DYNAMICS OF DIGITAL TRANSFORMATION PROCESSES FOR BUSINESSES

Suat Teker ✉

Isik University, Department of Business, Istanbul, Turkey.

suat.teker@isikun.edu.tr

Dilek Teker

Isik University, Department of Business, Istanbul, Turkey.

dilek.teker@isikun.edu.tr

Emre Orendil

Isik University, PhD Candidate in Contemporary Management, Istanbul, Turkey.

emre.orendil@isikun.edu.tr

Abstract

This study intends to review on the dynamics of digital transformation processes and its expected outcomes for the businesses. This investigation covers the questions of what digital transformation means for businesses, how digital transformation process is applied for businesses, why digital transformation fails in businesses and how digital transformation can benefit businesses. The digital transformation is defined by Google Trends as the set of changes in an organisation triggered and shaped by proliferation of digital technologies. It is widely accepted that higher levels of digitalization observed in all types of business estimated shorter time for recovery. With a successful digital transformation, any business may become a totally different organization in terms of products, processes, technology and employees.

Keywords: Digitization, Digitalization, Digital Transformation, Digital Transformation of Businesses, Benefits of Digital Transformation, Means of Digital Transformation

INTRODUCTION

Digital transformation can be defined as the set of the changes in an organisation triggered and shaped by the proliferation of digital technologies (Hanelt et al., 2020). It is considered nowadays as an indispensable opportunity and also has become a necessity for organisations to endure and grow. The agenda of digital transformation is attracting more interest than ever. The amount of data retrieved from Google Trends show the search interest for digital transformation reached its peak level in March 2022 with a score of 100 while its score was only 4 in March 2014[1].

A 2019 survey found out that digital transformation and related risks were the top concerns of the CEOs and senior executives (Tabrizi et al., 2019). Despite this notable level of concern, around 70% of the digital transformation initiatives fail reaching their goals. These unsuccessful attempts not only prevent companies fulfilling customer needs and expectations, but also causes severe amounts of financial distress. It is estimated that $900 billion of the $1.3 trillion spent on digital transformation in the year 2018 was a mere waste.

Digital transformation, digitalization, and digitization are often used interchangeably which is a common mistake. Figure 1 below presents the definitional differences of these concepts. Digitization refers to the change from analog or physical to digital form by encoding into zeroes and ones – the language of computers (Bloomberg, 2018; Legner et al., 2017). It is a prior step to other two concepts and does not require extensive planning. Digitalization is the further step to digitization in which digital technologies and information are used to transform individual operations and create new technologies (McAfee, 2009; Reinitz, 2020). Digital transformation is a long-live process that needs to be sustained through a series of deep and coordinated changes in culture, workforce, and technology resulting in transformation of vision, value proposition, and eventually business models (Reinitz, 2020). Organisations are most likely need to have experienced digitization and digitalization stages for a successful digital transformation process.

---

[1] Google Trends explains its scoring system as follows: "Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. A score of 0 means that there was not enough data for this term." Therefore, the scores are subject to change over time.
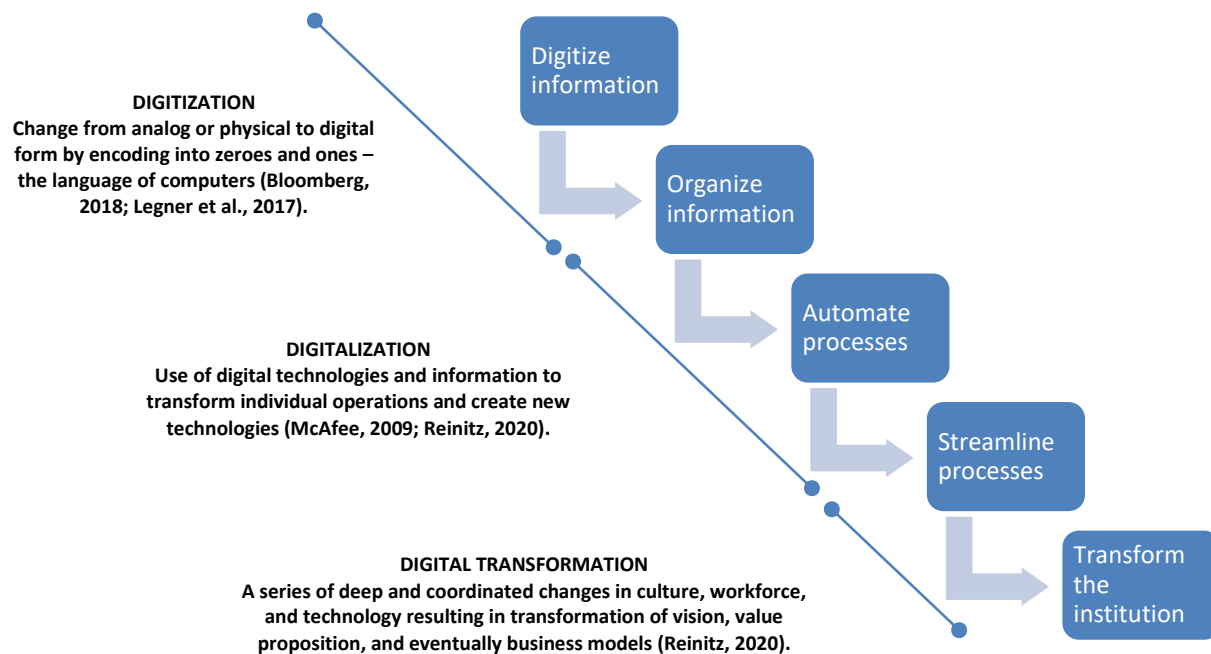
DIGITIZATION
Change from analog or physical to digital form by encoding into zeroes and ones – the language of computers (Bloomberg, 2018; Legner et al., 2017).

DIGITALIZATION
Use of digital technologies and information to transform individual operations and create new technologies (McAfee, 2009; Reinitz, 2020).

DIGITAL TRANSFORMATION
A series of deep and coordinated changes in culture, workforce, and technology resulting in transformation of vision, value proposition, and eventually business models (Reinitz, 2020).

Digitize information

Organize information

Automate processes

Streamline processes

Transform the institution

Figure 1. The steps of digitization, digitalization, and digital transformation

Source: Adapted from Reinitz (2020)

DIGITAL TRANSFORMATION AND ITS ELEMENTS

It is no doubt that adoption of new technological practices takes time. A clear indication of this process could be comprehended by seeing huge difference in internet using proportions of 16-24 year-olds and 55-74 year-olds in Figure 2 and Figure 3, respectively.

