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Information and Technology's role and digital transformation challenges: a systematic literature review

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Abstract
With the emergence and maturity of digital technologies (e.g., social networks, mobile telephony, big data, artificial intelligence), companies in virtually every segment are pursuing a range of initiatives to leverage their benefits.
Given the increased competition from globalization and greater importance of customer focus, companies are being pressured to become digital ahead of others to survive and gain a competitive advantage.
Going through such a change requires transforming the way the company sees its value proposition, its processes, the profile of its clients and its economic sustainability. Moreover, the functions of the information technology department and their leadership are being questioned.
From a systematic examination of the literature, this paper presents an overview about Bimodal IT, the participation of IT in digital transformation and the hurdles of such a change.

Keywords: Digital transformation; Information and Technology Management; Bimodal IT.

1. Introduction

Digital transformation is receiving more attention in IS research in recent years. Entering the keyword *"digital transformation"* in the Association for Information Systems database brings results showing that from 2000 to 2011 the number of academic papers was 33, compared to 2015 alone when 45 papers were published, 110 in 2016 and 210 in 2017. However, although digital transformation is of growing interest, it is still an emerging field (Haffke, Kalgovas, & Benlian, 2018).
A survey conducted by Gartner (Gartner, 2018) observed that a small number of companies have been ready to successfully scale their digital transformation efforts beyond the experimentation and piloting stages. The research found that companies struggle to deal with a resisting culture and the reluctance to share and collaborate. Furthermore, the business does not have the skills or resources needed and face a talent gap. Lastly, the current practices do not support and convey innovation, and the company does not have the necessary time to develop platforms, change the organizational structure and create an ecosystem of partners.
According to Matt, Hess, and Benlian (2015), digital transformation comprises changes in products, processes, organization structures, and management. Therefore, on a strategic level, four main dimensions should be considered as follows: use of technology (e.g., ability to adopt new technological standards), changes in value creation (e.g., business model), structural changes (e.g., skills, organizational setup and products) and finance (e.g., as a driver or connecting force).
In other words, digital transformation demands an intense change in the activities, processes, skills, capabilities, and structures of organizations so they can respond to market changes in an agile manner using digital technologies as strategic allies.

If an organization seeks a successful digital transformation, it will need to create a wide range of resources, which will change in meaning because the context is different. Even if there are several circumstances that can impact digital transformation success, Carcary, Doherty, and Conway (2016) realize that *"technology needs to become central to how the business operates."*

Therefore, for digital transformation to take place, revising Information and Technology (IT) role and its relationship with business needs is essential. Several executives consider IT essentially as a cost center. However, they now require a more agile IT function, cutting hierarchical organizational silos between business and IT (Haffke et al., 2018).

One of the ways that the IT department can achieve the business agility required for digital transformation is through Bimodal IT. This approach splits IT into two modes, one focused on stability, and the other focused on speed and experimentation (Gartner, 2015). Mode 1 is more traditional, highlighting security and accuracy. Mode 2 creates a better environment for change, highlighting agility and feedback.

Essentially, digital transformation requires organizations across industries to make significant changes. In particular, businesses need to consider IT agile abilities while concurrently not losing sight of IT function's basic goals. Organizations should consider the Bimodal IT approach as a method to expand their capabilities to create a competitive advantage against incumbents, new businesses and replacements.

Based on existing literature, this article seeks to answer the following questions: **(i) what is the definition of Bimodal IT? (ii) what is the IT role in digital transformation? (iii) what are the challenges of digital transformation?**

As methodological approach we conducted a Systematic Literature Review (SLR), which is the primary method for synthesizing quality scientific studies based on a methodologically accurate analysis of research results, which makes it possible to aggregate all the existing evidence for an investigation inquiry (Kitchenham, Brereton, Budgen, Turner, Bailey & Linkman, 2009).

