ACCELERATED PROCESS OF DIGITAL TRANSFORMATION - THE IMPACT AND CONSEQUENCES OF COVID-19

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Critical Review

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Abstract: Due to the current pandemic caused by the COVID-19 virus, the world is changing rapidly along with digital technologies that transform every aspect of life, society and the economy. To prevent a complete collapse and suspension of all business processes, companies were forced to organize remote work, i.e. workers perform their daily work activities from their homes. The situation in which the world is currently in clearly indicates that digital transformation is something that should be a priority. Digital transformation is changing the way of doing and developing the business, new opportunities for economic progress in the public and private sectors. It allows companies to survive and focus on innovation, increasing their competitiveness. We can say with certainty that digital transformation means much more than complete integration of digital technologies. It also means digitalization and business processes and models automation, marketing, sales, digital purchase, Big Data, and related processes, and is based on five different areas, which include customers, competition, value, innovation and data.

Keywords: Digital transformation, Information technology, Business process, Impact, Pandemic Covid-19.

INTRODUCTION

When the pandemic Covid-19 hit the Republic of Srpska and Bosnia and Herzegovina, the authorities faced conflicting obligations to protect public health, on the one hand, and respect for individual human rights, on the other hand. In order to slow down the spread of the virus, measures and restrictions have been introduced, which in some cases violate human rights. The reason could be that decision-makers did not have enough understanding to respond to the pandemic, but also the urgency of the measures themselves and their implementation, as in many cases they were adopted practically overnight. This paper discusses the impact of the response on the economic activity of citizens and the way everyday business takes place. During the research, the authors analysed already available data and content on respect for human rights, the impacts of measures and information about them, with a qualitative assessment of the impact of the measures on certain activities.

Digital transformation is a term that differs significantly from the term "digitalization", because it includes much more than that, and first of all significant changes in business models, in the way of living, affects our everyday habits and expectations regarding the quality of living. This, of course, greatly increases our dependence on the Internet and ICT (Information and Communication Technologies) solutions. The issue of cyber security and privacy, the degree of trust in technologies, the simplicity of using it by a wide population without technical prior knowledge, are some of the basic preconditions for providing mass acceptance. The situation in the world related to the Covid-19 pandemic gives us a significant argument for that, and it is especially important to maintain economic activity and reduce the damage that occurred.

Digital technology allows the world to continue to function during a pandemic, that certain processes can run smoothly, but that technology could today, as in the future, be a means of combating a

pandemic. First and foremost, in countries that are technological leaders in the world, artificial intelligence is used to find a cure and vaccine, which repeatedly shortens the time required to obtain results. In South Korea, artificial intelligence has been successfully used to find tests for the coronavirus in two weeks, while without the application of artificial intelligence, that work would last much longer. In addition, transforming conferences into digital online platforms, working from home, sending and receiving requests and responses for public administration, helps us keep jobs and processes in a state of emergency, especially to reduce the need for direct contact and thus stop further spread of the virus. It is clear to us that much of what has been applied so far will undoubtedly survive and remain even after the pandemic emergency passes. This situation has certainly affected many areas permanently, and the digital transformation of society will be accelerated in all directions.

Inevitably, as in other countries in the world, the pandemic Covid-19 negatively affected the economy of the Republic of Srpska and Bosnia and Herzegovina as a whole, which resulted in a decline in economic activity due to the economy closure. Consequently, pandemic Covid-19 significantly has imapcted businesses, economy and society, and accelerated companies digital transformation process. Therefore, it is important to explore opportunities and seek a way for companies to turn to mitigate the economic consequences of a pandemic, and at the same time adapt to the circumstances to be able to deal with it. Recognizing Covid-19 as a major driver of digital transformation of companies in Bosnia and Herzegovina, and as a process necessary to keep companies competitive in the market, in this paper authors discuss significance of digital transformation, as an essential move to economic recovery.