The younger generation have higher adaptation skills so that they adopt technological advancements faster and exploit its benefits to a greater extent compared to the latter age group. A similar circumstance is valid on organizational level. Relatively agile organisations adopt digital transformations faster which leads them to cherish its benefits sooner and greater.
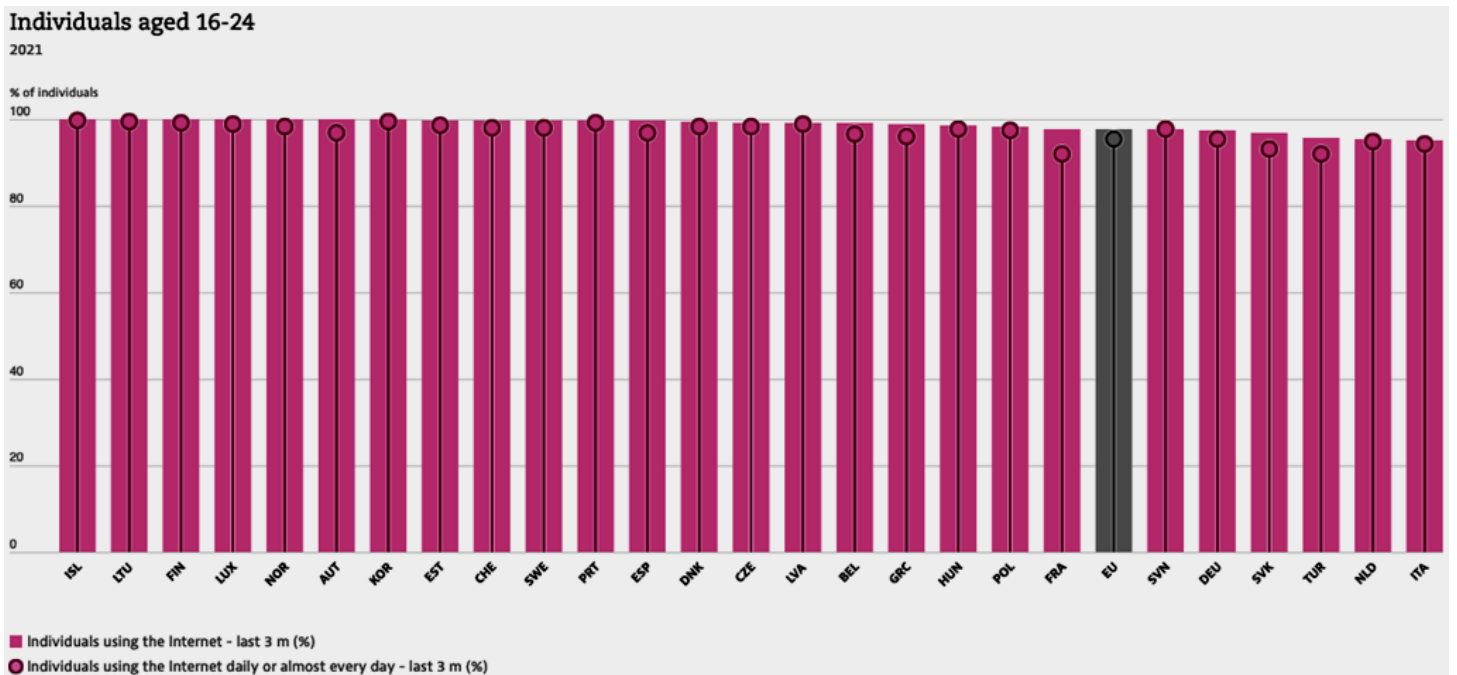
Figure 2. Internet user percentages for the population aged between 16-24 by country, 2021
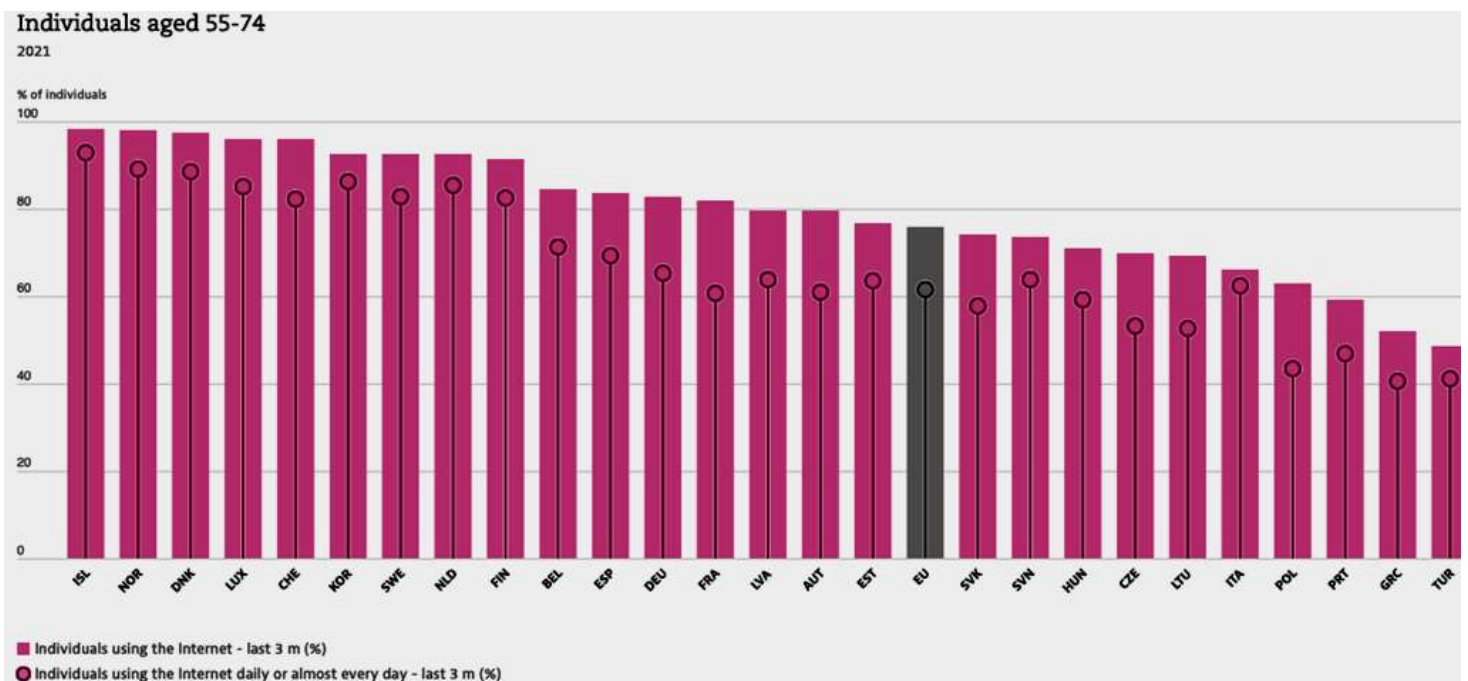
Source: OECD Going Digital Toolkit (2022)

