

DIGITAL TRANSFORMATION: OPPORTUNITIES & CHALLENGES

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Abstract The globalized world predetermines the digital development path of countries. Maintaining and strengthening the competitive advantages of national economies depend to a large extent on opportunities for digitalization-based transformation. A significant number of leading world studies explain the priorities, benefits and risks of the digital evolution of countries, the peculiarities of the formation and development of digital business in various fields. It is also important to determine the success factors of digital transformation processes. Successful examples of digitalization of the world's economies are based on strengthening the institutional environment, encouraging investment in digital enterprises, funding digital research and development, training IT professionals and using digital applications to create jobs, implementing measures to eliminate gender, ethnic and geographical inequalities in access to digital tools. Leading scientists and consultants have studied that the digitalization of the economy is mainly formed through the successful experience of digital transformations of companies. It depends on the ability of organizations to overcome the challenges of adapting business models to digital realities, digital upgrading of business processes and company culture, as well as further digital development of organizations in a competitive environment.

Keywords:
digitalization,
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digital
tools,
adaptation,
strategy

1 Introduction

Digital transformation determines one of the most relevant development trends. It causes changes in companies, industries, and society that require rapid adaptation, mobilization of significant resources, changes in skills and culture. At the same time, digitalization provides significant global and local competitive advantages for both companies and, consequently, for national economies.

Today's globalized development is largely the result of rapid change due to the spread of digital technologies, growth of information flows, ex and increased competition. Quarantine restrictions due to the pandemic situation have become an additional impetus for accelerating digitalization. Understanding digital technologies as various electronic tools, systems, devices, and resources that generate, store, or process data, it should be noted that they create many opportunities for traditional industries and economies. The Global Innovation Index proves that technology and innovation are the basis of economic growth, and the level of economic development directly depends on its innovation activity. Today such countries as the United States, Singapore, Denmark, Sweden, and others represent digital economies that have topped the list of digital competitiveness (Liu, 2020)]. At the same time, digital technologies pose certain threats to economies with limited financial and technological resources, such as Venezuela.

2 The future of digital economy

In 2018, the European Commission emphasized that the digital economy is the main source of growth, which will stimulate competition, investment and innovation, which will improve the quality of services, expand consumer choice, and create new jobs. In 2020, the Index of Digital Economy and Society summarized the relevant indicators of digital competitiveness and development of European countries (EU, 2020). Today, the European Commission emphasizes the need for digital transformation and presents a vision of its successful implementation in Europe for the next decade until 2030 (EU, 2021a & EU, 2021b). The EU's ambition is to have digital sovereignty in an open and interconnected world and to pursue a digital policy that will enable a sustainable and prosperous digital future for people and businesses in Europe.

2.1 Digital evolution

In the United States, Deloitte consultants define the digital economy as an economic activity that results from billions of everyday Internet connections between people, business organizations, data devices, and processes. The basis of the digital economy is hyperconnection, which means the growing interconnectedness of people, organizations and machines, resulting from the use of the Internet, mobile technology and the Internet of Things (IoT) (Heath & Micallef, 2020). Ratings of economies' digitalization in different countries are a meaningful source of information for research. In our opinion, the Digital Intelligence Index, which has been studied by Fletcher School scientists for almost 10 years and is covered by the Harvard Business Review, is thorough (Chakravorti, Bhalla & Chaturvedi, 2017). Researchers of digital world evolution have analyzed the dynamics of four groups of factors in each country:

- 1) the degree of the digital environment development and physical infrastructure (supply factor);
- 2) the desire and ability of consumers to participate in the digital economy (demand factor);
- 3) the development of the components of the innovation ecosystem (innovation);
- 4) favorability of the legislative field for the digital economy development (institution).

