ISSN:2353-0405 / E-ISSN: 2600-7037	Algerian Journal of Economy and Finance	Volume: 09 / N°:02 september-2022,p 69-90

Digital Transformation Challenges

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Receive: 28/08/2022 **Accepted: 18/09/2022** **Published:: 30/09/2022**

Abstract:

Despite the colossal progress man has made in terms of technological advancement and development, digital transformation is still in an embryonic and incipient state. This study aims to investigate and explore the major challenges and barriers facing this transition to a digital world and why futurism is not as ubiquitous or easy as it are thought to be. The purpose of this study is to identify the main issues barring companies from fully integrating their systems with digital ones that could be more convenient and helpful for both the workforce and the clientele. We accordingly conducted a literature review concerning the barriers facing digital transformation. The results revealed a slew of problems thwarting any attempts at innovation. They varied from lack of digital expertise and absence of management to digital illiteracy, budgetary constraints, and security concerns. Moreover, we also strived to provide the most adequate suggestions to these challenges such as having a clear digital strategy, an inspiring leader, a well defined management, a well thought out budget and the implementation of more technology. We think these results will be both informative and enlightening on the complex barriers and challenges of digital transformation.

Key words: *Digital transformation, Digital maturity, ICTs, Industry 4.0, Internet of things.*
Jel Classification Codes *: M15, M21*

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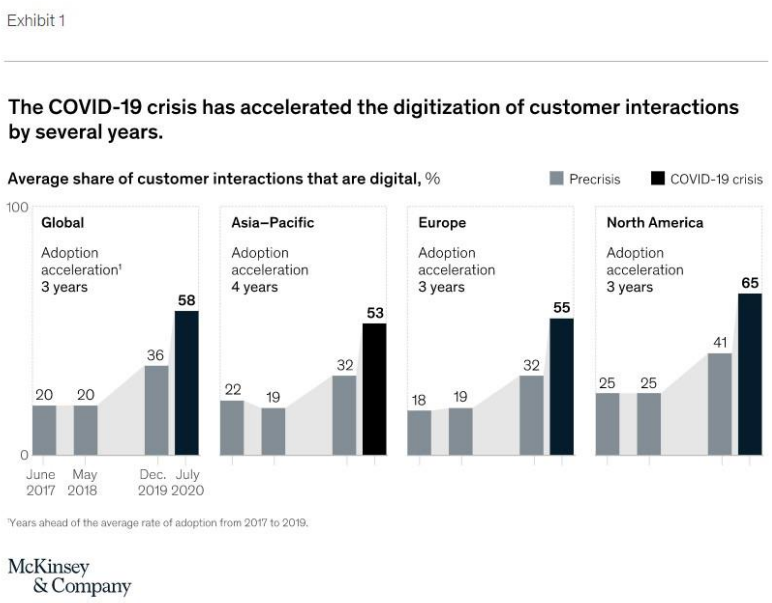
Introduction:

The pace of change in the world is accelerating. Businesses are moving to the next level of digital customer engagement and IT-enabled business processes, products, and services thanks to the Internet of Things (IoT), mobility, cloud, big data, augmented reality, blockchain, and social media. Digital technologies are causing an unseen shift in almost every industry, altering our jobs and personal lives in ways we never imagined (Sukhova, 2016). IT modernization (for instance, cloud computing), digital optimization, and the development of new digital business models are all examples of digital transformation. In public-sector enterprises, the phrase is frequently used to describe modest projects like online service provision or legacy upgrading (Gartner, 2022).

"An endeavour to enable existing business models by incorporating sophisticated technologies," is how McKinsey describes digital transformation. In essence, it enables the integration of digital technology into current business models, changing how one conducts business and provides goods or services (Bhattarai& Leapfrog, 2020).

Digital transformation is on the rise after it was seen as optional by many organisations and companies. However, COVID19 has changed the previous system and “digitise to survive” has become the new motto for those who want to evolve and become more efficient in all areas. from education, healthcare, and the economy (Performance Improvement Partners, 2020).

Figure.01: The COVID-19 crisis has accelerated the digitization of customer interactions by several years



The COVID-19 pandemic, according to 63% of leaders, led them to adopt digital transformation earlier than they had originally intended (Celerity, 2020). In a matter of weeks as opposed to months or even years, 85% of executives indicated their companies have hastened the installation of technology that digitally enables employee connection and collaboration (McKinsey Global Institute, 2020).

Source: McKinsey Global Institute, (2020).

Organizations and companies have realized the myriad of benefits digital transformation can bring them such as the cost factor, which is a major motivator for digital transformation for many businesses. Operational costs are reduced when data is moved to a public, private, or hybrid cloud environment. It reduces the cost of hardware and software while allowing team members to work on other tasks (McKinsey, 2018).

New technological advancements offer more effective service delivery and public administration (Margetts & Dunleavy, 2013, 1). Yet, because of barriers such as ingrained conventions, bureaucracy processes, and structure, the fulfillment of this promise frequently becomes stalled (Nograšek&Vintar, 2014, 2). According to a McKinsey report, more than 70% of all digital transitions fail. Success rates differ depending on industry and firm size. Traditional corporations have success rates of 4-11%, while digitally aware industries (such as high-tech, media, and telecom) have success rates of 24% (Impact First, 2022).

Because of the low success rate and the numerous challenges that impede a smooth digital transition, we conducted this research to answer the following questions: Q1: What is a digital transformation? Q2: What are the main barriers preventing the success of a digital transformation? Q3: What are the suggestions and solutions companies can benefit from for a smooth digitization?. Therefore, the aim of our study is to: (1) Identify the correct meaning of digital transformation. (2)

Determine the main barriers that impede digitization initiatives. (3) Give adequate suggestions to digital transformation hurdles. This literature review has been conducted on the most recent and most updated references on the challenges and barriers faced in dealing with digital transformation published in indexed journals, official sites, and research papers. The remainder of the paper is divided as follows. Section 2 presents the definitions of digital transformation, its history, and its functionality. Section 3 analyses the benefits of adopting digitization in business by providing examples of companies who succeeded in this initiative. Section 4 deals with the barriers of digital transformation. Section 5 discusses the suggestions to mend the aforementioned hurdles. The report concludes with a discussion of key findings, limitations, and research and management implications.

