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DRIVING AND INHIBITING FACTORS FOR DIGITAL TRANSFORMATION AND THEIR EFFECTS OVER THE ADVENT OF THE COVID-19 PANDEMIC

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ABSTRACT

This paper aims to investigate driving and inhibiting factors for Digital Transformation (DT) and their effects on the advent over the COVID-19 pandemic from the perspective of business consultants. The research has been presented as descriptive in nature as well as on its general objective and on its approaching form, which come classified along as qualitative aspects. From the field of an investigation, four key dimensions emerged as the most relevant technology for DT: the value creation, the organizational structure and the culture adopted on businesses. Furthermore, it is worth highlighting the role of leadership as a key element in driving the team during a journey which requires a cultural transformation linked to DT.

Keywords: Digital Transformation, Pandemic, Cultural Organization, Leadership, Structural Organization.

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INTRODUCTION

The diffusion of new digital technologies along with competition for new-based models and the disruptive business processes are a reality in all activities and segments (Rogers, 2019). Business digitalization, which can be understood as a company's ability to create value through process optimization by adopting digital technologies (Gobble, 2018). That technological aspect occurs at a fast pace and it changes the threats and the scenario of opportunities constantly.

In a digital and in a disrupting movement, companies are inclined to define their strategies based on that spectrum. The emergence and convergence of a diverse set of platforms of technologies and digital infrastructures have transformed innovation significantly with broad organizational consequences (Nambisan *et al*., 2019) including traditional sectors such as the so-called Industry 4.0.

As a consequence of that movement, Digital Transformation (DT) emerges from an initiative related to the company's business and its strategy adopted. That transformation involves a change in a larger context than the merely technological one (Kane *et al*., 2015; Schallmo, Williams & Boardman, 2017; Schwertner, 2017, Hermeling *et al*., 2018). The DT journey has come to be widely used in contemporary times to provide transformational or disruptive implications for companies with new-business models, new types of products and services or with new types of customer's experiences. The DT journey helps also to signal how existing organizations need to reverse themselves to succeed in an emergent digital world (Nambisan et al., 2019).

Beyond digitization, digital-business transformation has been impacting companies by breaking down barriers between people, companies and things. Regardless of the market they operate in or by breaking down these barriers, we should consider that organizations are able to create new products and services and we can find more efficient ways of doing business. Innovation happens in all segments through which organizations transform processes and business models. They gain operational efficiency by innovating the workforce and by promoting better experiences to their customers (Schwertner, 2017).

According to Nambisan et al. (2019), studies have shown how digital technologies fuel new forms of innovation and entrepreneurial initiatives. They cross traditional industry and sectorial boundaries, they embrace networks, ecosystems and communities, they integrate digital and non-digital assets. As a consequence of that, they accelerate the creation, the scaling, and the evolution of new ventures. From the point-of-view of many industries to the final consumering of goods, it is observed that along the value chain, inputs and outputs imbued with a growing volume of data can now be processed digitally. They reduce the relative importance of the physical aspect for a wide variety of assets and goods (Kauffman & Weber, 2018).

With the advent of the COVID-19 pandemic, the term digital transformation is no longer something for digital native companies or large organizations. It has become part of the daily life of managers who need to seek adaptation to their processes by including the digital variant not only to go through this adverse period but also to keep their companies competitive. The fact is that social interactions have been curtailed, uncertainties have been multiplying among people and plans have been interrupted and the value chain of several segments of production has been strongly impacted by that. There might be not a single organization which has not to rethink its pre-pandemic plans and to adapt itself to the COVID19 context. Both for a defensive strategy and to take an advantage of

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new opportunities. This abrupt change has therefore brought about a significant impact on business. Back to a pre-pandemic moment, DT represented an advantage for some companies and industries, although it has fundamentally become essential nowadays.

In this context, DT emerges from an indispensable topic on the agenda of organizations and researchers. Thus, this research aims to investigate the driving and the inhibiting factors for Digital Transformation and their reflections on the advent of the COVID-19 pandemic, from the perspective of business consultants. It is expected to contribute to the increase of knowledge about the conduction of the transformation process in companies and collaborate with propositions on promoting the DT in organizations in the light of collected data and available literature.

LITERATURE REVIEW

Digital Transformation

Then, we come to the question: what is Digital Transformation? Wade et al. (2019) define DT as an organizational change through the use of digital technologies and business models to improve performance. For Vial (2019), DT is a process that aims to improve an organization through significant changes brought about by the combination of information, computing, communication, and connectivity of technologies.

DT has taken over the business landscape and executives recognize its power and they understand that action is needed to seize opportunities and protect against threats arising from the changes brought about by the digital age (Wade *et al*., 2019; Hermeling *et al*., 2018). A research conducted by Wade et al. (2019) found out that DT was not considered worthy of a board's attention in about 45% of companies in 2015. Just within two years later, that percentage has been reduced to just 17%.

New digital technologies, particularly the so-called SMACIT3 - social, mobile, analytics, cloud and Internet of things [IoT] - have been presenting both game-changing opportunities and existential threats to old and established companies. In recent years, those entitled to be "born-digital pioneers" such as Amazon, Facebook, and Google have also grown and emerged as players while other companies that have long dominated their industries have seen their value proposition threatened. So far, most leaders of large traditional companies have come to recognize that their companies can retain leadership positions by leveraging their existing strengths and by building on new capabilities offered by digital technologies (Sebastian *et al*., 2017).