Digital Transformation - Basic Information

The digital transformation began in the 1960s, when the development of programs and application solutions for automated data processing begins, which has had a significant impact on productivity growth and global economic development. Information technologies are no longer simple tools that serve to support the business but allow for a significant change in existing processes and the value chain. The application of digital technologies, transforms the way we work, changing the consciousness of employees, but nowadays it also plays a significant role in the process of changing the whole society. A whole range of different term definitions of Digital Transformation can be found in the literature, but almost each includes a couple of key components: digitalization, business transformation, collaboration or cooperation, modern digital technologies, value chain, and sometimes even the digital economy. Perhaps it is best to describe Digital Transformation as a set of all these elements. We can also say that digital transformation represents the networking of companies and customers, through all segments of the value-added chain, with the application of new technologies. As such, it requires skills that include extracting and exchanging data, as well as analysing them, and converting data into available information. This information should be used for decision making to initiate activities that increase the company's performance and market participation. Digital transformation and the transformation process involves companies, business models, processes, relationships, products, etc. For the success of digital transformation, it is necessary to change the awareness of employees and continuously implement their education and provide a large degree of IT literacy to be ready for the challenges posed. Companies need to invest and adopt completely new IT strategies that are managed by digital technology, as well as a competitive offering based on digital processes. The three basic steps define digital transformation within modern companies:

Digital work environment - application of technologies such as mobile devices, tablets and laptops; collaborative tools and social networks; application of technologies that are initially intended for private users.

Digital user experience - optimal user experience is a key factor in the digital transformation process. The negative experience of the user has a direct impact on the perception and sale of the product, which can be reflected in the company's business. Companies face the development of comprehensive, individualized systems that provide the user with optimization of experience in all digital and traditional business spheres. Although the way of displaying and designing such a system (front-end) plays the

most important role for the user (due to the interaction with the user), for optimal user experience it is necessary to perform the Digital Transformation of all processes in the company (logistics, accounting, storage and development). Therefore, in addition to the transformation of marketing and sales, Digital Transformation must include customer-oriented digitalization and integration of the entire processes in the company (front-end and back-end processes).

Digital business models and ecosystems - standalone companies will no longer be able to withstand the pressures of competition in the market (especially small and medium-sized enterprises), which will lead to the formation of digital ecosystems and service networks in which companies will connect and develop collaborative business models.

DIGITAL TRANSFORMATION AND ITS SIGNIFICANCE FOR THE REPUBLIC OF SRPSKA AND BOSNIA AND HERZEGOVINA

In the Republic of Srpska and Bosnia and Herzegovina, the prevailing opinion is that digitalization is significant for business, but development and implementation of digital strategies are delayed. There is awareness in private sector that digitalization helps to achieve better future performance, however, companies confront obstacle which interfere with the process of transformation, such as lack of professional staff and technical knowledge to improve the digitalization process and funding. One of the main problems around the world, including Bosnia and Herzegovina, is that it is difficult for companies to translate digital transformation into business opportunities. The reasons are numerous for companies to access digital transformation, and given the dimension of the pandemic Covid-19, digital transformation is not an option for the companies of the Republic of Srpska and Bosnia and Herzegovina, but a matter of their survival. In previous years, Bosnia and Herzegovina has benefited from programs and funds of the EU and a number of international organizations, that support digital transformation. It is known that a faster transition to economic digitalization is a necessity and a step forward to economic and social integration, in preparation for BiH's membership in the EU. Digital Agenda for the Western Balkans is some of the main policy initiatives created at the digitalization policy level of the economy in BiH. In July 2017. the Trieste Summit was held, and since then the leaders of the Western Balkans officially recognized digital integration importance, as a key element of the plan to create the Regional Economic Area (REA).

In June 2018. the European Commission launched the Digital Agenda, one of the six main initiatives of the EU strategy for Western Balkans, to support the transformation of Western Balkan countries into a digital economy. It would bring faster economic growth, creating more jobs, improvement of the services, investments in digital infrastructure, digitalization of the industries, building capacity in digital security, strengthening the digital economy, development of the skills, e-administration development, e-purchase, roaming costs reduction (this was realized in June 2021. when roaming in the countries of the Western Balkans was abolished). The goal of this initiative is to support BiH and all Western Balkan countries towards successful digital transformation, and to be better prepared for the future in the EU. In October 2020, the European Commission adopted an Economic and Investment Plan for the Western Balkans, aiming to encourage a economic recovery, with an emphasis on the green and digital transition and development. Also, this plan encourages regional integration and rapprochement of the BiH and the Western Balkan countries to the EU. On the basis of the Digital agenda for the Western Balkans, this plan and investment offers an possibility to accelerate digitalization of the government administration, public services and businesses, in the line with EU values and framework. Throughout the pandemic customers turned dramatically to online channels and companies responded in the same way. BiH companies have done several changes in doing the business, and have been in an situation which demands reaction and change. Companies are looking for ways to improve productivity, offer the best possible services to their customers, facilitate way of communication, and approach to consumers with new sales channels. Among other things, companies should work to optimize work processes, and just simply to be innovative and provide competitive advantages, as the only option to remain vital in the business.