1. A Definition of Digital Transformation:

In our world of emergent and ongoing change, digital transformation (DT) has become essential for the majority of organizations. The term "DT" has been used (and misused) so widely that it is now very ambiguous. Therefore, there is a pressing need to give DT some conceptual rigour (Gong &Ribiere, 2021, 3). “Every industry and every organization will have to transform itself in the next few years. What is coming at us is bigger than the original internet, and you need to understand it, get on board with it, and figure out how to transform your business.” — Tim O’Reilly, Founder & CEO of O’Reilly Media (Goel, 2022).

What is known as "digital transformation" generally consists of using digital technologies to create new business processes, cultures, and customer experiences or -modify existing onesin order to meet shifting business and market requirements. "Digital transformation" refers to the reimagining of business in the digital world (Salesforce, 2018). It is also known as digitalization, and it is considered a social phenomenon and a cultural revolution (Henriette et al., 2016, 4), It is a transformation stemming from the evolution of new technologies ranging from the internet, social media, and mobile technologies (Zhu et al., 2006). DT is also known for the use of computer-based technologies in an organization’s strategies, processes, and products. Organizations invest in digital transformation to boost their ability to compete and to better engage and serve their workforce and customers (Pratt, 2019). The integration of digital technology across all functions of an organization is known as "digital transformation," and it fundamentally alters how one conducts business and provides value to customers. Additionally, it is a natural shift that necessitates constant status quo challenge, experimentation, and comfort with failure on the part of the organization (Guide, 2022).

This term has also been linked to the fourth industrial revolution, or Industry 4.0, which is transforming how businesses produce, enhance, and distribute their goods. The Internet of Things (IoT), cloud computing, analytics, AI, and machine learning are among the cutting-edge technologies

that manufacturers are incorporating into their manufacturing processes (IBM, 2021). These days, the subject of digital transformation is one that is frequently discussed, but this was also the case in the late 1990s and again in the middle of the 2000s. Nearly 30 years ago, computerizing processes began, and today, organizations already use digital activities (Sukhova, 2016).

Initially, websites or digital channels linked businesses with their clients. Digital procedures then started to support client interactions. Companies quickly realised that they needed specialized digital teams to oversee new social and mobile channels as their digital ambitions grew. This made it possible for businesses to use digital data about their own operations and interactions. Companies realized they were operating in digital networks once they were connected to their customers, suppliers, and other stakeholders (Schallmo & Williams, 2018, 5). Businesses began integrating all procedures and equipment into networks in order to better utilize the enormous amounts of information. Organizations focused on digital processes as they recognized the potential of connectivity, they created platforms that connected all system players rather than the conventional method of conducting business through intermediaries. In an effort to better utilize data, increase agility, and keep talent, businesses have started experimenting with new digital business models (Sukhova, 2016).

Today's businesses incorporate digital technology into every aspect of their operations, so those that do not establish an effective digital strategy or do not make the most of digitalization risk falling behind. This is why the purpose of this study is to investigate and highlight the main issues and barriers hampering these aspects of life from unlocking their potential in the digital space (Saarikko et al., 2020, p. 6; M&BD, 2021).

2. Business and Digital Transformation:

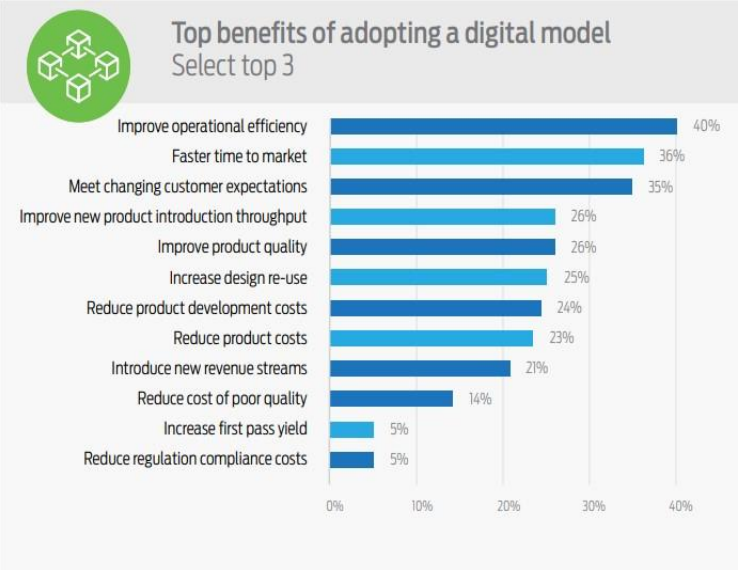
Implementing digital technology is only a small part of what constitutes an effective digital transformation (Roy, 2021). If there is one lesson to be drawn from the numerous well-known cases of successful digital transformation, it is that having the right organizational practices in place is crucial for success in such initiatives. Businesses are putting transformation initiatives into practice today to shorten their time to market, maintain their competitiveness, and enhance the experience of customers. So much so that it is anticipated that by 2025, the market for digital transformation will be worth $3.2 trillion, according to Meticulous Research (Meticulous Research, 2020).

This accelerating trend has found many supporters because of the benefits it provides, such as the increase in customer satisfaction by providing a personalized service, which ultimately widens the company’s reach and revenue. Besides, one of the biggest advantages of digital transformation is that it will enable one's company to gather and analyze data that it can then turn into insights that can

generate revenue. In the past, businesses may have collected and used no data at all, or data may have been dispersed across numerous disconnected platforms. Strong data collection, centralized data storage, and the development of tools to analyze and transform data into information that enables informed corporate decision-making will be made possible by digital transformation. Moreover, it gets rid of redundant processes, long response times, lost data, and inefficient idea sharing. Digitizing a company's internal communications will boost accountability, creativity, and productivity while giving you the edge you need to outperform the competition (Thales, 2022).

According to a report published by PTC, the top three advantages of digital transformation are increased operating efficiencies, the capacity to satisfy changing customer demands, and enhanced product quality (PTC, 2022).

Figure.02: Top benefits of adopting a digital model (PTC, 2022).



Numerous companies have successfully integrated their systems digitally, and they have witnessed a remarkable shift in their performance and growth. For example, IKEA, the Swedish furniture company, acquired a site named TaskRabbit in 2017; this

Service enables users to look for somebody to assist with IKEA furniture delivery or assembly in their apartment. As a result, clients who are unable to complete these duties on their own are more inclined to engage the business' services. IKEA has also made the decision to launch a smart home initiative. For this titan of the furniture business, this includes technologically advanced lighting and kitchen appliances. In order to make it simpler for clients to

select furniture and virtually "furnish" an apartment before making shop purchases, the business also uses augmented reality in the IKEA Place application (BrainHub, 2021).