Figure 3. Internet user percentages for the population aged between 55-74 by country, 2021

Source: OECD Going Digital Toolkit (2022)

Digital transformation has different definitions suggested by scholars. According to Henriette et al. (2016), digital transformation is a disruptive or incremental change process which starts with the adoption and use of digital technologies, then evolves into an implicit holistic transformation of an organization for value creation. The Gartner Glossary says that "digital transformation can refer to anything from information technologies modernization… to digital optimization, to the invention of new digital business models". Westerman et al. (2011) defined it as "the use of technology to radically improve the performance or reach of enterprises". While this definition reflects the breadth of digital transformation, it lacks depth. Implementation of new technologies is a small portion of digital transformation which requires technologies to offer additional value to both internal and external stakeholders. It would be a great naivety to assume that organisations can achieve transformation simply by adopting the related technology ("Definition of Digital Transformation", 2022). Organisations should embark on a digital transformation journey only after having a clear definition of digital transformation for their businesses. Unless it is supported by adopting right processes, being embedded it into culture, and being embraced by the talent; the change in technology will have no or negligible benefit. Berman (2012) affirms that "to succeed in digital transformation, leading companies focus on two complementary activities: reshaping customer value propositions and transforming their operations using digital technologies for greater customer interaction and collaboration". Chamorro-Premuzic (2021) set five elements for becoming a data-centric organisation which could be adopted for any digital transformation process as seen in Figure 4:

1. **People:** Independent of the process, digital transformation starts with people and ends with people. A study by Deloitte found that 87% of organisations has the impression that digital shifts will disrupt their industry (Human Capital Consulting | Deloitte Leadership UK, 2020). However, a vast majority of them claim lack of right leaders regarding digital transformation. As there are humans at both ends of the process, the stakeholders (e.g., managers, employees, customers) cannot be overlooked. Therefore, individuals who will be affected by or be directly involved in the process should be considered, heard, acknowledged, and incentivized for the adoption of the transformation.

2. **Data & Insights (separately exhibited in Figure 4):** It is a must to collect and own the data related to one's business so that it can be interpreted and turned into insights that will help decision makers along the journey leading to their business goals. Capturing and analysing data is much facilitated by technological tools, and organisations are required to adopt these practices for successful digital transformation.

3. **Action:** After understanding the insights, it is at the discretion of decision makers how to act next. Unless insights are turned into actions in compliance with business goals, they will have no use.

4. **Results:** In this stage, results are quantified and evaluated to assess the impact of the actions taken. Although it may seem like a final stage, it actually is not. Following evaluation of the results, data should be revisited so that the results become part of a new greater dataset. Through iteration, this process can be enhanced, and their impact can be augmented resulting in richer and more meaningful insights leading to more precise results.
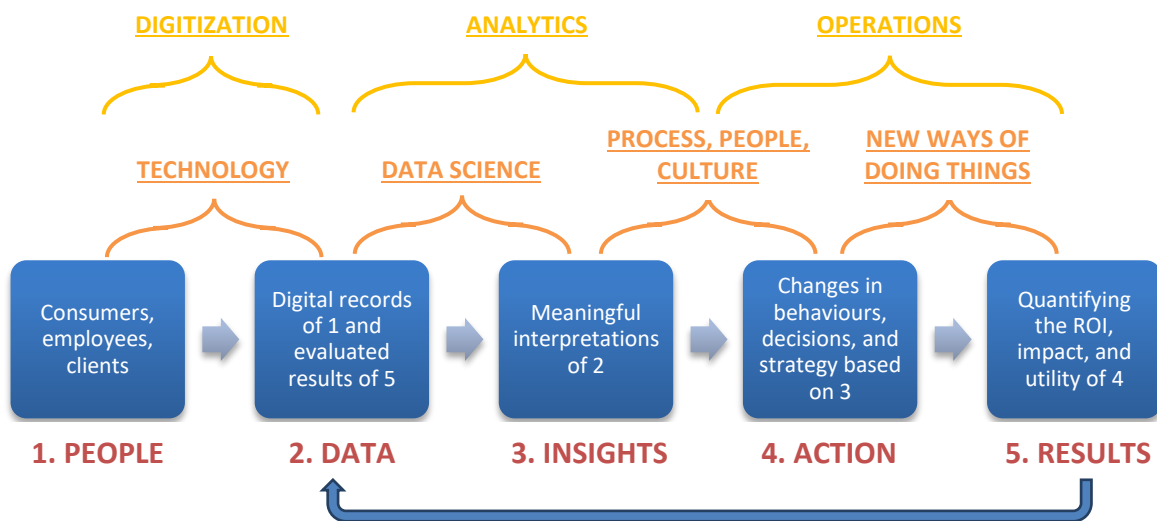

Figure 4. Roadmap of the journey towards a data-centric organization

Source: Adapted from Chamorro-Premuzic (2021)