This article has four sections. Section two describes the research methodology used. On part three we described the results found from the selected literature. Finally, in part four, the conclusions are shown, which details how our research goals were achieved.

2. Research methodology

Systematic Literature Review (SLR) is a technique used to search for evidence in scientific literature that is conducted formally, applying distinct steps, starting with a previously elaborated protocol. According to Ardito, Messeni Petruzelli and Albino (2015) a series of steps must be followed to provide a systematic, transparent and reproducible methodology: (i) planning the revision; (ii) developing the revision; and (iii) results of the revision.

In the first phase (planning the revision), the research questions were elaborated, and the search protocol was defined. An exploratory review of the literature was conducted to enable the elaboration of the research protocol to reduce author bias. In this phase it was possible to identify keywords and their synonyms, which together with the Boolean operators allowed the appropriate expansion and limitation of the search, generating the necessary strings to answer the research questions (Cooper & Schindler, 2011). Table 1 shows the strings that were created to perform the systematic literature review.

String 1	(“Bimodal IT” OR “Bi-mode IT” OR ”Bimodal Information Technology” OR ”Dual speed IT” OR ”Two-mode IT” OR ”Two speed IT”)
String 2	(“Digital transformation” OR “digitalization”) AND (“IT role”)
String 3	(“Digital transformation” OR “digitalization”) AND (“Challenge*”)

Table 1. *Strings used for database search*

Regardless of time limitation, examination of papers was conducted by using AIESEL, Elsevier (Science Direct), Web of Science and EBSCO databases. The search began on September 23rd, 2018. An exploratory study was carried out in the IEEE, and ACM databases and the articles found in such repositories were restricted to computer science, so the systematic review did not consider them.

The search in the databases resulted in 2830 documents and, after excluding 377 duplicate papers, 2453 documents were available for the next stage. The results generated for each of the query strings performed in the databases are shown in Table 2.

Research question	**Strings**	**Total**
What is the definition of Bimodal IT?	String 1	4
What is the IT role in digital transformation?	String 3	241
What are the challenges of digital transformation?	String 2	2586

Table 2. *Results by query string after screening databases*

On the revision stage, selection criteria were performed to define which studies should be analyzed. Studies that did not match the following criteria were excluded:

1. English is the primary language of the paper.
2. The paper was published in a scientific or practical journal.

The papers that were not available, stated as rejected, as well as master and doctoral investigations, proceedings or conference papers, working papers, and textbooks were not considered. The selection of journal papers corroborates with Ngai and Wat (2002), who assume that academics and practitioners alike use journals most frequently for gaining information and propagating new findings, as journals provide the highest level of research. The rejection criteria filter produced 255 papers for analysis.

The selection of studies was performed in multiple stages (Kitchenham et al., 2009). The first step consisted of evaluating the study title, resulting in 45 documents for analysis in the next stage; the second stage consisted of evaluating the abstract, resulting in 25 papers for review on the next step; and finally, in the third stage, the quality of the study was evaluated. Considering that the definition of study quality is a complex process (Kitchenham et al., 2009), sets of criteria were established based on the discussions carried out in the validation of the research protocol and they are presented in Table 3.

Criteria	**Score**
Does the study present a theoretical and / or practical contribution?	Yes - 1; No - 0
Has the study been evaluated empirically?	Yes - 1; No - 0
Are the research goals clearly stated?	Yes - 1; No - 0
Are the proposed techniques clearly described?	Yes - 1; No - 0
Is there discussion about the results of the study?	Yes - 1; No - 0

Table 3. *Quality criteria for paper selection*

Applying the literature process shown in Figure 1, finally 15 documents were selected for further examination as shown in Table 4.