Another example is that of Walmart. Their comprehensive strategy and dedication to digital transformation helped them rank among the most successful businesses. Autonomous robots (AMRs) have been used by the corporation to provide real-time on-shelf inventory. Additionally, they do not hesitate to employ self-driving, autonomous floor scrubbers. The biggest change, however, can be observed in efforts to expand into new areas and increase e-commerce spending. The company's internet sales increased by 150% as a result of their investment between 2011 and 2014 (Dobrowolska, 2020). Walmart continued to invest in technology, spending an additional $11.7 billion in 2018, making it the third-largest IT spender globally. Walmart recently overtook eBay in the proportion of U.S. e-commerce sales (Liu, 2020).

For more than ten years, Pfizer has been working on its digital transformation. The 42 manufacturing locations of the corporation were not connected when it began its journey, making data sharing impossible. Even the legacy systems used by the sites were different. At present, a unified enterprise system has taken its place at Pfizer (Venezia& Schmidt, 2021). By implementing automation technologies, Pfizer was able to turn its manufacturing processes into a smooth, data-driven engine. The system offers Pfizer supply chain data to boost efficiency and dependability. Across all of its facilities, Pfizer uses technologies it built to provide visual management and action monitoring. Utilising mobile devices and augmented reality technology, the solution makes cooperation easier (Venezia& Schmidt, 2021).

Gartner 2020 reports that 40% of organisations have reached scale for their digital initiatives and 91% of organisations are participating in some kind of digital initiative (Garner, 2020) (Dobrowolska, 2020). Even after the acceleration of digital transformation during the pandemic — according to a global research study by IFS (IFS, 2020) , 70% of organisations have increased or maintained digital transformation spending amid the pandemic — experts think that accessing digital transformation success is not everyone's strong suit. (Roy, 2021).

No one disputes the importance of digital transformation for the success of all modern businesses, but no one asserts that transformation is easy. Digital transformation is challenging, multifaceted, and convoluted.

3. Barriers to Digital Transformation:

A number of obstacles may arise while attempting a difficult organisational transformation process driven by new digital technology (van Veenstra et al., 2011, 7). Based on literature, barriers are split into two groups: structural barriers and cultural barriers. Cultural barriers are employee

attitudes that might obstruct change, whereas structural barriers include organisational and managerial elements that are intrinsic to the characteristics of the company (Tangi et al., 2020, 8). As shown in research, structural challenges consist of inadequate managerial support, a lack of political backing, a scarcity of available capabilities, a personnel shortage, the complexity of the organisation, and a lack of cooperation among the organisation's departments/areas. As for the cultural hurdles, they consist of opposition to change, bureaucratic culture, and an aversion to innovation (Tangi et al., 2020, 8).

Companies struggle to relate digital strategy to their business because they lack a clear definition of what "digital" means, leaving them adrift in the rapidly shifting tides of digital adoption and change. When executives were asked on the meaning of "digital," some of them simply considered it as an improved way of describing what their IT department does. Others concentrate on sales or digital marketing. However, very few people possess a comprehensive understanding of what digital actually entails. Digital is defined as the ability to link people, devices, and physical items virtually, instantly, at no cost, and without error (Bughin et al., 2018).

There is a hurdle when it comes to inadequate managerial support in the top management/managerial representatives and employees of the major business divisions when interest is not demonstrated in the adoption of digital technologies. This ultimately hampers any efforts at a full transformation. Other companies lack the personnel with the training required to integrate and use digital production systems; ie, digital illiteracy. Moreover, this goes without mentioning that the organization or company being unable to provide employees with training, retraining, or advanced training in the present areas of the enterprise's digitalization (Borovkov et al., 2021, p. 9).

Lack of funding for extensive/complex digitization projects and lack of funding for supporting digital production technologies is a hurdle most companies suffer from when initiating a digital transition (Borovkov et al., 2021, p. 9); especially those who have just started with a small business, as it takes a sizable budget to be able to integrate ICT’s or fully digitize one’s work to be able to cover a large number of clients. Thus, budgetary constraints also have a detrimental impact on the implementation of digital transition according to Forbes (Bendor, 2017).

Another rarely talked about problem is fraud and cyberattacks, which are becoming a greater threat to finance teams. Although one might not consider cyber security to be a "financial" concern. According to Forbes, it has been discovered that 25% of their respondents said that their finance teams' biggest problem is enhancing cyber security procedures (Charpentier, 2022). Since the launch of COVID-19, cybercriminals have grown bolder and more technologically sophisticated, leading to an increase in fraudulent transactions and other crimes. The median ransomware payment (a type of

malware that encrypts a user's computer data for an amount of time and prevents access to it until the attacker receives payment in ransom. A cryptocurrency like Bitcoin, which enables the online and anonymous payment, is frequently used to demand the ransom) (Frankenfield, 2021) in the first quarter of 2022 was close to $74,000, and the average ransomware payment was above $200,000. In 2021, the expected average cost of a data breach was $4.24 million and phishing attempts, which is a method of social engineering attack that is frequently used to steal user information (Imperva, 2022), can set back businesses by more than $1,500 per worker (Charpentier, 2022).

These financial problems have propelled 70% of digital transformation initiatives to fail, as 700 billion dollars are spent by businesses each year with no revenue or return (Forth et al., 2020). Research on some companies has also shown that the implementation of measures for the enterprise's digital transformation is hampered by the existence of significant restrictions and special software requirements (related to the terms of licensing agreements, requirements for ensuring the protection of information that is a state secret, selection of IT product developers (using imported software products), requirements for compatibility within a single information space, etc.) (Borovkov et al., 2021, p. 9). Digital transformation is defined by many as deeper than simply introducing digital tools, it involves a fundamental shift in culture. This falls under Industry 4.0, where businesses are swiftly implementing digital techniques (Parsable, 2018). Within the next five years, 76% of industrial manufacturers expect to embrace Industry 4.0. The ideas behind this go beyond merely verbal expression; they also involve reskilling employees, altering job duties, and modernising business processes, which are cultural problems businesses are striving to find strategies and solutions for (Geissbauer et al., 2016; IBM, 2021).

Employee pushback might also face DT projects. Some workers dislike change, and a digital transformation will involve considerable change for almost every employee in the company. It makes sense that employees would be afraid of any massive transition. They might be worried about possible job loss, adjustments to their positions, taking on more work, not being able to keep up with the new procedures, and a variety of other things (Forkenbrock, 2020).