ADAPTATION TO DIGITAL TRANSFORMATION

Digital transformation is has become a popular topic that organisations are seeking for possible applications to be adopted in their businesses. However, its successful adoption requires extensive planning and expertise along with some other essential elements. The transition itself is important but also how the transformation is managed crucial (Cil et al., 2021). Tabrizi et al. (2019) concluded five suggestions that all organisations should follow while adapting digital transformation regardless of their size, industry, or country of origin as summarised in Figure 5.
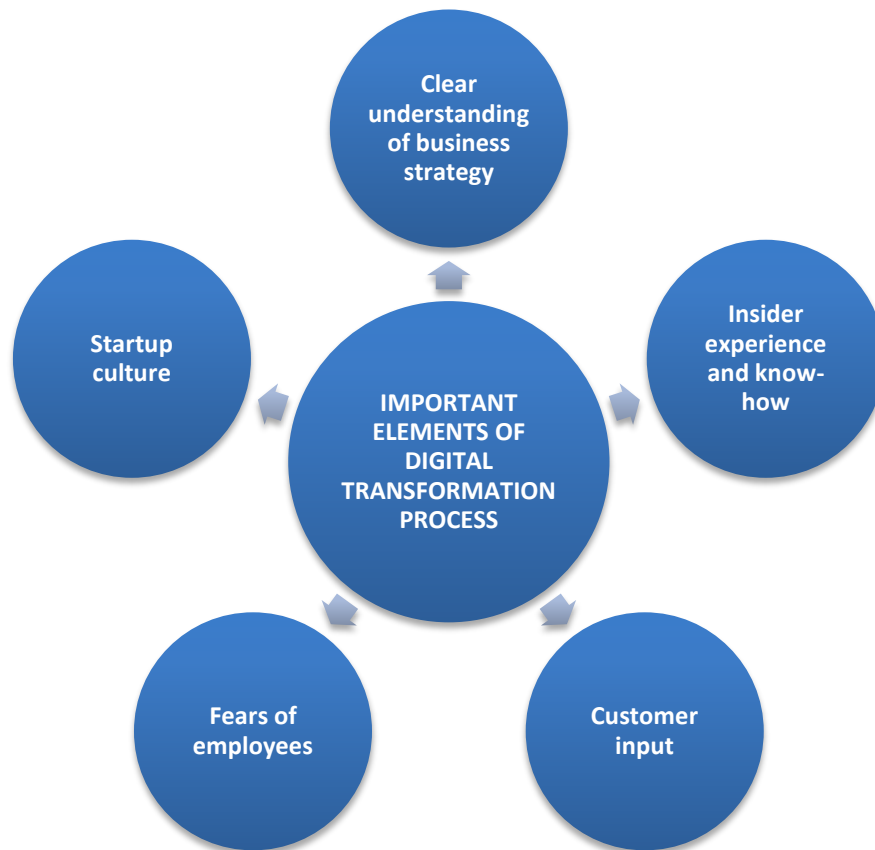
Figure 5. Important elements of digital transformation process

These essential components of the digital transformation process are transformed into suggestions as provided by Tabrizi et al. (2019);

1. **Have a clear understanding of the business strategy and goals before investing in digital transformation**

Employees and managers sometimes show great enthusiasm for trending topics and want to start related initiatives right away as they hear several buzzwords. For instance, discussions about Industry 4.0 and its components such as big data, internet of things, augmented reality, virtual reality, machine learning, and artificial intelligence may ignite the curiosity and willingness to take an action of certain individuals. However, it is crucial to first understand the current state of the business and then to project where the business strategy is leading the organisation to. While doing so, answers to several questions such as "what commercial results are sought for", "what are the current capabilities of the organisation", "what augments the value proposed to customers" should be provided. Only after then, the needed elements of digital transformation process could be inspected and implemented. Otherwise, even if the application of digital transformation is completed successfully per se, the business would not have any benefits.

2. Leverage the know-how and experience of insiders

It is a common practice that digital transformation teams are outsourced. These outsourced teams tend to choose among their one-size-fits-all solutions under the name of best practices. The lack of customization for each organisation decreases its chances of being effective. Even if a team needs to be outsourced for digital transformation processes, insider knowledge must not be overlooked and thus employees who have been working in the related departments of the organization must be included in the working group.

3. Collect input from customers about their experience

If the designed digital transformation is expected to have either direct or indirect on customers, it is advised to gather in-depth input from them which allows diagnose the issues to be addressed on the customer side. Changes to the value chain at its different steps will improve customer satisfaction if only if customers' views are taken into consideration.

4. Hear the fears of employees

Resistance to change is a common phenomenon that most organisations are challenged from time to time. This resistance is very likely to occur against digital transformation attempts because digitalization comes along several reservations on the employee side such as the fear of being replaced as the result of digital transformation. This fear of losing a job is reasonable but needs to be tackled by the upper management of the organisation. Otherwise, employees are very likely to resist changes – consciously or unconsciously. Almost 80% of responding companies claim visible improvements in business performance and organizational benefits provided by deployment of a digital solution. These companies had one characteristic in common: digital solutions were strongly taken up by stakeholders and its features were fully used.

5. Sponsor the prevalence of startup culture across the organisation

While digital transformation processes may sometimes be full of unknowns, organisations with agile and flat structures overcome most challenges as they can make decisions swiftly and related parties across the organisation can be involved easily. Also, it should be kept in mind that some elements of digital transformation can have successful results only if they are adopted by the substantial portion of the organisation.

WHY ORGANISATIONS FAIL DIGITAL TRANSFORMATION

According to a 2020 report by Gartner, 91% of organisations are engaged in some form of digital transformation (Pratt & Sparapani, 2022). It also found out that while 87% of senior leaders consider digitalization a priority, only 40% of organisations have brought digital

initiatives to scale. The most common reasons for the failures of digital transformation are listed by Pratt & Sparapani (2022) as exhibited in Table 1.

Table 1. The most common reasons for failures of digital transformation and
possible proactive solutions

The Most Common Reasons for Failures of Digital Transformation (Pratt & Sparapani, 2022)	Possible Proactive Solutions for Digital Transformation Processes (Tabrizi et al. 2019)
Lack of employee engagement	- Having a clear understanding of the business strategy and goals before investing in digital transformation. - Leveraging the know-how and experience of insiders. - Hearing the fears of employees. - Sponsoring the prevalence of startup culture across the organisation.
Inadequate support from management	- Having a clear understanding of the business strategy and goals before investing in digital transformation. - Sponsoring the prevalence of startup culture across the organisation.
Poor or nonexistent cross-functional collaboration	- Having a clear understanding of the business strategy and goals before investing in digital transformation. - Leveraging the know-how and experience of insiders. - Hearing the fears of employees. -Sponsoring the prevalence of startup culture across the organisation.
Lack of accountability	- Having a clear understanding of the business strategy and goals before investing in digital transformation. -Sponsoring the prevalence of startup culture across the organisation.
Immaturity of digital culture	- Having a clear understanding of the business strategy and goals before investing in digital transformation. - Hearing the fears of employees. - Sponsoring the prevalence of startup culture across the organisation.

As seen in Table 1, it is possible to relate the steps to be followed for digital transformation process suggested by Tabrizi et al. (2019) and the most common reasons for

digital transformation failures pur forward by Pratt & Sparapani (2022). The steps depicted as the possible proactive solutions are not the only remedies but are believed to be impactful in the prevention of the mentioned failures.