Although some organizations occupy a solid position in the market, there is a constant concern with new competitors, new technologies and new business models that can suddenly change the dynamics of that industry (Wade *et al*., 2019). Rogers (2019) adds that digital technologies transform the way companies must face a more complex competition when they increasingly compete not only with rival companies in their own sector of industry but also with businesses from other segments which attract customers and their purchasing power to new digital offerings.

Wade *et al*. (2019) suggest the existence of two waves of digital disruption. The first wave reached segments where core products or services could be readily digitized such as media, entertainment, financial services, telecom, and high tech. The second wave, which is happening now, has its focus not only on the digitalization of products but also on business models, on processes and on the

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value chain. As a result, it affects industries that offer physical products as well as those companies that make business-to-business (B2B) operations. All of that makes the need for a change or even a clearance, although most do not know how to do that yet.

Industry 4.0

In the context of DT, the term "industry 4.0" is one of the most popular topics among the industry and the academia worldwide. Industry 4.0, also known as the fourth industrial revolution, consists of the junction of generating methods with technological innovation and communication (Ribeiro, 2017) through a connection between the internet and the industry, by becoming a new mindset that merges the automation in factories and the internet (Freitas, Fraga & Souza, 2016).

In this new revolution it is possible to realize that the use of new technologies tied up to the adoption, the integration and the expansion of new information systems, allows industrial production to be faced by major challenges (Ribeiro, 2017). The fourth industrial revolution is known by the combination of numerous physical and digital technologies, such as artificial intelligence, clouding, adaptive robotics, augmented reality, Internet of Things (IoT). Regardless of the driving technologies, the main goal of industrial transformation is to increase the efficiency and productivity of resources and the competitive power of companies (Ustundag & Cevikcan, 2018).

Industry 4.0 plays a significant role in seizing the opportunities of digitalization of all steps involving production and service systems. With the introduction of the information chain, the digitalisation of analogue processes, the management of production networks can be managed not only from inside factories, but it may also be made from outside of them (Schoreder, 2016). This digitalization is accomplished by means of the cyber-physical system (CPS), which is a platform that connects the entire enterprise (Pisching *et al*., 2017). The operation of the CPS system is done by sensors, which through radio frequency, provide information about stages of the manufacturing process of a product (Santos *et al*., 2016). In industries, the cyber-physical system encompasses the machines, the storage system and the automation of the factory floor, in such a way that it can perform autonomous actions, thus decreasing possible failures in manufacturing (Kagermann *et al*., 2013). In addition, they allow generating predictive analyzes and simulation to anticipate decision-making.

According to Ribeiro (2017), to create the possibility to implement Industry 4.0 in companies, it is necessary that there is data connection performed by the CPS system be in place and be tied up to that system in a way in which information is found in an online storage platform, also known as "cloud". The database is related to the internet of things, which can be considered one of the principles of industry 4.0. It generates advantages in efficiency, speed and accuracy in sharing information (Ribeiro, 2017).

With all the changes provided by Industry 4.0, companies need to go through the adaptation process, reconfiguring themselves through their threats and opportunities by maintaining their competitiveness in the market with improvements, arrangements and protection of their tangible and intangible assets, aspects that can be provided by their dynamic capability (Mendonça & Andrade, 2018).

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Key Domains for Digital Transformation

Digital business transformation is a new phenomenon and it may be that no organization has yet reached the final state of maturity (Schwertner, 2017). Sebastian *et al*. (2017) state that DT of most pre-digital companies is at an early stage, as the vast majority of revenues of these companies still come from traditional products and services. With the advent of the COVID-19 pandemic, we have observed that a compulsory acceleration of DT in organizations of all types and sizes. Starting, for example, by the need of adopting a new way of working in the remote mode.

Kane *et al*. (2018) indicate that it is possible that many companies did not respond to digital transformation earlier because their competitors were not responding either. However, some companies have begun to move more aggressively to adapt themselves into the digital world, which means that others may move in that same direction too. Companies might be reluctant to change themselves while they are successful, but the warning is for significant steps to be taken towards digital maturation (Kane *et al*., 2018).

Organizations have the need to respond quickly to changes in market direction by becoming more agile with more oriented people, decisions based on innovative data and especially customer-centric. Tushman and O'Reilly (1996) suggest that companies need to become ambidextrous organizations. In order to adjust themselves into the current business environment, they have to combine exploitation efforts concerning the refinement of existing ones associated to new initiatives and new opportunities involving experimentation, researching and discovery (Amantea, 2018).

In this sense, DT acts not only in the "digital aspect" or rather as a deep resignification to business and organizational activities, processes, competencies and models to leverage the changes and opportunities in a mix of digital technologies to accelerate the impact on society in a strategic and prioritized way (Gobble, 2018). However, one question that emerges from that is: how do we make that happen? To support the current journey, some authors have sought to identify key domains and frameworks for DT (Vial, 2019; Wade *et al*., 2019, Rogers, 2019; Hess *et al*., 2016; Schuh *et al*., 2017; Martins *et al*., 2019; IDC, 2020). Vial (2019) has conducted a rigorous literature review applying the grounded theory technique. Then, he inductively produced a framework about the DT process based on the relationship between eight blocks, as shown on Figure 1.