In business, bureaucracy is a hierarchical structure or a firm that follows a predefined set of regulations. Large businesses frequently require specialized sub-institutions that report up the management chain to carry out a variety of different tasks. A bureaucracy enables a business to establish a set of regulations. Organizational charts that outline roles and responsibilities are common in bureaucratic organizations. Additionally, bureaucracies create a system for making decisions (Manker& Harrington, 2021; Indeed, 2019). Despite the fact that bureaucracies help centralize power and authority, they establish standard operating procedures that worked well in the past but may not

operate well in the future, which relies heavily on new digital characteristics, or they suggest potential opportunities for process improvement. As a result, they may unintentionally impede innovation by making organizations less flexible and efficient in their operations. For instance, a rigid bureaucracy may make it challenging to fire a performer due to a lengthy termination procedure (Indeed, 2019).

4. Suggestions to a successful digital transformation roadmap:

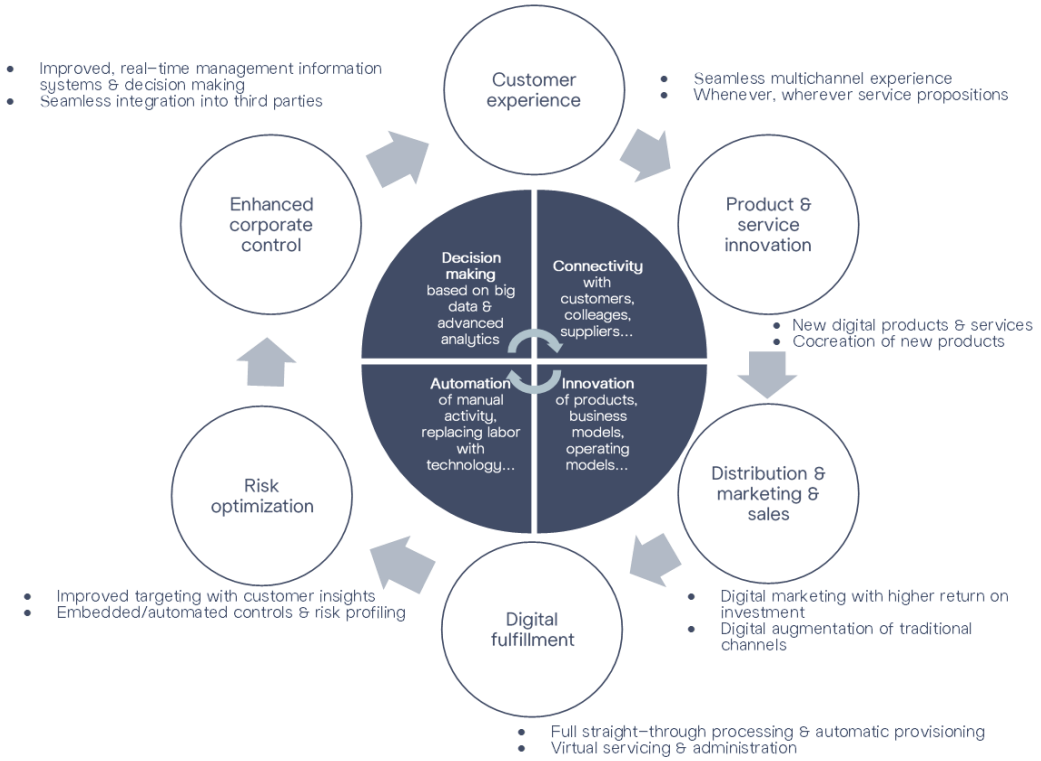
Economic growth is the result of numerous societal developments. The most recent example of this development is digital transformation. As a result, researchers and industry professionals have extensively examined this new occurrence to determine its ramifications, advantages, drawbacks, and effects on both social practices and labour. The primary goal has been and remains to launch an effective, sustainable, and successful digital transformation (Zaouia&Souissib, 2020, 10).

One of the most vital parts of a successful digital transformation is for the organization to have a digital strategy. According to M & BD Consulting, it is "a series of man oeuvres that allow the organisation to successfully lead its competitive conquest in the digital environment." It is a process of deliberate, pro-active decision-making and action on leadership, management, employee sentiments, cyber security and budgeting. The corporation determines its priorities in the digital environment through this procedure, allocating and reallocating its resources (Bullen et al., 2015, 11).

As hinted at in a previous sentence, several studies have shown that businesses with higher than average levels of digital revenue outperform their competitors, expand more quickly, earn higher margins, use capital more efficiently, and provide greater shareholder value. As of right now, businesses that do not take steps to effectively use digital technology run a greater danger of falling behind their rivals (M&BD, 2021).

Today, having a digital strategy is crucial, especially since digital alters the playing field and lessens the efficacy of traditional methods. Digital technology has the potential to transform every area of the modern organisation, as shown by the chart below from Expert interviews; McKinsey research (Olanrewaju& Willmott, 2013).

Figure 03. Digital strategy (M&BD, 2021)



A framework developed by McKinsey & Company aims to make sense of the digital disruption, increase awareness of potential signs of vulnerability to this disruption, and give businesses strategies for dealing with it. In conclusion, it is beneficial for businesses to comprehend their situation in order to make informed decisions while creating, revising, or altering their digital strategy (Dawson et al., 2016). When digitalization changes the nature of supply, demand, or both, it can cause industries to be disrupted. The authors looked at supply and demand in relation to how much aspects change as a result of digital disruption for this reason. The framework's first section describes the more subtle adjustments in supply and demand, while the second section explains the more dramatic ones.