According to the results of the analysis, scientists compiled and annually updated the map of countries on two indicators - the current state of digitalization in the country and its speed. The results of the countries' digitalization analysis allowed scientists to identify 4 zones in the map and, accordingly, to unite the countries into the following groups: digitalization leaders; slowing down; promising countries and problematic in the development of digital transformations (Chakravorti, Bhalla & Chaturvedi, 2017). The study confirmed, on the one hand, the significant interconnection between countries due to digital technologies, and on the other hand, identified the individual development priorities of each country (group of countries) belonging to different areas. A useful result of the 2020 study is an interactive simulator that can be used to investigate the current state of digitalization in some country, for example, Ukraine, and to compare with selected European

countries - Austria, Bulgaria, Finland and Germany (Fig. 1 and Fig. 2) (Digital Intelligence Index, 2020).

According to this specific comparison, it can be noted that the economy of Ukraine in comparison with these selected countries has an average result in 2020 due to the state of innovation, as the main driver of digitalization. However, in terms of supply, demand and institutional development, the result is much lower than average. Evidence of this situation is also indicated in the Ukraine 2030E (UIF, 2019) insufficient level of existing digital infrastructure and restrictions on Internet access, etc.

The index of digital evolution allows indicating the priorities of development of countries in different areas. Thus, for the area of promising countries, which includes Ukraine, it is necessary to improve mobile Internet access, strengthen the institutional environment and develop digital rules, attract investment in digital enterprises, more fund digital research, train digital talent and use digital applications to create jobs. Measures must also be taken to reduce inequities in access to digital tools across gender, class, ethnic and geographical boundaries.

Global Median: Calculated from the 90 economies in the DII.



Figure 1: Rating of selected European countries

Source: Digital Intelligence Index (2020)

The acquisition of individual competitive advantages by a country in the process of digital transformation depends primarily on the degree of development of the basic components of the digital economy: digital infrastructure, e-business, and e-commerce.

The leaders in the success of digital intelligence are the United States, South Korea and Singapore. Therefore, the priorities of their development support for the introduction of digital consumer tools (e-commerce, digital payments, entertainment, etc.); involvement, training and retention of IT staff; promoting the development of digital startups; providing fast and generally possible access to the Internet - both wired and mobile; specialization in the export of digital goods, services and media; creating and coordinating the innovation process between universities, business and government.

Accordingly, countries with a slowing down in digitalization development are Australia, Sweden, Norway, etc. These countries have received guidance to prioritize investment in sound institutional frameworks and regulatory environment; use of policies, tools, and regulations for both access to digital capabilities and an adequate level of security and protection against cyber-attacks; identifying new technological niches for innovation, etc.

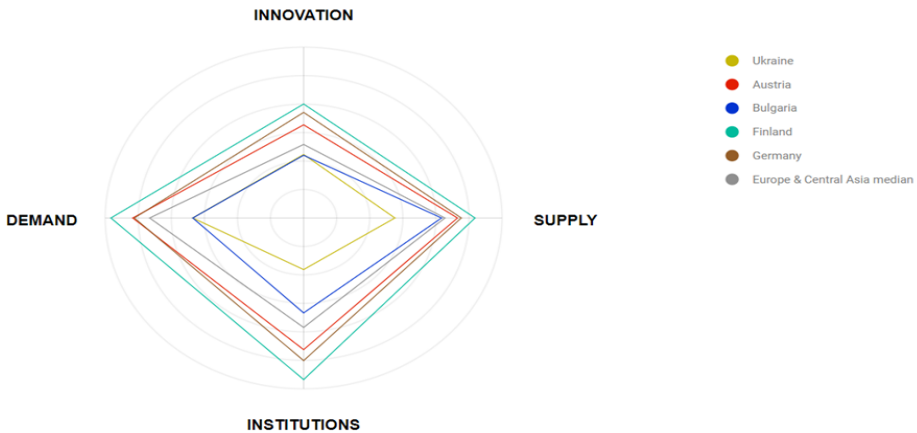


Figure. 2: Key drivers of economic development in Europe, 2020
Source: Digital Intelligence Index (2020)

That is, the transformation processes of digitalization in the economies of such countries have a relatively higher level of an existing development of institutions, innovation, demand and supply factors.

2.2 Opportunities & challenges

The challenges or opportunities for digital transformation depend on the digital potential of a particular country, its capabilities to flexible react to technological trends that determine the global digital progress in the next 5-10 years. Researchers from the consulting company Deloitte (Buchholz, Bechtel & Briggs, 2020) identified the following trends with the greatest potential impact on business and life in 2021.