Digital technologies act as fuel for disruptions related to customer behavior and needs, competitive landscape and data usage. Disruptions, in turn, trigger strategic responses by promoting DT and digital businesses. In order to remain competitive, organizations use digital technologies to change the value creation paths (value proposition, value networks, digital channels, agility, and ambidexterity) on which they were previously based. To do so, they implement structural changes related to their own organizational design, culture, leadership, roles, and employee competencies. In addition, they must act to overcome barriers, such as inertia and resistance which hinder their transformation effort. The creation of new paths of value generation generates positive impacts for organizations and, in some cases, for individuals and society, although they may also be associated with undesirable results in terms of security and privacy.

Wade *et al*. (2019) also proposed a framework, which they called transformation orchestra, in an analogy in which the eight instruments of a musical orchestra correspond to eight elements in an organization, distributed in three dimensions, as shown in Figure 2.

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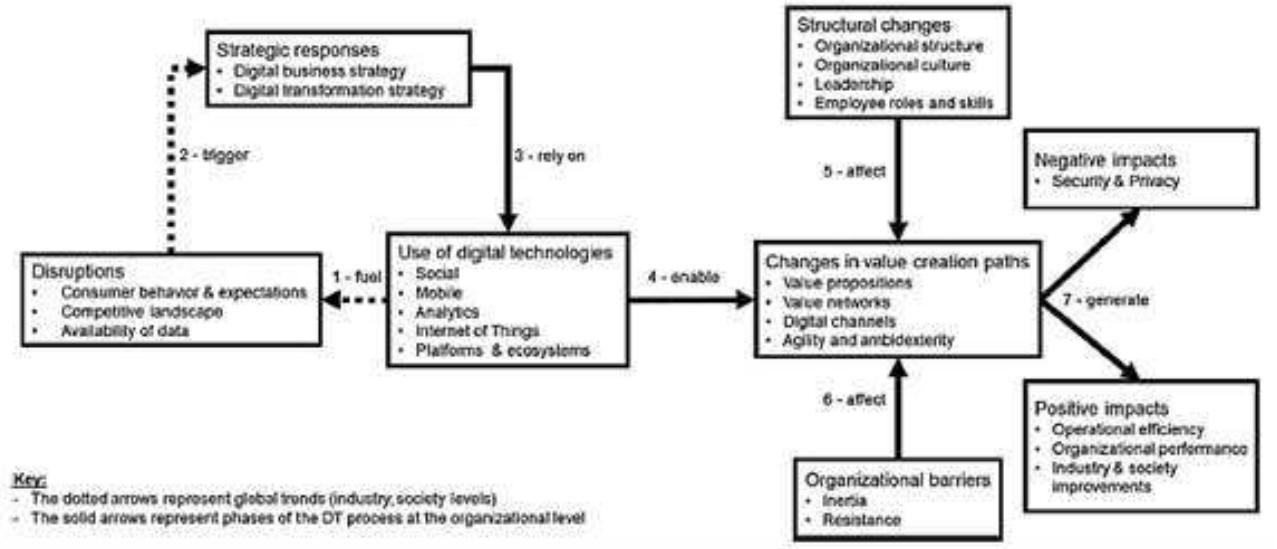

Figure 1. *Framework* for Digital Transformation
Source: Vial (2019, p. 122)



Figure 2. The Orchestra of Transformation
Source: Wade *et al*. (2019)

The Go-to-Market dimension is composed of the offering elements, i.e., commercialized products, services and channels that determine how these offers reach customers. The Engagement dimension has the role of defining how the company engages with customers, partners, and its workforce. Finally, the Organization dimension includes those elements of an organizational structure that corresponds to the business units, teams, hierarchy and incentives. It represents how employees

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are recognized and rewarded for their performance and their behavior and the culture adopted to deal with values, attitudes, beliefs and habits of the company. For the authors, the best transformation should be a holistic one that encompasses the entire organization and all those resources (Wade *et al*., 2019).

The impact of the digital era has caused changes in virtually all components of the business strategy. In this context, Rogers (2019) states that the forces of digital Technologies are reshaping the five fundamental domains for strategy, namely: customers, competition, data, innovation, and values. Each of these domains has a core strategic theme that can act as a guide for DT (Table 1).

Table 1. Domains and strategic themes

Domain	Strategic themes	Key concepts
CUSTOMERS	Explore customer networks	• Reinventing the marketing funnel and buying journey • Key behaviors of customer networks
COMPETITION	Build a platform, not just products	• Platform business models • (In)direct network effects • Competitive value trains
DATA	Convert data into assets	• Data Value Patterns and Drivers for big data • Data-driven decision making
INNOVATION	Innovate by rapid experimentation	• Convergent and divergent experimentation • MVP (minimum viable product)
VALUE	Adapt your value proposition	• Market value concepts • Ways out of a declining market • Steps for the value proposition evolution

Source: Rogers (2019, p. 26)

Hess *et al*. (2016) identify a conceptual framework for strategy formulation for DT, composed of four main dimensions: technology, changes in value creation, structural changes, and financial. The use of technology represents a firm's approach and ability to exploit new digital technologies. Changes in value creation reflect the influence of DT on value Generation by the firm; while structural changes refer to modifications in organizational structures, processes, and skill sets required to deal with and exploit new technologies. Finally, the financial dimension relates to the company's responsiveness in financing DT.

According to Martins *et al*. (2019), digital transformations can be characterized by triggering at least one of the four key value levers: (i) Business Models (new ways of operating and new economic models); (ii) Connectivity (real-time engagement); (iii) Processes (focus on customer experience, automation and agility) and (iv) Analytics (better decision making and data culture). In this sense, they propose 22 management practices that are critical to the success of DT and the capture of financial results. These results are distributed in four dimensions: strategies, capabilities, organization, and culture, according to Table 2.