Figure 04. Digital strategy framework (M&BD, 2021)

MODEST DEGREE OF CHANGE	DEMAND	SUPPLY	
	UNFULFILLED DEMAND AND GROWING EXPECTATIONS	REVELING NEW SUPPLY	MAKE NEW MARKETS
Situation	Digitalization removes distortions in demand, providing customers with more complete information, unbundled products, and services previously combined. The growing expectations from customers raise potential disruption from companies willing to address this demand.	Digitalization makes accessible sources of supply formerly impossible to provide and allows enhancing their utilization close to their maximum rate.	New markets can emerge from the connection of the unused supply and the unfulfilled demand. their utilization close to their maximum rate.
Indicators of vulnerability	Companies may be vulnerable to disruption if the customers: · Have to cross-subsidize other customers · Have to buy the whole thing for the one part they want · Cannot get what, where and when they want it · ' experience does not match global best practices	A company may be vulnerable to disruption if: · Customers use the product only partially · Production is inelastic to price · Supply is variable or unpredictable · Fixed or step costs are high Challengers could disrupt by combining redundant capacity virtually, digitizing physical resources, and engaging in the sharing economy.	The vulnerability of market to the development of a new type of market depends on level of transaction's difficulty for customers. The market may be exposed if there are: · High information asymmetries between customers and suppliers · High search costs, fees and layers from intermediaries · Long lead times to complete transactions
Potential proactive solutions	To address unfulfilled demand, companies can: · Uncover new demand · Unbundle the demand · Price it more accurately · Take away subsides · Take away stickiness · Make it now and easy	Three mechanisms could help to prevent disruption including: · Increasing utilization · Unlumping capacity · Enlisting new supply	To prevent the development of new markets, potential solutions could include: · Real-time and transparent exchange of information · Disintermediation · Automated transaction processing · New transparency through search and comparison tools

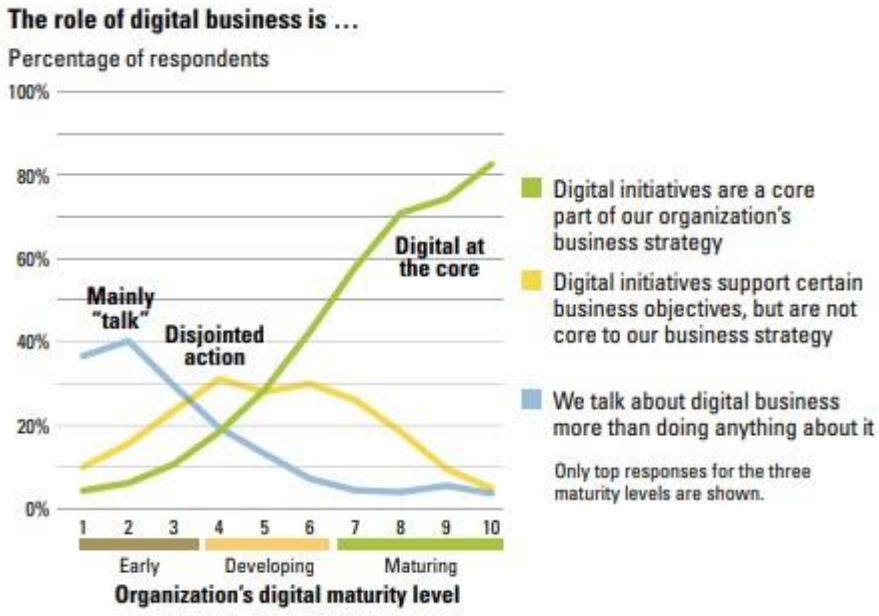
For businesses starting a digital transformation, digital maturity—a measure of an organization's capacity to generate value through digital—is a significant success indicator and must be the aimed for objective (Boston Consulting Group, 2022).

High levels of digital maturity give businesses a competitive edge across a range of performance indicators, including revenue growth, time to market, cost effectiveness, product quality, and customer happiness. Low degrees of digital maturity in businesses make it difficult to reap these

advantages. The gap between digital leaders and laggards will probably widen as long as digital continues to contribute to business performance (Kane et al., 2017, p. 12).

MIT Sloan Management Review, in partnership with Deloitte, conducted its sixth annual survey of more than 3,500 business leaders, managers, and analysts from businesses throughout the world to better understand the potential and difficulties associated with the use of digital technology. 80% of those polled who said that digital maturity was a key component of their organization's strategy said that their efforts were either very effective or successful (Kane et al., 2017, p.13).

Figure 05: The majority of digitally mature businesses display considerable disparities in how important digital is to their core businesses.



Source: Kane et al. (2017, p.13).

Literature also points out a number of variables that promote transformation. These variables consist of drivers divided into internal and external categories. Internal drivers examine whether there are aspects of the company (such as a charismatic leader or some inefficiencies) that make the change more urgent (Popli& Rizvi, 2016, 14). On the other hand, external causes, such as the demands of external stakeholders or statutory requirements, can also contribute to the urgency of change within an organisation. Examples of internal drivers vary from internal leadership's capacity, internal discontent with the current situation, and even anticipated benefits for the administration. As for the

external drivers, they vary from benefits anticipated for third parties (stakeholders and/or end users), extrinsic pressure, and external legal requirements (Tangi et al., 2020, p. 8).

The importance of having a leader with a clear vision is also a vital for a successful transformation. To change their organization into one that can function to its full capacity, leaders must comprehend the merits of this transformation and how to use technology to their advantage. They must share the right vision with all employees to encourage participation, evaluate the organization's present level of digital maturity, hold a session on customer journey mapping to discover friction points in every customer interaction and to make sure digital is approached from the outside in, and implement roadmap initiatives based on the impact to the customer experience and business priority (Raut, 2018; khandelwal, 2022).