It should also be kept in mind that digital transformation approaches often show differences on local and regional levels. The most visible difference is the amount of dedicated investment for digital transformation. For instance, being aware of the impact of local currency, it was found out that Turkish purchasing departments are expected to dedicate over €700,000 between 2020-2022 – 36% less than their European counterparts (Roux et al., 2021). This difference suggests that the studied Turkish companies are at the risk of underinvesting in digital transformation practices.

LATE ADOPTERS OF DIGITAL TRANSFORMATION

Although most large companies have digital transformation on their agenda in recent years, some scholars criticize the approach to this concept of companies as they often execute these transformations in the times of crisis. The most recent and impactful example would be about COVID-19. This unprecedented pandemic has forced individuals, organisations, and governments to improvise and adapt to changes as there have been unexpected regulatory measures to contain the spread of the virus. Long-lasting lockdowns and limited in-person contact have forced businesses to adopt new methods of doing business. Among these, digitalized collaboration (e.g., Zoom, Slack, Microsoft Teams), altered service delivery models (e.g., rapid delivery methods, ecommerce practices), and customer relationship management using digital channels could be counted.

The businesses with higher levels of agility have transformed themselves relatively easier. The ones who failed digital transformation have either gone out of business or put in excessive struggle to stay in business. The early adopters that do not wait for crises to act will receive the benefits of digital transformation sooner and at a greater level. The World Bank (2022) reported a positive correlation between the level of digitalization and change in IMF forecasts of gross domestic product during the pandemic. It was also evident that higher levels of digitalization estimated shorter time for recovery.

MEANS OF DIGITAL TRANSFORMATION

Digital transformation has numerous elements that are in connection with one and other. These digital elements include but are not limited to artificial intelligence, machine learning, internet of things, virtual reality, augmented reality, big data, 3D printing, blockchain, metaverse, drones, and cloud services. For instance, artificial intelligence is developed through use of big

data on computers (Dörr, 2021). Then, artificial intelligence develops sensor networks related to the internet of things, robots, and virtual reality and makes them smart. As they reach to a certain level maturity, their use in commercial contexts is facilitated. This prevalence enables substantial innovation for goods and services.
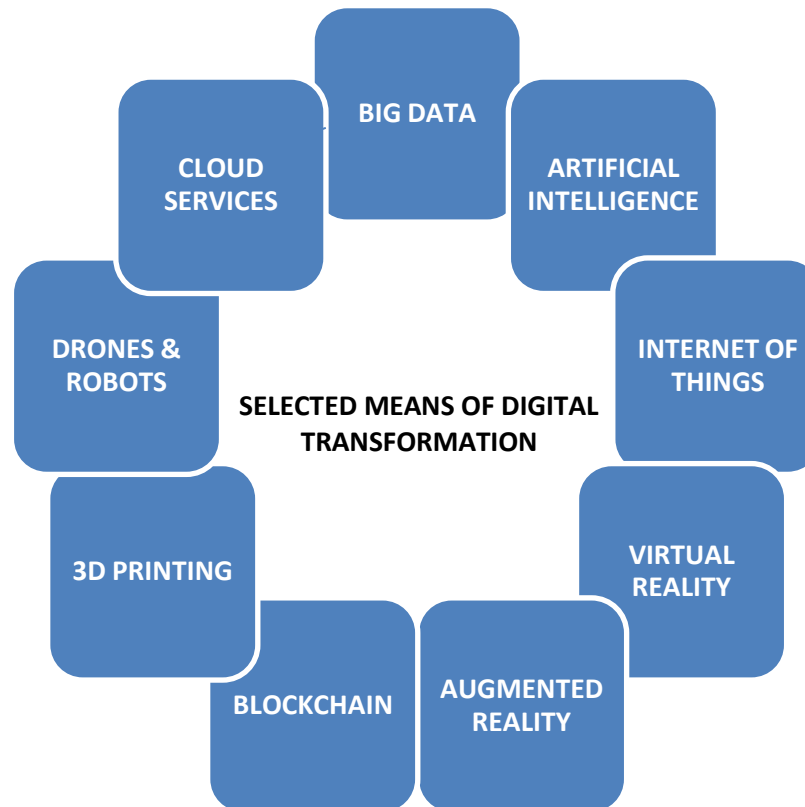

Figure 6. Selected means of digital transformation

Big data requires powerful processors since manual analysis is infeasible due to high volume of input. It originates from the substantial surge in data volume generated by the proliferation of smart machines and social media. Through its analysis more precise data turns into useful insights exhibiting tendency of masses while providing details for each individual involved. For instance, each internet user has their own footprint on internet and cookies collect data based on tracking their internet activities. By processing this data, they interpret interests of users and estimate their consumer behaviour. This practice helps organisations to deliver advertisements to a particular group comprised of individuals with high probably of being interested in the offered products.

Artificial Intelligence is defined as follows: "Artificial intelligence refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. The term may also be applied to any machine that exhibits traits associated with a human mind such as learning and problem-solving." (Frankenfield, 2021)

As can be understood from the above definition, machine learning and deep learning are its integral parts and infuse intelligence into algorithms. They are functional in solving problems by evaluating patterns in data utilising specialised techniques (e.g., speech recognition, image recognition). Through an immense amount of data used to train the dataset, the algorithm learns to recognize the patterns in the data and provide outputs being sought for.

The Internet of Things allows electronic appliances and their environment to be in interaction enabled by sensors and provide information about their condition. Through this network, the Internet is being integrated into the physical world (e.g., wearables, smart home applications, and smart city practices).

Virtual reality technology cuts the connection of users with the real world and creates an infinite number of non-existent new worlds. On the other hand, **augmented reality** provides visual and/or audio supplements to the existing real world. Their possible applications vary from military to education and from manufacturing to medicine.

Blockchain technology is defined as follows:

"Blockchain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network. An asset can be tangible (a house, car, cash, land) or intangible (intellectual property, patents, copyrights, branding)." ("What is Blockchain Technology? - IBM Blockchain | IBM", 2022)

It allows a secure storage and ownership system of any form that is not bound to a central authority such as a notary.

3D printing provides occasions to produce prototypes or final goods even in an in-home environment at relatively lower costs. Therefore, it enables the decentralization and individualization of production.