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Table 2. Dimensions and Management Practices for Evaluating Maturity Level

Dimensions	Strategies	Capacities	Organization	Culture
Management Practices	• Awareness of change • Ambitious and long-term aspiration • Linked to business strategy • Customer Centricity • Growth opportunities • Specific roadmap	• Digital marketing and sales • Customer Journeys • Data and Analytics • Models and technology platform • Focus on value generation	• Structure • Collaboration between business and technology • Talents • Analytics and Digital Proficiency • Governance and metrics	• Testing and learning • Experimentation • Internal collaboration • External guidance • Agility • Data-driven mindset

Source: Prepared by the authors, based on Martins *et al*. (2019).

Schuh *et al*. (2017) point out that DT can be enabled through four dimensions: resources, information systems, organizational structure, and culture. Resources refer to tangible physical resources. They include a firm's workforce, machinery and equipment, tools, materials, and the end product. The workforce must possess certain skills to make the most of the information captured. Complementary and properly configured technical resources can help shorten the time between action and its effects. In addition, companies should try to ensure that their resources have an interface between the physical and digital worlds, to ensure a perspective on the digital world that facilitates the learning process to increase agility (Schuh *et al*., 2017).

Information systems, on the other hand, are sociotechnical systems through which information is provided. Systems prepare, they process, they store and they transfer data and information. Setting them up in an enterprise is essential to ensure that available data and information can be used to make decisions. Digitization can mean that it is easier to make decisions based on data because it follows a real-time. The data-driven organization is able to make decisions more easily and with better quality. Although this is a reality, many organizations still fail to use data and information to support their decision makers (Schuh *et al*., 2017).

Regarding the organizational structure, although an agile company is enabled by technologies, its implementation requires the right organizational structure for continuous value delivered. For Schuh *et al*. (2017), the organizational structure refers to the internal organization of a company (structure and operational processes) and its position within the value network. It establishes rules to organize collaboration inside and outside the company.

Finally, for Schuh *et al*. (2017), culture contributes greatly to the agility of the company, since it depends heavily on the behavior of its employees. Experiences in lean management in the 1990s and in the 2000s showed that for a successful implementation throughout the company it is necessary to adapt the culture of the organization, in other words, to change the mentality of the leaders and employees. The same applies when investing in DT because the company needs to acquire versatility with a focus on learning, to enable technologies. Therefore, organizations will not be able to achieve the desired agility if they simply introduce technologies, without acting on the corporate culture. Only the introduction of new systems will not be enough to add value for a company (Schuh *et al*., 2017).

IDC (2020) developed the Future Enterprise MaturityScape of digital transformation to help business leaders understand and address the challenges and opportunities that DT can bring to organizations, business models, and ecosystems by leveraging digital competencies. IDC

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MaturityScape provides a framework to visualize the maturity of DT based on dimensions needed for successful digital transformation, namely: culture, customers, intelligence, operations, and work.

Culture is understood as a driver when we consider that DT cannot be scaled as a top-down initiative and it depends on the organization's ability to foster a culture where transformation is a core principle and a company-wide strategy. The customer dimension, meanwhile, understands that successful engagement with the future customer will require organizations to deliver empathy at scale. It is a fundamental shift that recognizes the unique needs of current customers and learns on how to develop niche markets in the future.

Intelligence comes with the need for insights at scale. It means that intelligence will grow more and more, through an infusion of collective learning. That will fuel innovation, economic value and decision-making. Operations, on the other hand, functions as resilience at scale. Operational excellence is no longer enough as the complex future demands on resilient operations based on a common core that enables intelligence, rapid decision-making, self-correction and innovation.

Finally, the work dimension presents itself as a scale model of working. It undergoes a fundamental transformation of employees and skills, talented management and culture, towards a flexible working environment with mobility, human-machine collaboration and smart technologies. Table 3 provides an overview of the key dimensions for DT with the respective authors who have indicated them.

Table 3. Key dimensions for Digital Transformation

Authors/ Key Dimensions	**Vial (2019)**	**Wade *et al.* (2019)**	**Rogers (2019)**	**Hess et al. (2016)**	**Martins *et al.* (2019)**	**Schuh (2017)**	**IDC (2020)**
Culture	✓	✓		✓	✓	✓	✓
Organizational Structure	✓	✓		✓	✓	✓	✓
Customers	✓	✓	✓		✓		✓
Value Creation	✓	✓	✓	✓	✓		
Data | Intelligence	✓		✓		✓	✓	✓
Technology	✓			✓	✓	✓	
Competition	✓		✓				
Strategy	✓				✓		
Operations	✓			✓			✓
Financial			✓				
Innovation		✓					
Resources	✓	✓	✓	✓	✓		

Source: Prepared by the authors (2020)

It is observed that the dimensions of the organizational culture and the structure deserve to be highlighted when they are mentioned by six of the seven surveyed authors. Then, we believe that the prospective customers, value creation and data /intelligence, pointed out by five authors. Among the authors we found four mentions, with the focus on technology, followed by competition, strategy and operations with two supporters. Finally, it is revealed the financial, innovation and resources dimensions are pointed out by only one author.

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METHODOLOGY

The research comes as a descriptive in nature as on its general objective. According to Gil (2017), research of this type aims to describe the characteristics of a given population or phenomenon. As for the approach, the research can be classified as a qualitative one.