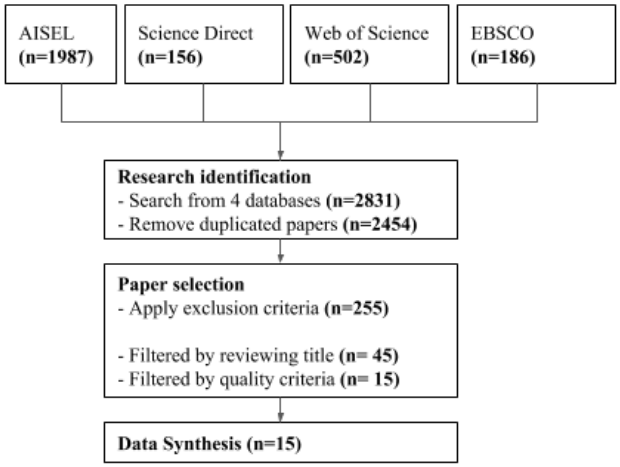

Figure 1. *Systematic Literature Review Process*

Journal	**Year**	**Authors**	**Title**
MIS Quarterly	2013	Bharadwaj, Sawy, Pavlou & Venkatraman	*"Digital business strategy: toward a next generation of insights"*
Information Systems Research	2013	Chakravarty, Grewal, & Sambamurthy	*"Information technology competencies, organizational agility, and firm performance: enabling and facilitating roles"*
Business & Information Systems Engineering	2015	Matt, Hess, & Benlian	*"Digital transformation strategies"*
Journal of Strategic Information Systems	2015	Loebbecke and Picot	*"Reflections on societal and business model transformation arising from digitization and big data analytics: a research agenda"*
MIS Quarterly Executive	2017	Chen, Kazman, Schütz, & Matthes	*"How Lufthansa Capitalized on Big Data for Business Model Renovation"*
MIS Quarterly Executive	2017	Urbach, Drews, & Ross	*"Digital Business Transformation and the Changing Role of the IT Function"*
MIS Quarterly Executive	2017	Tumbas, Berente, & vom Brocke	*"Three Types of Chief Digital Officers and the Reasons Organizations Adopt the Role"*
MIS Quarterly Executive	2017	Singh and Hess	*"How Chief Digital Officers Promote the Digital Transformation of their Companies"*

Journal of Information Technology Theory and Application	2018	Gimpel, Huber, Röglinger, Hosseini, Probst, & Faisst	*"Structuring Digital Transformation: A Framework of Action Fields and its Application at ZEISS"*
MIS Quarterly Executive	2018	Haffke, Kalgovas, & Benlian	*"Options for Transforming the IT Function Using Bimodal IT"*
International Journal of Computational Intelligence Systems	2018	Rojers	*"Digital Transformation, Business Model Innovation and Efficiency in Content Industries: a review"*
Journal of Decision Systems	2018	Heavin & Power	*"Challenges for digital transformation - towards a conceptual decision support guide for managers"*
International Journal of Information Systems and Project Management	2018	Julia, Kurt, & Ulf	*"How digital transformation affects enterprise architecture management – A case study"*
Journal of the National Research University Higher School of Economics	2018	Nissen, Lezina, & Saltan	*"The Role of IT-Management in the Digital Transformation of Russian Companies"*
Future Generation Computer Systems	2019	Sousa and Rocha	*"Digital learning: Developing skills for digital transformation of organizations"*

Table 4. *Papers selected and synthesized*

3. Results and Data Analysis

3.1 Bimodal IT: Definition

Gartner (2015) described Bimodal IT as *"the practice of managing two separate, coherent modes of IT delivery, one focused on stability and the other on agility. Mode 1 is traditional and sequential, emphasizing safety and accuracy. Mode 2 is exploratory and nonlinear, emphasizing agility and speed"*.

Mode 1 introduces a long-term mentality, which is explained by long projects, goals and waterfall methodology for development. Information systems related to this form are business-critical systems that are continuously running. According to Haffke et al. (2018), this mode is frequently focused on *"keeping the lights on"* rather than on conducting exploratory activities.