Drones and robots are parts of autonomous systems. They generate quick responses to signals based on sensors and algorithms. They take over manual work and can also partially or completely move mobile in space. Some examples in the industry could be listed as production arms used in manufacturing lines, surgical robots, self-driving cars, autonomous delivery robots and drones.

Cloud services can be defined as follows:

"Cloud services are infrastructure, platforms, or software that are hosted by third-party providers and made available to users through the internet. Cloud services facilitate the flow of

user data from front-end clients (e.g. users' servers, tablets, desktops, laptops—anything on the users' ends), through the internet, to the provider's systems, and back." ("What are cloud services?", 2022)

This technology has a crucial role in most businesses. It was reported that 69% of successful companies with subscription-based business model use cloud services for better connectivity (Schuh et al., 2021).

INSIGHTS & DISCUSSIONS ON NEW BUSINESS ENVIRONMENT

30% of the CEOs in the Middle East believe that technology has crucially reshaped the competition and 28% expects their markets to be reshaped by technological shifts by 2023 (Aspden et al., 2018). The main perceived benefits of digital transformation by Reche (2020) are listed in descending order in Figure 7.

1	Improving user experience
2	Improved communication between value chain actors
3	Better use of existing business assets
4	Improving the user experience
5	Greater and better access to information
6	Greater agility
7	Greater security
8	Growth in existing markets
9	Cost reduction
10	Access to new markets
11	Higher revenues

Figure 7. Main perceived benefits of digital transformation in descending order

Choromanski and Richardson (2020) highlighted the underuse of digital facilitators and denoted that time spent for wrangling data is more than tackling business problems. According to their study, 80% of enterprise data was unstructured and 60% of time was spent preparing data for analysis. These resulted in 88% of a company's data remaining unanalyzed due to lack of structured data and analytical skills.

A study by Deloitte conducted research in which two different groups were investigated: digital all-rounders who have implemented at least three digital imperatives and digitally

developing organisations who have implemented less than three digital imperatives ("A new approach that transcends technology", 2022). It was observed that two-thirds of the participating organisations had embraced at least one digital imperative. It was also concluded that much greater values were attained when these imperatives were blended with an integrated digital strategy. Digital all-rounders were found to be leaders especially in two different assessment categories: capacity to change and ability to win. Regarding the previous, digital all-rounders were achieving full-scale implementations more frequently (77%) resulting in more successful scaling compared to digitally developing organisations (64%). The contribution of digital capabilities was more significant for digital all-rounders (35%) compared to digitally developing organisations (24%) during the tackles against the challenges caused by COVID-19. Considering the latter category, greater proportion of all-rounders reached to revenue growth rates above industry averages – 74% versus 65%. Furthermore, 36% of digital all-rounders reported their digital capabilities as a key differentiator while only a quarter of digitally developing organisations did. This study suggested three digital transformation objectives within the framework of their findings:

1. Optimize one digital imperative,
2. Integrate multiple imperatives to construct a comprehensive strategy,
3. Adopt an approach that integrates multiple imperatives across these strategies.

In the light of the acceleration of digital transformations plans due to the COVID-19 pandemic, Deloitte has put forward notable conclusions ("Accelerating Digital Transformation | Digital | Deloitte Africa", 2022). On the brighter side, the adaptability of organisations to fulfill the needs of their employees and customers in virtual mediums was significant. This shift has also revealed the extent to which organisations have been underutilising digital technologies. Deloitte has concluded seven crucial points as the result of their observations:

- "Many shifts in consumer behaviour that emerged overnight will prove to be permanent, justifying an accelerated shift to digital customer engagement.
- Actionable intelligence, based on real-time visibility into financial and operational data, was key during the crisis and will remain of strategic importance.
- Disruptions in global logistics demanded the ability to quickly reconfigure supply chains; forward-looking enterprises will retain this ability in preparation for future disruptions.
- Business continuity depended on digitalised processes when physical locations were not available.
- Enterprises that took a hit in revenue need to radically cut costs from their operations.

- Working from remote locations will continue, and offices will be used in different ways. This made the 'future of work' an imminent reality.

- The mix of high-in-demand skill sets, and jobs shifted overnight, changing what we consider as critical skill sets, and illustrating the impact on people and society in many ways." ("Accelerating Digital Transformation | Digital | Deloitte Africa", 2022)

One significant example of how businesses evolve through time and adopt novelties brought by digital transformation is from Kampala, Uganda (Dorst, 2021). SafeBoda, launched in 2015, is a mobile application which brings passengers and boda boda drivers together promising easier, cheaper and most importantly safer rides. This platform not only facilitated rides but also created social impact through its side benefits such as providing proof of income for drivers which is required for financial applications (e.g., bank loans). In 2017, SafeBoda introduced its wallet, an integrated payment system through mobile service providers. It was March 2020 when COVID-19 started showing its severe effects in Uganda. Mobility restrictions were put in place which resulted in vehicles being grounded and commercial activities coming to a halt. It was not surprising since most businesses were not able to deliver their products causing millions of jobs being at stake. SafeBoda quickly identified the problem and launched a new digital service, Shop, within two weeks. Today, the application is downloaded more than a million times, and connects 1000 food vendors, 350 shops, 16 markets and 21 United Nations Population Fund pharmacies. This success story explicitly shows the need of having high adaptation skills and embracing digital transformation with a "sooner better" approach.

As the global circumstances are in continuous change, it is a necessity to have managers with deep skills in several areas for an organization to achieve digital transformation. These managers should have high awareness about digital transformation (Hanelt et al., 2020). This awareness includes being acknowledged about the strengths and weaknesses of the organisation regarding related departments and projects. Managers are expected to have a proactive attitude instead of a reactive one so that they can guide their teams and eventually the organisation to be ready before sudden bursts are around the corner. Furthermore, organisations are in need of managers with digital transformation acceleration skills who have high intellectual capacity and can conceive novelties in digital processes and products. They are also expected to be enthusiastic about investing their managerial attention and organisation's financial resources in times of need. Last but not least, managers should also have digital transformation harmonizing skills which enables the integration of new digital processes and products to the existing ones within a multi-dimensional framework. This integration comprises recognition of the areas of synergies and areas of friction between the physical and the digital while carefully building up on the cultural aspects. If the organizations led by managers with

these characteristics adopt and implement aforementioned suggestions, they are expected to succeed digital transformation processes in a sustainable manner.