The researched universe was composed of business consultants who conducted digital transformation processes in organizations. It was used the snowball sampling. It consists of a non-probability sampling technique used in social research, in which the initial participants, selected by judgment, indicate new participants who in turn indicate new participants and so on successively, until the proposed objective is reached (the "saturation point"). The characterization of each interviewee is shown in Table 4.

Table 4. Characterization of the interviewees

Interviewees	Age	Sex	Schooling Degree	Training	Experience as Consultant
1	40	Male	Master	Information Technology	10 to 15 years
2	43	Male	PhD	Electrical Engineering	Over 20 years
3	41	Male	PhD	Administration	10 to 15 years
4	39	Male	Specialist	Comunication	Up to 5 years
5	42	Male	Master	Computer Science	10 to 15 years
6	45	Male	Specialist	Information Technology	10 to 15 years
7	39	Male	Specialist	Computer Science	Up to 5 years
8	39	Male	Master	Software Engineering	10 to 15 years
9	47	Male	Master	Electrical Engineering	Over 20 years
10	43	Female	Specialist	Information Technology	5 to 10 years

Source: Research data (2020)

It was interviewed 10 (ten) consultants, 9 (nine) male and 1 (one) female. The respondents' ages vary between 39 (thirty-nine) and 47 (forty-seven) years, all graduated and with specialization and / or master's or doctorate. More than half (60%) have training in the area of technology and the others are from electrical engineering, administration and communication. Experient as consultants for about 10 (ten) years, and two respondents have been working in this position for over 20 (twenty) years. Most attend micro, small and large companies, and most clients are concentrated in the service segment. Throughout the text, they were identified as I1, I2, [...], I10.

In order to meet the research objective, it was adopted the technique of in-depth interviews with these consultants, which were carried out with the support of a semi-structured questionnaire, composed of questions about the respondents' profile and about aspects related to the digital transformation process in organizations.

The qualitative data analysis was performed using the content analysis technique, which aims at describing and interpreting the information of the entire class of documents and texts in an objective and systematic way (Olabuenaga & Ispizúa, 1989). Bardin (2011) indicates that the use of content analysis provides for three fundamental moments as on the following: pre-analysis, material exploration, treatment of results: inference and interpretation.

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The analysis variables established for the present research were drawn from the key dimensions for digital transformation (Table 3), cited in the studies made by Vial (2019); Wade *et al*. (2019); Rogers (2019); Hess *et al*. (2016); Martins *et al*. (2019); Schuh (2017); IDC (2020).

RESULTS

General Aspects of Digital Transformation

For the interviewed consultants, DT involves technology, processes and people, with the purpose of generating value for the business. One of them (I9) suggests that: Digital transformation can be understood as a drastic change that is occurring in Society and in business with the massive adoption of technology. The creation of new business models help to find solutions that more genuinely meet the customer experience (I9).

From the interviewees' perspective, the term digital transformation is not just a buzzword, but rather a term under construction, which points towards a new paradigm of modern management.

Regarding the main benefits that can be generated by the DT process, aspects related to processing improvements, expansion of the understanding about the customer and productivity increase. The elevation of the organizational climate followed by changes in business models culminate in the ambition of enabling the organization to be more agile and adaptive by enabling it to create a database to support innovative solutions. In addition to that, for one of the interviewees (I6), "the digital transformation is the possibility to extend company's life", an aspect that can also be noted by the statement "who does, is inside, who does not, is outside! (I10).

When asked about any differences between the pre-pandemic moment and during the pandemic with regard to the conduction of DT, all were categorical in stating that the pandemic of COVID-19 catalyzed the process in organizations when it made companies that were in the comfort zone to move to survive. Those companies that had already placed themselves at a more advanced stage in terms of DT maturity were also able to adapt themselves to new demands with more agility with the adoption of home office without a major inconvenience, for instance. Another relevant aspect comes related to the perception and the commitment of managers regarding the importance of DT for the organization. It has become easier to demonstrate the need for DT process in times of constant changes when the status of something that was seen as "utopia and nobody wanted to invest" (I10) as a matter of survival.

It was also questioned about the differences between the demands of digital native companies and pre-digital organizations with regard to DT process. In this sense, the respondents signaled that there are distinctions. Most pre-digital companies have basic DT demands focused on the digitalization of the current processes and on the operational efficiency while the digital ones are in search of new technologies, new processes, new forms of organization. The cultural and technological aspects found in some traditional companies regarding the maturity level are quite incipient with basic and structural gaps. "Some organizations are even at a level of low perception of the relevance of the digital transformation theme" (I9). That aspect is also highlighted by the statement that "the pre-digital ones still do not have a general knowledge of what digital transformation is and how to start it. On the other hand, the digital ones usually have this vision and they just need adjustments in specific areas" (I6).

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Key Domains of Digital Transformation

In relation to key dimensions for DT (Table 3), cited in the studies conducted by Vial (2019); Wade *et al*. (2019); Rogers (2019); Hess *et al*. (2016); Martins *et al*. (2019); Schuh (2017); IDC (2020), they agree that it is possible to extract those key dimensions that stood out from the respondents' perspective, namely: technology, value creation, organizational structure, and culture.