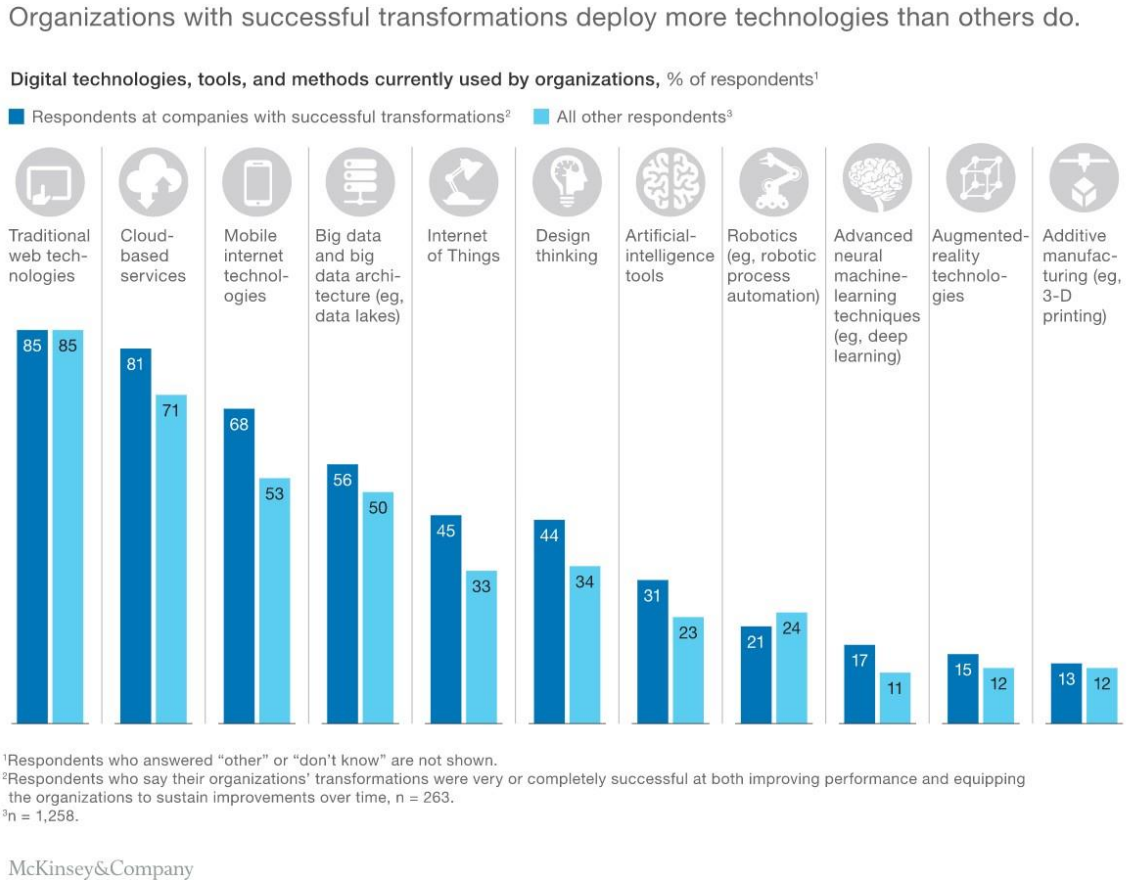
As for the required budget, companies need to carefully design digital transformation projects in the context of their organization rather than getting sucked into all the most recent trends. This involves working with stakeholders to establish precise business goals and then developing projects that support achieving them. they will be able to concentrate their efforts and, most importantly, their resources on tasks that will add the most value (Grainger, 2022). Digital transformation is not a "all or nothing" task. It is a process that never stops changing as the company's needs (and customers' demands) alter. Therefore, the technology purchased must be flexible enough to change along with the company. Integrating existing systems with external entities via the wonders of APIs is the simplest way to accomplish this (Grainger, 2022).

According to TechTerms, an API is a collection of instructions, methods, protocols, and objects that programmers can use to build software or communicate with other systems (Pero, 2018) (TechTerms, 2016). The foundation of digital enterprises is APIs. They make it possible for many systems to communicate with one another and share information, allowing companies to provide their consumers with seamless, highly customized journeys and experiences (Grainger, 2022). Another key succes is the digitization of the organization's operational model, which is the goal for digital transformations. Digital transformations frequently have a broad scope and involve numerous functions, business units or entire organizations. According to respondents, on average, their companies use four out of 11 tech-related technologies. (McKinsey, 2018)

The outcomes of successful transformations demonstrate that these companies use more technologies than their competitors (Figure 06). Given that a wider range of technology could lead to more complex transformation initiative implementation and, consequently, greater potential for failure, this might appear paradoxical. The employment of more modern technology, such as artificial intelligence, the Internet of Things, and sophisticated neural machine-learning methods, is more

common in firms that have successfully undergone transitions than in other organizations (McKinsey, 2018).

Figure.06: Organizations that successfully transition use more technology than competitors do.



Source: McKinsey, (2018).

Reaching digital maturity is a continuous process; new business models, shifting market demands, and technological developments will all drive further company development and success. It is a lengthy process, but it can raise the possibility that an organization will endure and prosper especially by implementing thorough and well studied strategies . Since the end goals of digital change are constantly shifting, leaders in organizations that are developing digitally understand that they must have a long-term perspective. Businesses must develop strategies that take the future into account and use technology and commercial innovations to realize the goals and achieve success

(Kane et al., 2017, 13). “Through rapid iteration, we as a company are learning what is working and what’s not,” says Mohammad at CarMax. “We are going through a constant evolution”.

Conclusion

The aim of this study was to determine a definition for digital transformation, to provide examples of successful companies and allocate the main barriers that lead to unsuccessful transitions and to provide suggestions to help companies in navigating their digitization initiatives. We discovered that only a small percentage of organizations succeed in implementing their projects for a digital transformation, we also went through literature to determine a definition for digital transformation; we also provided its history and gave some examples of companies that ran a successful digital transformation. We were also able to detect the main structural and cultural barriers hampering companies and their innovative initiatives. In addition to that, we compiled a list of the possible solutions that may be able to help struggling companies to overcome their hurdles.

Through our research, we illustrated some companies that were able to successfully launch and maintain a prosperous digital transformation. For example IKEA, the Swedish furniture company, acquired a site named Task Rabbit in 2017. Autonomous robots have been used by the corporation to provide real-time on-shelf inventory. Pfizer was able to turn its manufacturing processes into a smooth, data-driven engine and Walmart continued to invest in technology, spending an additional $11.7 billion in 2018. Based on the data we provided 70% of companies fail in initiating a successful digital transformation because of many structural and cultural barriers. Employee attitudes that may prevent change are considered cultural barriers, whereas organizational and management components that are fundamental to the nature of the business are structural hurdles.

According to research, structural problems include a lack of managerial support, a lack of political support, and a lack of resources. The cultural barriers are made up of resistance to change, a bureaucratic culture, and a dislike of innovation. Our research has also gone over the solutions that may help ushering in a digital transition. For example, having a clear and thorough digital strategy, having the goal of reaching digital maturity, budgeting according to the organizations’ needs, having a strong leadership that would reshape the bureaucratic nature of the management and attempting to integrate more technology in the company. Any funding organization in the public, commercial, or nonprofit sectors did not provide a particular grant for this research.