It is obvious that the use of digital technologies has been adding numberless benefits to value chains of firms operating in different sectors. Bughin et al. (2019) put forward five practices that contribute to a company's performance: laying out clear priorities, investing in talent, committing time and money, embracing agility, and empowering people. They concluded that application of these five groups of practices increases a company's success in digital transformation. Figure 8 shows the difference in success levels when no practices are applied compared to the five groups of practices being applied.
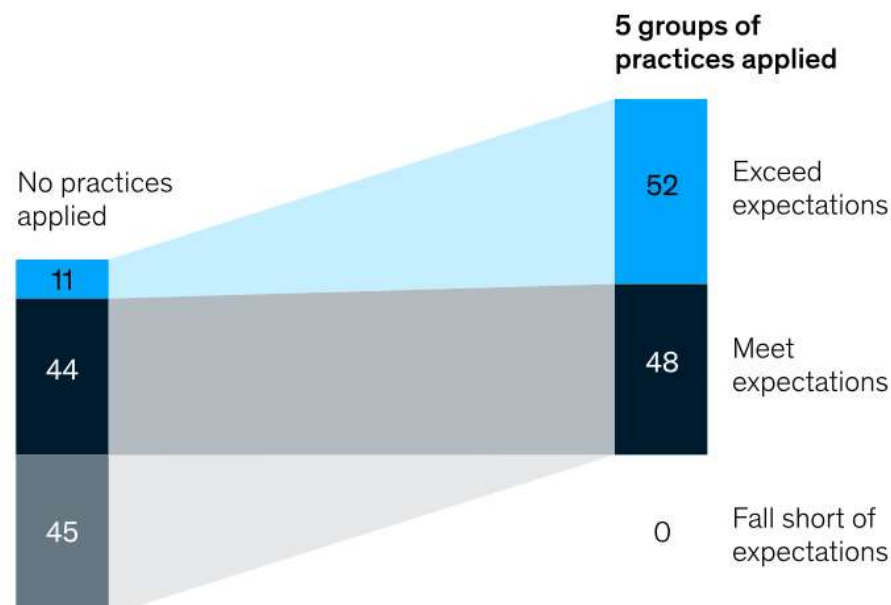

Figure 8. Likelihood of outcomes for digital transformation, %.

Source: Bughin et al. (2019)

Having studied the current status of digital transformation, different fields and different regions are exposed to different levels of digital transformation, but it can easily be forecasted that its benefits will be more significant and visible in all countries and sectors in the upcoming years. For each activity, specific digital technologies stand out compared to the other components of digital transformation. It is essential to comprehend how the discussed elements of digital transformation reflect onto the day-to-day business. Management activities such as strategic management practices are expected to heavily benefit from real-time data analytics and data-driven decisions while managerial accounting will predominantly use big data analytics and business intelligence (Szabó & Hortoványi, 2021). Primary activities can be grouped in two

as logistics-operations, and marketing-sales depending on the business. Marketing and sales will adopt real-time customer relationship management, business intelligence, big data analytics, and even blockchain. Operations and logistics are likely to use autonomous robots, smart sensors, autonomous vehicles, radio frequency identification (RFID), the Internet of Things, and predictive maintenance. Businesses also have support activities as finance, procurement, human resources, technologic infrastructure. Finance departments will be able to conduct faster and more precise real-time financial and investment planning while procurement teams will use e-bidding and real-time supplier evaluations. Human resources management will be dependent on data-driven performance management and technologic infrastructure will use sensors, big data, cloud computing, data security, and cyber-physical systems. All these technologies will multiply their impacts on business results if firms achieve company-wide digital transformation.

CONCLUSION

This paper employs an extensive literature reviews to explain digital transformation from various aspects while providing insights extracted from business results. The review of the literature shows that the digital transformation is still a topic open for significant improvement among organisations in spite of the COVID-19 pandemic which has been an impactful catalyst for digital transformation. It is essential for organisations to fully understand requirements for a successful adoption of digital transformation. This comprehension comprises the elements of digital transformation, the steps for adaptation to digital transformation, the reasons of failure, the means of digital transformation, and the outcomes of digital transformation. Learning about these points is expected to increase effectiveness of digital transformation.

In today's business world, wins and losses are faster than ever. However, majority of organisations have not accelerated their agility in the same rate. Although the term digital transformation is often inserted in the agenda of organisations, it could be admitted that it is not always adopted successfully. Therefore, after understanding how digital transformation should be managed within the organisation, it is needed to embrace digital transformation at all levels and in a proactive manner as quick as possible so that they can profit its benefits. The organisations already adopted digital transformation practices have started enjoying the benefits of this rapidly changing environment.

Digital transformation is not just a plan from point A to point B but it is a long-term path or a journey. The use of most recent technologies, e.g. blockchain, siber security, artificial intelligence, virtual reality, NFC, does not constitute digital transformation. Adoption of new technologies in business processes in all means is indeed digital transformation. Digital

transformation takes time, experimentation, curiosity, creativity and opportunities in your business ecosystem. Digital technologies are the same for all businesses. Hence, businesses must customize the use of technologies by their individual needs.

It is an indispensable fact that digital transformation has brought new practices of which some have already become habits. The evolution in different aspects of businesses such as the required skills of employees, organisational cultures, business models, and customer relationship management practices is evident in almost all sectors. These changes are yet to evolve into different novelties by the increasing prevalence of digital transformation in the upcoming years. It could be questioned that how digital transformation has changed and is expected to change the nature of business and the workplace in the further studies. More, the subject hinders a great potential for future empirical studies. Gathering qualified data on company budgets and spending for digitalization and investigating the timing and the processes of adapting new technologies can provide a solid ground for future academic studies.

REFERENCES

A new approach that transcends technology. Deloitte Insights. (2022). Retrieved 16 April 2022, from https://www2.deloitte.com/us/en/insights/topics/digital-transformation/digital-transformation-approach.html.

Accelerating Digital Transformation | Digital | Deloitte Africa. Deloitte South Africa. (2022). Retrieved 15 April 2022, from https://www2.deloitte.com/za/en/pages/digital/articles/accelerating-digital-transformation.html.

Aspden, G., Christie, M., Dalloul, E., & Stone, L. (2018). *PwC's Digital Academy"*. Retrieved from https://www.pwcacademy-me.com/sites/default/files/course/brochures/PwCs_Academy_Digital_Academy_brochure_v2.pdf

Berman, S. (2012). Digital transformation: opportunities to create new business models. *Strategy & Leadership*, *40*(2), 16-24. https://doi.org/10.1108/10878571211209314

Bloomberg, J. (2018). *Digitization, Digitalization, And Digital Transformation: Confuse Them At Your Peril*. Forbes. Retrieved 19 May 2022, from https://www.forbes.com/sites/jasonbloomberg/2018/04/29/digitization-digitalization-and-digital-transformation-confuse-them-at-your-peril/?sh=2b7df9602f2c.