Mode 2, on the other hand, has a short-term approach concentrating on the quickness and agility of IT delivery to support the business driving innovation to meet rapidly shifting business demands. The agile approach is more customer-centric and focuses on business outcomes with teams often applying methodologies that target short release cycles and working on projects with high uncertainty. Table 5 summarizes the central aspects of both modes.

An example that could be mentioned is the case of a company that needs to develop new applications for its business with the objective of generating competitive advantage. Based on prior definition, Mode 1 drives the creation of stable infrastructure to allow app solutions to

retrieve and deliver data to back-end systems without impacting those enterprise applications, while Mode 2 uses high-productivity, agile approaches to quickly deliver front-end app features required by the business to generate innovation (Chen, Kazman, Schütz & Matthes, 2017).

Attribute	**Mode 1**	**Mode 2**
Goal	Stability	Agility
Culture	IT-Centric	Business-centric
Customer proximity	Remote from customer	Close to customer
Approach	Plan-driven	Value-driven
Focus of service	Security and reliability	Innovation
Speed of service delivery	Slow	Fast

Table 5. *Characteristics of Mode 1 and Mode 2 (Gartner, 2015)*

Companies are interested in using the Bimodal IT design when they need to respond to changes brought by digital transformation (Haffke et al., 2018).
Given the increased competition from globalization and greater importance of customer focus, companies are being pushed to become digital ahead of others only because they need to survive and gain a competitive advantage. The new market arrangement requires an IT response time that the traditional design of governance structures cannot support.
As digital transformation places competing demands on IT, Bimodal IT allows the corporate IT function to achieve its future vision (Haffke et al., 2018). From this finding, Haffke et al. (2018) proposed four different archetypes of Bimodal IT. Archetypes are representations of how the technology area can behave in order to deal with the combination of structuring issues (e.g., evolutions of ERP systems) and innovations to respond for business incentives (e.g., building a new digital channel for sales).
The first archetype presented by Haffke et al. (2018) is project-by-project. The IT area determines for each new project if it will use a traditional or agile approach. Such design allows projects that use a flexible path to be lighter, which helps to break the perception that the IT area does not innovate or is too slow to respond to business demands. One of the challenges of this model is the innovation capacity after project deliveries. The IT prioritization process can discourage new business-driven demands causing a slow response perception.
The second archetype presented by Haffke et al. (2018) is sub-divisional. This design split the IT area into two squads: one responsible for traditional IT services (e.g., management systems, user support) and the other engaged with new services that require a more innovative approach.
Generally, this type of composition requires new skills for the innovative party. Such a design creates the risk of discouraging people as well as a high coordination costs when there are dependencies between existing systems and new services. In contrast, this model offers greater autonomy to meet the demands of business.
The third archetype named by the authors is divisionally separated (Haffke et al., 2018). According to them this is a less common design because IT is separated into new departments: IT and digital. This form of Bimodal IT causes the highest level of internal splitting and is particularly suited for companies that have fallen behind their frequently digital rivals and need to signal their digital purposes both internally and externally.
This design reduces the power and influence of the IT director (commonly a new director role called chief digital officer is created) and the responsibilities of the IT function.

Haffke et al. (2018) described the last Bimodal IT archetype as reintegrated. Companies that have been able to use the previous designs start to create a unimodal IT function that operates with greater levels of agility and explorative capabilities. This archetype enables a company to entirely focus on its digital business transformation mission while moving traditional backend system operations to outsourcing partners or to a smaller subdivision that operates in the background.

The Bimodal IT models show alternatives for an approximation between IT and the business. To bring agility to the business, IT needs to ensure it does not become a barrier to changes in the organizations' business model (Bharadwaj, Sawy, Pavlou & Venkatraman, 2013). The more flexible, integrated and aligned the IT area is with the business, better will be the governance of the solutions that sustain and allow the company to be innovative. Combining both Bimodal IT modes is inevitable to provide the proper answer for digital transformation.