1. Technological business strategy is optimized to create flexible management. Given the threats and opportunities of the external dynamic environment, strategic managers in organizations are constantly looking for new competitive advantages that should be used, as well as dangers that should be avoided. An increasing number of companies build competitive advantages by join new ecosystems with partners in order to propose combined innovative offers to consumers. Integrated corporate and technological strategy becomes a guarantee of organizational flexibility, stability and innovation. At the same time, the transition to a flexible process of strategic management of business units through the use of technological tools allows companies to regularly analyze, anticipate and monitor the effectiveness of strategy development and implementation.
2. New technologies, tools, and business cases are used to manage the company's modernization strategy. Technologies that have been actively evolving in recent decades and can be used by CIOs to transform companies' core processes include cloud storage and other modernization initiatives. They should become not only opportunities to improve the company's IT infrastructure, but also a solid foundation for technological innovation and competitive advantage.
3. Transformation of the traditional cost center into a cost driver. In the next few years, the supply chain of producers, retailers and other organizations is expected to be transformed against the background of the use of digital tools. The purpose of such changes is to optimize systems and processes in

organizations, in particular, the supply ecosystem, which will allow more efficient segmentation of customers, receiving signals about their needs and fluctuations in market demand, and respond accordingly. Such transformations will turn the traditional cost center into a network, which will help create new value.

4. Enhancing operational efficiency with industrial artificial intelligence (AI). Machine learning and artificial intelligence are increasingly able to enhance organizational activity through the efficient detection of patterns or threats, forecasting and generating ideas. However, many companies still use imperfect forms of AI, which constrains the ability to develop and manufacture products, and thus business management. Therefore, organizations should integrate AI and machine learning into every process and system for consistent and large-scale use. In this case, the operational and management efficiency of companies can be significantly increased.
5. Breaking the value chain of data management in the age of machine learning. As the era of artificial intelligence approaches, companies will be forced to radically change the value chain of data management using machine learning technology. This approach will allow rapid decision-making by reengineering the way they are collected, stored, and processed in the organization.
6. Strengthening security in the age of cyber threats. The "zero trust" cybersecurity model, that is, the lack of trust in anyone, makes it possible for more robust and reliable security for data, systems, and processes in an organization in today's environment. The advantages of this model are the creation of simple, modular environments, simple control, user access control. This model will allow increased efficiency against cyber threats compared to previous models.
7. Reloading the digital workplace. Most companies in the world have felt the need to move to a remote office model in times of quarantine. Some employees were convinced of higher efficiency and work-life balance working remotely. Therefore, in order to achieve their own business goals, organizations should combine online and offline work, create digital (equipped with digital technologies, tools, etc.) workplaces and create productive economically viable offices.

8. Merging digital and personalized. Personal communication, as well as digital one, has their advantages and disadvantages. Most consumers now want to benefit from both ways: personalized interactions along with the convenience of digital communication.
9. Diversity, equity, and inclusion as imperatives for staff work. Modern organizations use new and innovative technologies and tools to enhance fairness and inclusiveness towards employees during all stages of their stay in the organization, from finding and selecting talent to gaining experience, development, and compensation.

Such trends can become digital challenges for most countries of the world, which will create new opportunities if they are properly developed.

3 Conclusion

Digital technologies allow engineers and scientists to structure, analyze, and evaluate vast amounts of data, create better products, and make design tools more efficient. Business benefits include local, secure data processing, shorter innovation cycles and greater flexibility, reduced time to market, investment protection, and low start-up barriers. Digital technologies allow a better understanding of customer behavior, reaching more clients, and increase their involvement in the business processes. Realization of digital capabilities creates an attractive customer experience through the power of core operations and business model upgrades. The main benefits of digital transformation come from the emergence of synergies between different subsystems, which lead to the creation of added value for the company and customers.

At the same time, digitalization is the source of challenges, including rising unemployment, digital inequality in different countries and regions, the emergence and intensification of cybercrime, rapid changes in state governance and companies.

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