Bughin, J., Deakin, J., & O'Beirne, B. (2019). *Digital transformation: Improving the odds of success*. McKinsey. Retrieved from https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/digital-transformation-improving-the-odds-of-success#

Chamorro-Premuzic, T. (2021). *The Essential Components of Digital Transformation*. Harvard Business Review. Retrieved 2 April 2022, from https://hbr.org/2021/11/the-essential-components-of-digital-transformation.

Choromanski, K., & Richardson, N. (2020). *Building a Digital Culture through Digital Transformation and Upskilling of Existing Workforce*. Retrieved from https://cdn.auckland.ac.nz/assets/auckland/business/our-research/docs/CODE/CODE%20Seminar%20-%20Building%20a%20Digital%20Culture%20through%20Digital%20Transformation%20and%20Upskilling%20of%20Existing%20Workforce%20-%2014%20Oct%202020.pdf

Cil, I., Arisoy, F., & Kilinc, H. (2021). An analysis on industrial internet of things in digital transformation of shipyard industry in Turkey. *Global Journal of Computer Sciences: Theory and Research*, *11*(2), 67-87. https://doi.org/10.18844/gjcs.v11i2.5430

Definition of Digital Transformation. Gartner Information Technology Glossary. (2022). Retrieved 2 April 2022, from https://www.gartner.com/en/information-technology/glossary/digital-transformation.

Dörr, S. (2021). *Corporate Digital Responsibility: Managing Corporate Responsibility and Sustainability in the Digital Age* (pp. 13-14). Springer.

Dorst, S. (2021). Digital Dollars for Online Tea the Bahamas, Sri Lanka, and Uganda fight the pandemic's disruption with innovation Steven Dorst. *Finance & Development - International Monetary Fund*. Retrieved from https://www.imf.org/external/pubs/ft/fandd/2021/03/pdf/fd0321.pdf

Frankenfield, J. (2021). *How Artificial Intelligence Works*. Investopedia. Retrieved 18 April 2022, from https://www.investopedia.com/terms/a/artificial-intelligence-ai.asp.

Hanelt, A., Bohnsack, R., Marz, D., & Antunes Marante, C. (2020). A Systematic Review of the Literature on Digital Transformation: Insights and Implications for Strategy and Organizational Change. *Journal Of Management Studies*, *58*(5), 1159-1197. https://doi.org/10.1111/joms.12639

Henriette, E., Feki, M., & Boughzala, I. (2016). *Digital Transformation Challenges*. AIS Electronic Library (AISeL). Retrieved 20 May 2022, from http://aisel.aisnet.org/mcis2016/33.

Human Capital Consulting | Deloitte Leadership UK. (2020). *Digital Transformation: Are people still our greatest asset?* Retrieved from https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/about-deloitte/deloitte-uk-digital-transformation-are-people-still-our-greatest-asset.pdf

Internet users as a share of individuals. OECD Going Digital Toolkit. (2022). Retrieved 26 April 2022, from https://goingdigital.oecd.org/indicator/20.

Legner, C., Eymann, T., Hess, T., Matt, C., Böhmann, T., & Drews, P. et al. (2017). Digitalization: Opportunity and Challenge for the Business and Information Systems Engineering Community. *Business & Information Systems Engineering*, *59*(4), 301-308. https://doi.org/10.1007/s12599-017-0484-2

McAfee, A. (2009). *Enterprise 2.0: New Collaborative Tools for Your Organization's Toughest Challenges* (13th ed.). Harvard Business Press.

OECD. (2022). *Digital Transformation in the Age of COVID-19: Building Resilience and Bridging Divides, Digital Economy Outlook 2020 Supplement*. Paris: OECD. Retrieved from https://www.oecd.org/digital/digital-economy-outlook-covid.pdf

Pratt, M., & Sparapani, J. (2022). *What is Digital Transformation?* TechTarget. Retrieved 2 April 2022, from https://www.techtarget.com/searchcio/definition/digital-transformation.

Reche, A. (2020). *Digital transformation: expectations and results*. Retain Technologies. Retrieved 21 April 2022, from https://retaintechnologies.com/en/digital-transformation-expectations-and-results/.

Reinitz, B. (2020). *Consider the Three Ds When Talking about Digital Transformation*. Educause Review. Retrieved 17 May 2022, from https://er.educause.edu/blogs/2020/6/consider-the-three-ds-when-talking-about-digital-transformation.

Roux, A., Gaurois, P., & Tue, F. (2021). *PwC Digital Procurement Survey, 3rd edition, 2020-2021*. Retrieved from https://www.pwc.com.tr/tr/Hizmetlerimiz/danismanlik/tedarik-zinciri-yonetimi/dijital-satınalma-araştırması-2020/digital-procurement-survey-2020.pdf

Schuh, G., Frank, J., Holst, L., Müller, D., Leiting, T., & Bruhns, L. (2021). Digitalization as an Enabler of Subscription Business Models in the Manufacturing Industry. *Digital Business Models In Industrial Ecosystems*, 49-70. https://doi.org/10.1007/978-3-030-82003-9_4

Szabó, R., & Hortoványi, L. (2021). Geographical Factors for the Implementation of Industry 4.0 in Central Eastern Europe. *Digital Business Models In Industrial Ecosystems*, 235-249. https://doi.org/10.1007/978-3-030-82003-9_15

Tabrizi, B., Lam, E., Girard, K., & Irvin, V. (2019). *Digital Transformation Is Not About Technology*. Retrieved from https://hbr.org/2019/03/digital-transformation-is-not-about-technology

The World Bank. (2022). *Digital Connectivity and Economic Diversification*. Retrieved from https://www.wto.org/english/tratop_e/devel_e/a4t_e/world_bank_digital_presentation_7_feb_2022_final_presented.pdf

What are cloud services? Red Hat. (2022). Retrieved 24 April 2022, from https://www.redhat.com/en/topics/cloud-computing/what-are-cloud-services.

What is Blockchain Technology? - IBM Blockchain | IBM. Ibm.com. (2022). Retrieved 21 April 2022, from https://www.ibm.com/topics/what-is-blockchain.