3.2 IT role in digital transformation

Matt et al. (2015) describe digital transformation as the use of new digital technologies such as social media, mobile devices, analytic platforms or embedded devices that enable the business to evolve, improving customer experience, changing organizational structure, streamlining operations, and designing new business models.

Rojers (2018) defines digital transformation as a term that points out those changes that occur by using digital technologies and refers to digital business transformation when it happens for organizational purposes. Digital business transformation occurs by integrating digital artifacts and systems to change the corporate business model, operations and processes to increase the value of products and services offered by the organization.

From the above definitions, it is possible to understand that digital transformation goes beyond the mere digitization of resources. It demands rethinking how to produce new revenue or save using digital assets as allies.

Since the 1950s, digitalization and digital transformation have been occurring in organizations, which have adopted new digital technologies to improve organizational performance and reach higher levels of productivity (Heavin & Power, 2018). The authors claim that with the support of IT, digital business transformation occurs in three main areas of organizations: business models, customer experience, processes and operations.

Bharadwaj et al. (2013) point out the importance of reconsidering the role of IT as a fundamental driver of value creation and propose to establish synergetic digital business strategies. The growth in the strategic value of IT has prompted the IT function’s capability to satisfactorily support the organization in achieving its digital innovation targets while concurrently delivering its original goals of reliable and secure IT services (Haffke et al., 2018).

According to Urbach, Drews, and Ross (2017) since information technologies are used to achieve innovations for businesses, IT functions are expected to collaborate proactively and early on with business departments to be able to create and implement such innovations together.

Even though technology is just the enabler and digital transformation success involves the integration of business, IT, and digital strategy, it is a starting point to analyze the ability of the company to leverage its IT resources and redefine the IT function (Nissen, Lezina; Saltan, 2018; Loebbecke & Picot 2015).

Companies which are successful in utilizing IT gained the experience and adaptability needed to get ahead and undergo a smoother process in the face of digital transformation (Bharadwaj et al., 2013; Haffke et al., 2018).

Not always the current leadership of the company will have the ability to drive digital transformation. According to Singh and Hess (2017) to conduct such a transformation, many organizations have introduced a new C-suite leadership role - the chief digital officer (CDO).
In general, *"CDOs help their organizations to create business value. They are engaged with developing digital capabilities in relevant domains and successfully using various classes of digital technologies to generate value. They need to continually focus on seizing new opportunities.* (Tumbas, Berente & vom Brocke, 2017)*"*
Organizations might appoint a new CDO position because the CIO (Chief Information Officer) and IT unit are concerned with their projects and responsibilities (e.g., maintaining enterprise-wide technologies, security, and IT infrastructure), making the need for a new role important for guiding and executing current and emerging digital initiatives. Also, units in organizations such as marketing and HR are embracing digital innovations and are engaging with and implementing their digital actions (Tumbas et al., 2017).
With organizations focusing on their digital transformation plans, which include continually rethinking their business models, the need for the IT function to support the organization in developing digital capabilities has intensified.
Simultaneously, digitally established newcomers are gaining significant market share in some industries and pose threats to established firms and their traditional business models. These threats, together with the potentially profitable opportunities from successfully leveraging digital initiatives, demand companies to focus on increasing IT agility and experimentation to enable digital transformation.