Regarding technology, although that dimension is commonly confused with the DT itself, the interviewees and the theory corroborate that misunderstanding by pointing them out as an extremely important enabler. Despite the relevance and the reality found in the organizations, digital assets still at an incipient level. Besides that, many companies have legacy systems operating with very poor architecture therefore. Before starting a DT process, there is a great need to review those architectures that do not allow the fast deliveries because they have few features and those are available for certain groups. A respondent (I4) states, "[...] in general, they even use specific solutions for areas such as finance and marketing but they still deal with analogical or digitalized processes". In addition to that, there are gaps in foundational solutions such as, for example, little or inaccessible and unreliable information for structuring analytical solutions in the adoption of artificial intelligence. Organizations that achieve higher levels of DT maturity typically make investments in training and technologies. Digital assets are directly proportional to the degree of professionalization of the IT area.

With the advent of the COVID-19 pandemic, the interviewees report that companies are forced to use tools and technology that have already been available, although they have not had the proper use for that due to a need not yet perceived. The home office by itself, for instance, proved challenging for most companies and it has boosted the adoption of considerable technologies by accelerating the DT movement, albeit in a compulsory manner. Thus, the restrictions imposed by the pandemic, especially in relation to social distance, forced companies to review their business models and the need to adopt technologies to continue operating in an adverse scenario.

Although the value creation dimension is not directly addressed along the questionnaire, the respondents sum up that aspect on their answers, which goes at the same direction of the findings of Vial (2019), Rogers (2019), Hess et al. (2016). DT is a way to support the organization in the journey of delivering value to its customers as well as promoting a more creative, provocative and motivating environment for its employees. One of the challenges of DT is the possibility of expanding the generation of value, with less effort. Organizations with a higher level of maturity have an easier time creating value for their customers and, consequently, for the business, because they are open. They want results, differentiated experiences and a DT journey comes as a means to that end.

The pandemic ended up forcing companies to review and to migrate their business models, as many were not in readiness for the new consumption and customer interaction habits. With COVID-19, the focus is more on digitizing business processes - online sales, customer interaction, etc., and less on cultural change, but that ends up being hit in tow. In as much as the organizational structure dimension is concerned, reports indicate that predigital organizations have traditional, hierarchical structures, with a centralized decision-making process and a lot of control. Processes are analogue, that is, focused on the physical model and thus, there is an absence or lack of boldness in the digital vision, hindering the design of processes within this perspective. Often, the organization believes that it should simply transpose the physical model to a digital environment. However, that does not work in the interviewees' opinion since the logic of the digital is quite distinct. There are also situations in which organizations digitize their processes and believe to be implementing DT.

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The respondents reported that bureaucratic, rigid and slow processes are present in the organizations where they conducted DT processes. Usually, it does not have the processes and organizational structures aligned with agility. In this aspect, the change of mentality and the introduction of a digital thinking becomes fundamental for the realization of true DT. Those organizations that implemented open innovation programs and, by necessity, adapted their processes to internalize services or tests with startups stood out for achieving some less bureaucratic results.

There is a greater urgency during the pandemic with the focus on digitization of processes and remote working. Companies need to increase the level of digitalization to survive. However, according to a respondent (I9), "there is no intense movement in deeper and disruptive processes, probably due to concern with investments at this time of crisis". Companies that have already digitized processes and services or are already prepared for remote work certainly had an advantage in the pandemic.

Finally, the dimension of culture reveals itself as a primary element, not to say indispensable, in the DT process. In the speech of the interviewees it was possible to identify 52 (fifty-two) mentions to the term, almost three times more than the word "technology". The culture found is typically of aversion to error. There are no appetite for risk, fear, speeches not adherent to the practice, lack of empathy of leaderships on the operationalization of the proposals with the employees, postures of command and control. According to I10, "Usually, innovation is required with the old phrase: let's think outside the box. The environment is not conducive, the error is not admitted as an option, among other factors that limit creativity. The culture change is seen as one of the biggest barriers to be overcome in the digital transformation process. The more fixed the mindset of the company, the more painful this problem is" (I7).

The relevance observed is that the problems are not based on technological resources, although they are necessary, but on the paradigm break in personal relationships, trust, focus on value, hierarchy. The cultivation of transparency and the creation of bonds of trust are pointed out as fundamental factors for the evolution of the levels of DT. Moreover, it seems to be essential for the elaboration of the massive transforming purpose (MTP), which can be capable of promoting a culture change and move the entire company for the external impact (Salim, Malone & Geest, 2015).

The cultural metamorphosis should be based on change management and it should be done gradually, in which the results of a wave drive the next wave, to increase adherence and promote, together, an advance of culture for a new mentality. In this direction, a respondent (I5) warns that:

> [...] *without the participation of leaders in digital transformation, it doesn't happen. It does not happen from the bottom up. At best it is necessary to create 'digital cells' that will gradually insert the culture throughout the company, but it is necessary to have the leadership acting together with the cell*.

With the pandemic of COVID-19, the culture of organizations had to be forcibly changed in order to, bring a more horizontal bias and trust in people's work. Companies are now having opportunities to innovate, create new solutions not thought of before. That brings great results and they can positively impact the organizational climate and cultural transformation, empowering people with the digital mindset. For those organizations that are more open to applying new methodologies, the pandemic will be easier to cross. The others are struggling, among other aspects, with the cultural issue, and will take time to reach the same level of maturity of those who had already started the journey of DT.