References:

Bendor, P. (2017, June 22). *Budgeting Is A Big Constraint In Digital Transformation*. Forbes. Retrieved August 21, 2022, from https://www.forbes.com/sites/peterbendorsamuel/2017/06/22/budgeting-is-a-big-constraint-indigital-transformation/

Bhattarai, D., & Leapfrog. (2020, November 27). *A Detailed Summary of Digital Transformation from McKinsey*. Leapfrog Technology. Retrieved August 24, 2022, from https://www.lftechnology.com/blog/digital-transformation/digital-transformation-mckinsey/

Borovkov, A., BoroRozhdestvenskiy, A., Pavlova, O., Glazunov,, E., Glazunov, A., &Savichev, K. (2021, October 09). Key Barriers of Digital Transformation of the High-Technology Manufacturing: An Evaluation Method. Sustainability. *Research and Production Association "Centrotech", 13*(20), 08-13. https://doi.org/10.3390/su132011153

Boston Consulting Group. (2022). *Digital Maturity Consulting and Strategy | BCG*. Boston Consulting Group. Retrieved August 26, 2022, from https://www.bcg.com/capabilities/digital-technology-data/digital-maturity

BrainHub. (2021, March 18). *Digital Transformation Examples – Companies That Did It Right*. Brainhub. Retrieved August 21, 2022, from https://brainhub.eu/library/digital-transformation-examples

Bughin, J., Catlin, T., Hirt, M., & Willmott, P. (2018, January 25). *Why digital strategies fail*. McKinsey. Retrieved August 25, 2022, from https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/why-digital-strategies-fail

Bullen, M., Gisbert, M., &GisbertCervera, M. (Eds.). (2015). *Teaching and Learning in Digital World: Strategies and Issues in Higher Education*. Publicacions URV.

Celerity. (2020). *The state of digital transformation today*. Celerity. Retrieved August 24, 2022, from https://www.celerity.com/digital-transformation-report

Charpentier, L. (2022, August 23). *Decades Into The 'New' Millennium, Finance Teams Still Struggle With (Lack Of) Digital Transformation*. Forbes. Retrieved August 23, 2022, from https://www.forbes.com/sites/forbesbusinesscouncil/2022/08/23/decades-into-the-new-millen nium-finance-teams-still-struggle-with-lack-of-digital-transformation/

Dawson, A., Hirt, M., &Scanlan, J. (2016, March 15). *The economic essentials of digital strategy*.

McKinsey. Retrieved August25, 2022, from https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the -economic-essentials-of-digital-strategy

Dobrowolska, P. (2020, August 21). 10 Companies with successful digital transformation, *Blog Future Processing*. Future Processing. Retrieved August 21, 2022, from https://www.future-processing.com/blog/10-companies-with-successful-digital-transformation/

Forkenbrock, L. (2020, August 24). *Digital Transformation Challenges | Employee Pushback*. Loadsys Solutions. Retrieved August 23, 2022, from https://www.loadsys.com/digital-transformation-challenges-employee-pushback/

Forth, P., Reichert, T., de Laubier, R., & Chakraborty, S. (2020, October 29). *Flipping the Odds of Digital Transformation Success*. Boston Consulting Group. Retrieved August 23, 2022, from https://www.bcg.com/publications/2020/increasing-odds-of-success-in-digital-transformation

Frankenfield, J. (2021, December 31). *Ransomware - Cybersecurity*. Investopedia. Retrieved August 23, 2022, from https://www.investopedia.com/terms/r/ransomware.asp

Garner. (2020). *Digitalization strategy for Business Transformation*. Gartner. Retrieved August 21, 2022, from https://www.gartner.com/en/information-technology/insights/digitalization

Gartner. (2022). *Definition of Digital Transformation - IT Glossary*. Gartner. Retrieved August 24, 2022, from https://www.gartner.com/en/information-technology/glossary/digital-transformation

Geissbauer, R., Vedsø, J., &Schrauf, S. (2016, May 9). *A strategist's guide to Industry 4.0*. Strategy+Business. Retrieved August23, 2022, from https://www.strategy-business.com/article/A-Strategists-Guide-to-Industry-4.0

Goel, V. (2022, April 13). *Top Digital Transformation Quotes to Lead Your Business Growth*. Quixy. Retrieved August 24, 2022, from https://quixy.com/blog/top-digital-transformation-quotes/

Gong, C., &Ribiere, V. (2021, April). Developing a unified definition of digital transformation. *Technovation, 102*. https://doi.org/10.1016/j.technovation.2020.102217

Grainger, M. (2022, April 4). *3 Ways to Make Your Digital Transformation Budget Go Further*. Engage Hub. Retrieved August 26, 2022, from https://engagehub.com/3-ways-to-make-your-digital-transformation-budget-go-further/

Guide, S. (2022). *What is digital transformation?* The Enterprisers Project. Retrieved August 20, 2022, from https://enterprisersproject.com/what-is-digital-transformation

Henriette, E., Feki, M., &Boughzala, I. (2016). Digital Transformation Challenges. *AIS Electronic Library (AISeL)*, 2-3. https://aisel.aisnet.org/mcis2016/33/

IBM. (2021). *What is Industry 4.0 and how does it work?* IBM. Retrieved August 23, 2022, from https://www.ibm.com/topics/industry-4-0

IFS. (2020, June 30). *70 Percent Of Businesses Increase Or Maintain Digital Transformation*. IFS. Retrieved August 20, 2022, from https://www.ifs.com/news/corporate/70-percent-of-businesses-increase-or-maintain-digital-transformation

Impactfirst. (2022). *Chapter 3: 4 Key Factors in Digital Transformation Success*. Impactfirst. Retrieved August24, 2022, from https://www.impactfirst.co/4-key-factors-in-digital-transformation-success

Imperva. (2022). *What is phishing | Attack techniques & scam examples*. Imperva. Retrieved August 23, 2022, from https://www.imperva.com/learn/application-security/phishing-attack-scam/

Indeed. (2019, December 12). *Bureaucracy in Business: Definition, Characteristics and How to Reduce It*. Indeed. Retrieved August 23, 2022, from https://www.indeed.com/career-advice/career-development/bureaucracy-in-business

Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckle, N. (2017). Achieving Digital Maturity. *MIT Sloan Management Review*. http://sadil.ws/handle/123456789/1453

khandelwal, M. (2022, August 22). *Chapter 4: How to run a Customer Journey Mapping Workshop*. SurveySensum. Retrieved August 26, 2022, from https://www.surveysensum.com/blog/chapter-4-customer-journey-mapping-workshop/

Liu, C. (2020, May 25). *Walmart Is an Ecommerce Winner During Pandemic*. Insider Intelligence. Retrieved August 21, 2022, from https://www.insiderintelligence.com/content/walmart-is-an-ecommerce-winner-during-pande mic