3.3 Digital transformation challenges

MIT in collaboration with Capgemini Consulting (Westerman, Calméjane, Bonnet, Ferraris, & McAfee, 2011) have found out that traditional companies have different characteristics if compared with digital players, many of them are beginning to reshape their businesses successfully through digital technology. Customers, employees, and competitors pressure companies to initiate and accelerate their digital transformation. However, they are transforming at different paces with different results.
Westerman et al. (2011) discovered that the main challenges for digital transformation are: absence of urgency; conflicting roles & goals (coordination and leadership issues); lacking a vision or failing to communicate it; cultural issues; ineffective IT, limiting legacy systems; regulatory concerns; unclear business case, not enough funding; and missing skills.
According to Heavin & Power (2018) for a successful digital transformation companies need to overcome the following hurdles: prioritization; aggregate or customize data; providing more resources to IT staff vs. more self-service analytics; storing all data vs. choosing data to store that serves a specific purpose; work performed by people vs. computing machines; security vs. accessibility; privacy of individuals vs. understanding of an individual.
Complementing Heavin & Power (2018) vision, Gimpel, Huber, Röglinger, Hosseini, Probst, and Faisst (2018) present that digital transformation requires organizations to analyze six action fields: customers, value proposition, operations, data, organization and change management.
Regarding customers, Gimpel et al. (2018) found that customer experience management is essential for any organization that seeks to gain and sustain relationships. Digital technologies offer organizations new ways of learning consumer insights by collecting data along with shopper journeys, across digital touchpoints, or when customers use smart products and services (Heavin & Power, 2018; Gimpel et al., 2018).
For companies to understand how to position themselves in front of an increasingly digital user, it is essential for them to learn from customer feedback and create smart solutions.

Making decisions that focus only on efficient processes and that do not consider consumer interests will make the business lose competitiveness.

Nowadays, clients require innovative value propositions that leverage digital technologies (Gimpel et al., 2018). Organizations need to gain momentum to keep up with digital leaders, and start-ups' technological mastery and the ability of constantly prioritize innovation (Heavin & Power, 2018). Digital transformation requires companies to change the way they see their value proposition.

Gimpel et al. (2018) observed that digital ecosystems help organizations quickly offer new products and services to a global base. The authors recognized that conditions for the success of digital transformation include well-defined governance, standardized interfaces, (e.g., APIs) and shared data spaces including data privacy and security regulations. Companies need to adjust data value and sensitivity with openness concerns.

While the digital and real worlds continue to merge, companies should rethink their operating models, business processes and supply networks. According to Gimpel et al. (2018), this goal requires an integrated yet flexible IT infrastructure and digital operations, supply networks and manufacturing capabilities. The digital phenomenon is an opportunity to innovate and redefine how organizations do business with their suppliers.

Offering consistent customer experience combined with smart product and services depends on seamless data processing and systems integration (Julia, Kurt & Ulf, 2018). While increasing their IT infrastructure, businesses also stand to benefit from investing in the flexibility of their IT capability and in its adaptability with fast-changing digital technologies to fully remodel their businesses (Gimpel et al., 2018). Considering a flexible, lightweight technology infrastructure that supports continuous evolution will enable the organization to learn quickly and test new digital strategies.

Social media, digital transactions, embedded sensors (e.g., Internet of Things), and mobile devices are new data sources that drive data explosion. Gimpel et al. (2018) and Heavin and Power (2018) mentioned that one key challenge involves data integration. The authors alert that many data-driven applications such as recommender systems or predictive analytics in addition to integrated data, they require high-quality data.

Another important aspect related to the increasing amount of available data and data-driven business models is who owns the data. It is by no means evident that the business that collects or hosts specific data enjoys rights of usage or possession. Gimpel et al. (2018) and Heavin and Power (2018) reinforced that data ownership, and privacy (i.e., the rights and control over data) are highly relevant factors in defining competitive positioning and should be elements of an organization's data strategy.

Gimpel et al. (2018) recommended that organizational agility involves using approaches such as agile project management, process flexibility, lean start-up, design thinking, continuous deployment, and integrated development and operations.

Fast-changing customer demands and delivering innovative products challenge well-established methodologies as digital economy propagates personality and agility as core values. Companies will need to reconfigure previous methods that rely on predictability, uniformity, and consistency.