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Drivers and Inhibitors of the Digital Transformation Process

The role of leadership in DT process in an organization proved to be essential for most of the interviewees, appearing as a driving element that generates engagement and productivity, as well as inhibiting factor initiative. Leaders need to be allies and facilitators by inspiring their employees in the changing process, working as partners. Without the participation of leaders in DT, the same does not happen. It does not have to happen from the bottom up, but it is necessary to have the leadership acting together with those involved. Leadership needs to understand the process, co-create, communicate, inspire, support and lead the process by focusing on systemic capacity with its example as fundamental to cultivate new habits and to foster a new mindset and culture.

Some leaders are not prepared for this change and therefore place the responsibility on the operation, and that aspect is linked to the strategy. DT lacks a leadership with digital fluency and visionary without losing empathy and appreciation of the human being. However, in the view of most of the interviewees, the humanization issue is not usually much considered by leaders in the DT process. It should be a point of improvement, commitment and collaboration in a sustainable way. When there is no adhesion of the leaderships or from the President throughout all senior management or even more if it is felt as resistant and not aligned, it becomes a major anchor for the process, preventing it from moving forward and hindering the engagement of employees. Figure 3 displays succinct extracts of interviewees' reports concerning the driving factors.

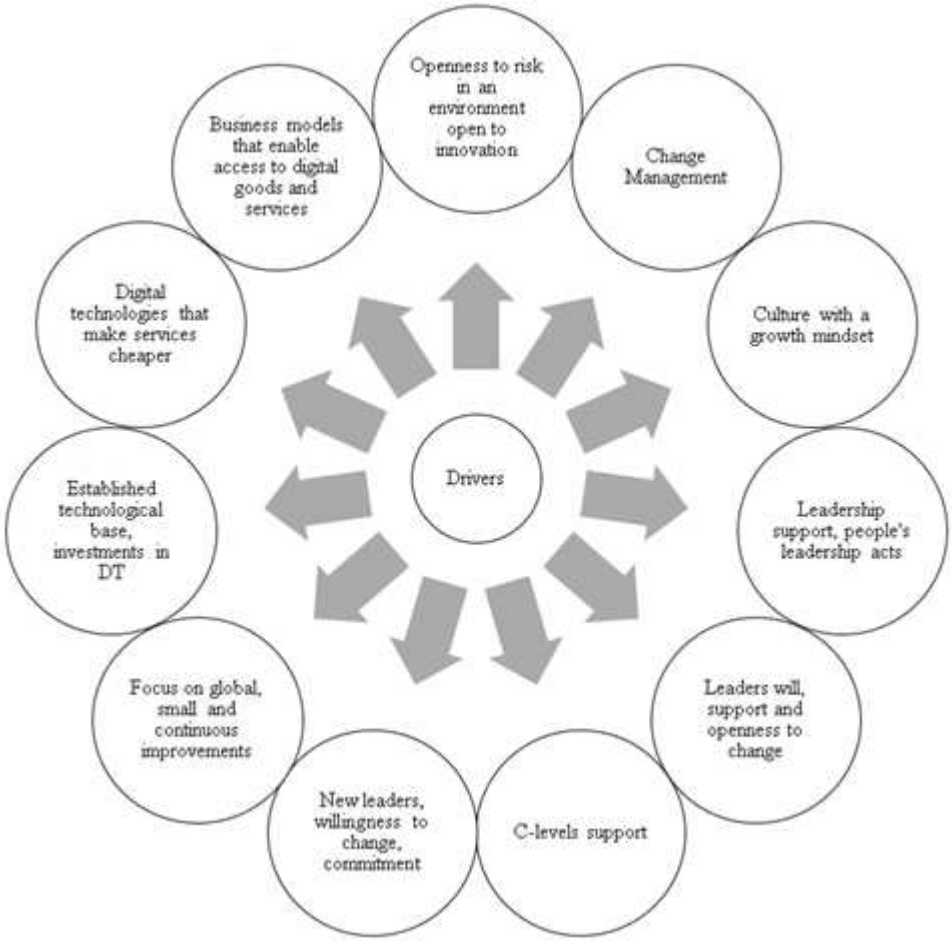

Figure 3. Drivers for Digital Transformation
Source: Research Data (2020)

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Culture was reported by the interviewees, in consensus, as the main inhibitor of the DT process in organizations. The cultural transformation becomes fundamental during the Journey of DT as facilitating characteristics of the process are developed with care not to deploy a revolution but to manage cultural change with communication and engagement. Culture typically found in organizations is contrary to innovation and DT with characteristics of aversion to error and no appetite for risk, with speeches not adhering to practice, with fear of positioning subordinates, with lack of empathy of leadership on the operationalization of the proposals with the employees, with command and control postures, without networking, without much internal confidence in people, with much hierarchy, bureaucratic and rigid, with centralized decision-making process with low autonomy, with lack of focus and attempt to solve all problems at the same time. At the same time that culture is an inhibitor of the process, it is one of the main focuses of transformation to achieve the results. Figure 4 presents, in summary form, reports of the interviewees, about the inhibitors.