Manker, A. D., & Harrington, S. (2021, August 31). *Bureaucratic Organizations: Examples & Characteristics - Video & Lesson Transcript*. Study.com. Retrieved August 23, 2022, from https://study.com/academy/lesson/bureaucratic-organizations-examples-lesson-quiz.html

Margetts, H., & Dunleavy, P. (2013). The second wave of digital-era governance: a quasi-paradigm for government on the web. . *Philos. Trans. R. Soc. A Math. Phys. Eng. Sci*, *371*(1987), 1-17.10.1098/rsta.2012.0382

M&BD. (2021, November 18). *The impact of digitalization on strategy*. M&BD Consulting, Cabinet de conseilstratégique. Retrieved August 25, 2022, from https://www.mbdconsulting.ch/publications/digitalization-corporate-strategy

McKinsey. (2018, October 29). *The keys to a successful digital transformation*. McKinsey. Retrieved August 25, 2022, from https://www.mckinsey.com/business-functions/people-and-organizational-performance/our-insights/unlocking-success-in-digital-transformations

McKinsey Global Institute. (2020, September 23). *The postpandemic workforce: Responses to a McKinsey global survey of 800 executives*. McKinsey. Retrieved August 24, 2022, from https://www.mckinsey.com/featured-insights/future-of-work/what-800-executives-envision-fo r-the-postpandemic-workforce

Meticulous Research. (2020, February 18). *Digital Transformation Market Worth $3,294 Billion by 2025 | Meticulous Market Research Pvt. Ltd.* Meticulous Research. Retrieved August 20, 2022, from https://www.meticulousresearch.com/pressrelease/268/digital-transformation-market-2025

Nograšek, J., &Vintar, M. (2014). : E-government and organisational transformation of government: black box revisited? *Gov. Inf. Q.*, *31*(1), 108–118. https://doi.org/10.1016/j.giq.2013.07.006

Olanrewaju, T., & Willmott, P. (2013, November 1). *Finding your digital sweet spot*. McKinsey. Retrieved August 25, 2022, from https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/finding-your-dig ital-sweet-spot

Parsable. (2018, February 7). *The Real Reason Why People Are Opposed to Change*. Parsable. Retrieved August23, 2022, from https://parsable.com/blog/manufacturing/the-real-reason-why-people-are-opposed-to-change/

Performance Improvement Partners. (2020). *90 Digital Transformation Statistics: How Businesses are Using Digital to Drive Growth in 2021 and Beyond*. Performance Improvement Partners. Retrieved August 24, 2022, from https://www.pipartners.com/digital-transformation-statistics/

Pero, N. (2018, October 17). *How APIs Help Improve Customer Engagement*. Engage Hub. Retrieved August 26, 2022, from https://engagehub.com/how-apis-help-improve-customer-engagement/

Popli, S., & Rizvi, I. A. (2016, June). Drivers of Employee Engagement: The Role of Leadership Style. *Global Business Review*, *17*(4). 10.1177/0972150916645701

Pratt, M. K. (2019, October). *What is Digital Transformation? Definition, Examples, Strategy*. TechTarget. Retrieved August20, 2022, from https://www.techtarget.com/searchcio/definition/digital-transformation

PTC. (2022, April 18). *Digital Transformation Report by Corporate Leaders and PTC*. PTC. Retrieved August 24, 2022, from https://www.ptc.com/en/technologies/plm/digital-transformation-report

Raut, S. (2018). *The role of Leadership in Digital Transformation*. Going Digital. Retrieved August 26, 2022, from https://www.goingdigital.in/post/the-role-of-leadership-in-digital-transformation

Roy, M. (2021, March 9). *4 Examples of Digital Transformation Success in Business*. TechTarget. Retrieved August20, 2022, from https://www.techtarget.com/searchcio/tip/4-examples-of-digital-transformation-success-in-bus iness

Saarikko, T., Westergren, U. H., &Blomquist, T. (2020, November-December). Digital transformation: Five recommendations for the digitally conscious firm. *Business Horizons*, *63*(6), 825-839. https://doi.org/10.1016/j.bushor.2020.07.005

Salesforce. (2018). *What is Digital Transformation? Why Is It Important*. Salesforce. Retrieved August 20, 2022, from https://www.salesforce.com/products/platform/what-is-digital-transformation/

Schallmo, D. R. A., & Williams, C. A. (2018). *Digital Transformation Now! Guiding the Successful Digitalization of Your Business Model*. Springer International Publishing.

Sukhova, M. (2016, December 12). *Digital Transformation: History, Present, and Future Trends*. Auriga. Retrieved August 20, 2022, from https://auriga.com/blog/2016/digital-transformation-history-present-and-future-trends/

Tangi, L., Janssen, M., Benedetti, M., &Noci, G. (2020, August). Barriers and Drivers of Digital Transformation in Public Organizations: Results from a Survey in the Netherlands. *In International Conference on Electronic Government*, 42-56. https://repository.tudelft.nl/islandora/object/uuid%3Aa1396661-4709-4139-9199-127fc62ee8 06

TechTerms. (2016, June 20). *API (Application Program Interface) Definition*. TechTerms.com. Retrieved August 26, 2022, from https://techterms.com/definition/api

Thales. (2022). *The Benefits of Digital Transformation*. Thales. Retrieved August 20, 2022, from https://cpl.thalesgroup.com/software-monetization/benefits-of-digital-transformation

Van Veenstra, A. F., Klievink, B., & Janssen, M. (2011, April). Barriers and impediments to transformational government: Insights from literature and practice. *Electronic Government an International Journal*, *8*(2), 226-241. 10.1504/EG.2011.039838

Venezia, K., & Schmidt, J. (2021, May 13). *5 Top Examples of Companies that Underwent Digital Transformation*. Capacity. Retrieved August 21, 2022, from

https://capacity.com/5-top-examples-of-companies-that-underwent-digital-transformation/

Zaouia, F., &Souissib, N. (2020). Roadmap for digital transformation: A literature review. *Procedia Computer Science*, *175*, 621-628. https://doi.org/10.1016/j.procs.2020.07.090

Zhu, K., Dong, S., Xin Xu, S., &Kraem, K. (2006, October 16). *Innovation diffusion in global contexts: determinants of post-adoption digital transformation of European companies*. Taylor & FrancisOnline. Retrieved August20, 2022, from https://www.tandfonline.com/doi/abs/10.1057/palgrave.ejis.3000650