Heavin & Power, 2018 suggest that *"the human capital of organizations undergoing digital transformation plays an essential role in the process"*. Changes in employee behavior and thought patterns will make it increasingly important for the workplace of the future to support knowledge-intense work. Work in the digital economy requires dynamically gathering collaborative people into project teams that compete in real-time for high-value tasks all over the world (Gimpel et al., 2018).

Looking from the perspective of needed skills to deal with digital transformation, Souza and Rocha (2019) found that the necessary skills recognized for an adequate digital transformation are *"artificial intelligence, nanotechnology, robotization, internet of things, augmented reality, digitalization; and the leading digital learning contexts were mobile technologies, tablets, and smartphone applications — which are becoming popular among employees."*
Additional challenges appear with the need to determine who might be responsible for nurturing a digital mindset and leading the organization into digital transformation. According to Gimpel et al. (2018), the most effective strategy for assigning responsibility for digital transformation depends on an organization's corporate history, business model, organizational setup, and—last but not least—the individuals who hold key positions in it.
As noted on studies listed above, the main challenges for implementing digital transformation are alignment, people and skills, IT infrastructure, using agile methodologies, data quality and integration, customer needs, and leadership.
It is important to note that the results obtained with the current business model could generate a false sense of tranquility for companies and lead to maintaining the current strategy.
Exploring new models, which include digital transformation, becomes a necessity for survival. Success in the past is no guarantee of a sustainable future.

4. Conclusion

This paper provides a first step in structuring the landscape of the existing literature regarding Bimodal IT, the IT role and the challenges of digital transformation. In summary, the conducted SLR revealed some interesting insights concerning the research questions. Generally, Bimodal IT is an essential organizational tool that enables the traditional IT function to eventually turn into an entity that effectively supports the business as it undergoes digital transformation. In the long run, the IT function can progress through multiple Bimodal IT archetypes (Haffke et al., 2018). As the company continues its journey of transformation, IT functions will continuously optimize its governance models, work methods and alignment mechanisms.
Digital transformation has required organizations to understand how to use technologies, change how they create value for customers, revise their business model, rethink their structure, and design new revenue models. It involves implementing digital capabilities to support business model transformations. It impacts the whole organization, especially operational processes, resources, internal and external users, asserting that IT must be important strategically.
As a way of leading digital transformation, a new role at the c-level emerges - CDO. A professional with particular characteristics, which brings in DNA with a powerful blend of technology and business, as well as a vision of the future to be applied in the present.
Based on Tumbas et al. (2017) sometimes the company does not even need a CDO since the CIO or another professional, such as the CMO (Chief Marketing Officer) performs this function. A business-oriented CIO can seamlessly fulfill CDO's duties, with good traffic between the corporation's business areas.
As mentioned earlier, the main challenges for promoting digital transformation surrounds people and skills, legacy systems, data, customers, leadership and developing IT agility.
The workforce and leaders of organizations have a low level of knowledge about digital technologies and their potential application in internal processes and customer relationships. Data collection and analysis, sensor and connectivity applications, the use of collaborative tools, and internal application development are beyond the reach of most people inside organizations.

The investments made in legacy systems halt new actions. Decisions of the past create a technological lockup around inflexible and outdated options. Upgrading to a more modern platform is seen as a very costly and wasteful resource, but it's necessary for business sustainability.

The digitized experience for consuming products and services is generating a whole set of new expectations and even needs on customers. Established companies, with traditional and historically proven business models, have a hard time noticing these changing habits in their clients, who suddenly migrate to new value propositions.

Easy and inexpensive access to new technologies enables a large number of startups that deliver products and services not as complete as those traditionally available, but whose agility and number of options can disrupt the entire traditional business model.

This study is subject to several limitations due to the nature of our research. Several aspects namely, the extension of the search string, the forward and backward search, and the quality assessment are kept for further examination. We can add other databases such as *"Google Scholar"* or *"business source complete"* to enrich our results. The search string could consist of more contextual variables and should subdivide each variable to include relevant topics concerning the research field.

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