central America and the Dominican Republic. Baier, Walsh and Mulder (2021) from a theoretical and practical perspective evaluated the digital transformation in exporting SMEs.

The driving factors that affect the implementation of the digital transformation strategy, among others, are external factors (markets, industrial sectors, government, competitive environment), organizations (organizational, administrative and strategic characteristics), participants (external and internal in organizations), strategies (strategic alliances, joint ventures), emerging technologies, future trends in markets and environments, emerging contingent factors (for example, the COVI-19 pandemic), ecosystems (a set of organizations and participants that generate digital technologies), and geopolitics (interaction of different countries that promote the development of digital technologies for commercial, social, political, economic, educational and war purposes).

Therefore, the digital transformation strategy is holistic since it affects the development and changes in individuals, organizations, ecosystems, and geopolitics. Hanelt, et al. (2021) highlighted a multidimensional theoretical framework to analyze contextual conditions that originate and affect digital transformation, the mechanisms or strategies used by organizations in innovation and in the redesign of organizations

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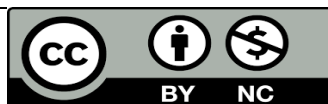
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