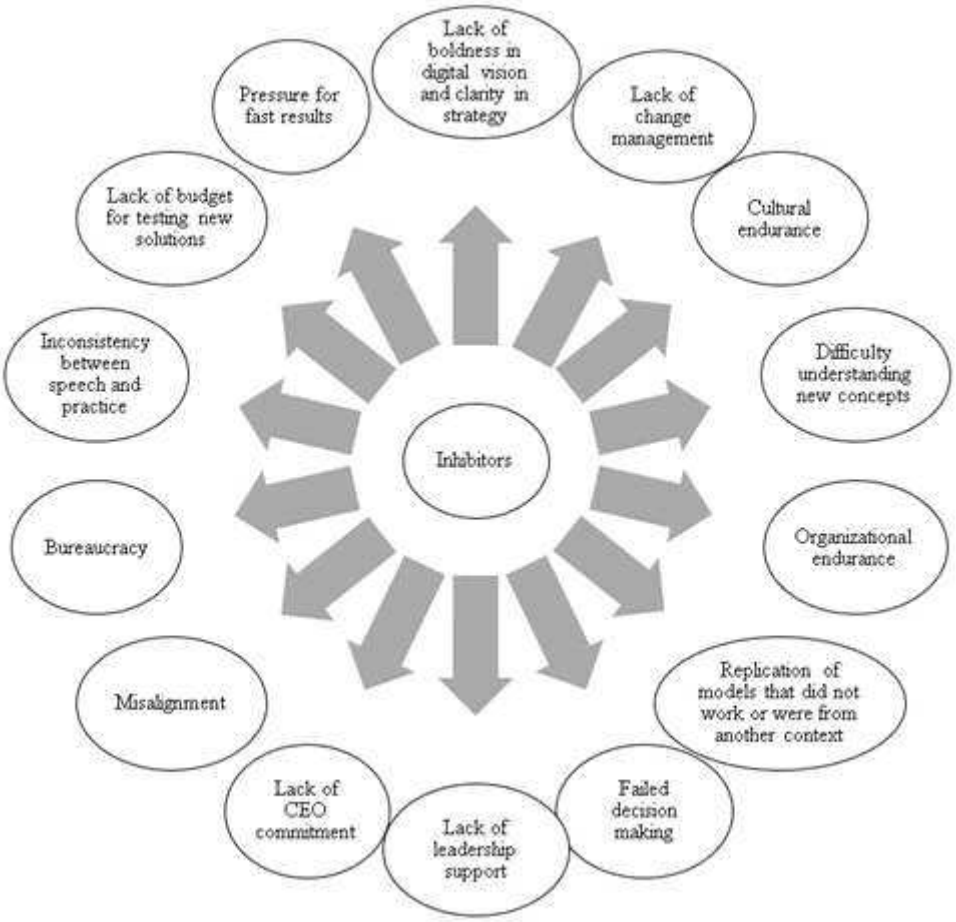

Figure 4. Inhibiting Factors for Digital Transformation
Source: Research Data (2020)

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CONCLUDING REMARKS

The objective of this research was to investigate what are the drivers and inhibitors factors for Digital Transformation and its reflections on the advent of the COVID-19 pandemic, from the perspective of business consultants who conduct DT processes in organizations, confronted by key dimensions identified in the literature review.

About the DT concept, the interviewees were asked how they deal conceptually with this construct. It can be perceived a convergence in a definition that goes through a change of culture, organizational design and mindset in organizations during a journey that prepares them for their perennial position in the market. It seeks to deliver values to stakeholders and providing new experiences and new results in a genuine way. In this work, other aspects were presented that reinforced that the DT process points to a new paradigm of modern management.

Four most relevant key dimensions emerged from the field research in technology: value creation, organizational structure, and culture. They corroborate the studies of Vial (2019); Wade *et al*. (2019); Rogers (2019); Hess *et al*. (2016); Martins *et al*. (2019); Schuh (2017); IDC (2020), which pointed out the said elements as paramount to the DT process (see Table 3).

The role of leadership has also proved to be essential as a driving factor in the DT process, being able to generate engagement and productivity. However, it seems that some leaders are not prepared for this change. In this sense, it is worth reflecting: how to prepare leaders to assume this role? What attention has been given to the training of leaders so that they are able to lead this movement? Another point that deserves attention is the performance of the technological/futuristic leader and humanization. There seems to be room for greater balance between these forces, so that there is commitment and collaboration of the team in a sustainable way.

It should also be noted that, although other key elements for DT were not highlighted by the interviewees, they should not be overlooked. For example, in relation to the customer dimension, as stated by Rogers (2019), it seems extremely relevant to consider their pains, their journey, their experience when we think about DT and how it can impact on those aspects. By alluding to the innovation dimension as another sample, it is possible to bring up the pressing need for companies to promote an organizational environment for the generation of new ideas and solutions, which seems to be indispensable for the DT process (Wade *et al*., 2019; ValdezDe-Leon, 2016; Ivančić, Vukšić & Spremić, 2019).

As a contribution, this work brings an overview of the DT context in organizations, reinforcing the role of the COVID-19 pandemic in the acceleration of the DT process. It is highlighted the possibility of creating a definition for this construct, which needs to be legitimized in future research. The variables discussed bring important reflections to establish the scope of the DT process in organizations beyond technologies and processes. DT reinforces the value creation and the cultural aspect, which can also be transformed along the journey to enable the expected results and to deploy the new digital mindset. Thus, DT is more a cultural transformation than a mere insertion of technologies in the organizational environment.

In this sense, the research has achieved its objective by bringing important results, albeit exploratory, for the debate on the DT process, highlighting its role in the pandemic of COVID19. Thus, naturally, for future work, the proposal is to expand the sample of this research in a survey that can be applied in organizations to expand the findings and provide a broader discussion about this new paradigm of modern management. Furthermore, deepening in this context can be a source for

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the construction of a DT maturity model at organizations, to become a reference for diagnosis and propositions of possible advances in the agile and digital transformation.

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