Many companies developed the capacity for

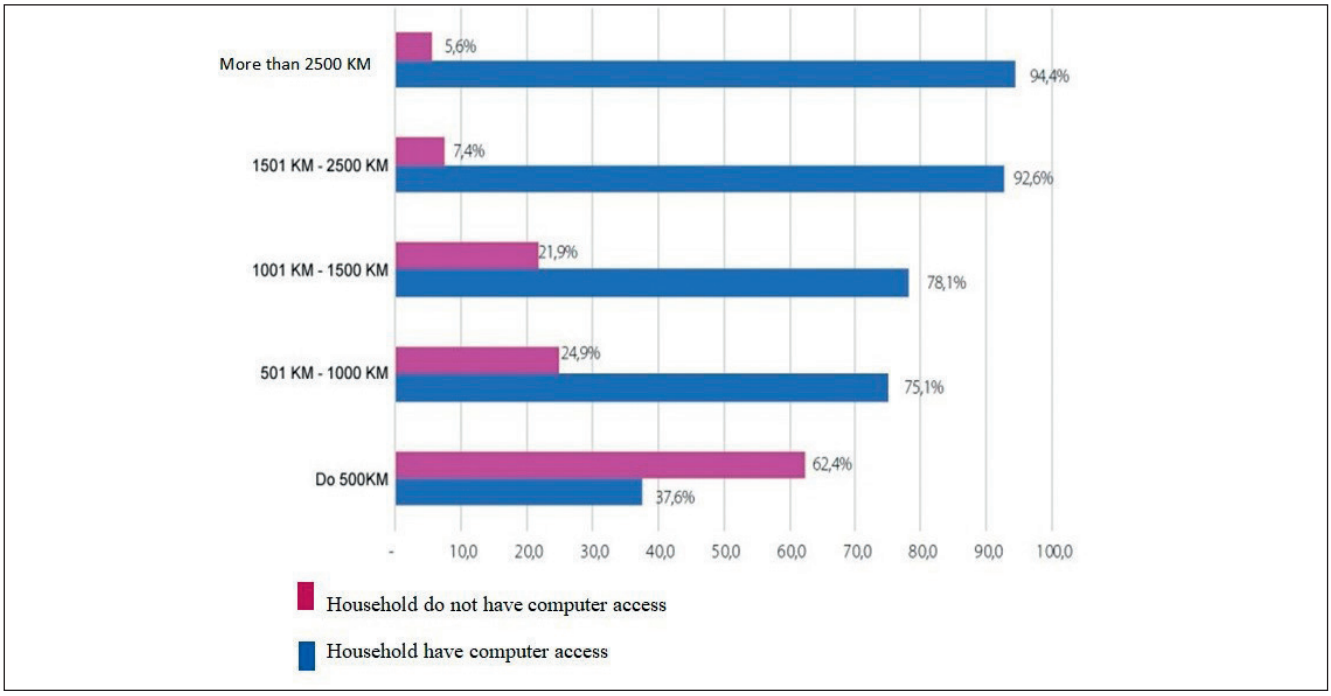

Figure 1. *Percentage of households that have computer access, according to the monthly net, household income – BiH (Source: Agency for statistics of Bosnia and Herzegovina)*

remote work; others created new sales channels through e-commerce platforms, while others changed business models, in an attempt to build value and competitive advantage. However, the Republic of Srpska/BiH were left behind in many of the digital transformation measures, such as using the broadband technology and other digital technologies, as well as the digital readiness of public and government administration. Altogether, including companies, government administration institutions, donors and other participants have to assist in overcoming this challenge through economic recovery of companies to create the best environment for business and increase the competitiveness of BiH companies. In order to support the economic recovery through digital transformation and mitigate the economic damage caused by the pandemic, the analysis carried out by the authors of this paper places emphasis on the following:

- Focus on administration digitalization and cutting red tape;
- Financing companies, in terms of digitalization of business processes and increasing business through e-commerce;
- Interinstitutional coordination and preparation of a concrete work plan related to the Digital Agenda for the Western Balkans and the Economic and Investment Plan for the Western Balkans;
- Adjustment of all key participants, for the best possible usage digital transformation support schemes;
- Boosting current digital expertise in favour of digital transformation of the private sector and increasing expertise in digitalisation;
- Laws adoption to support the digitalization of public institutions and the private sector;
- Campaigning to promote digitalization and the potential it offers.

Insight into the report (USNews&WR, 2020) Bosnia and Herzegovina is not on the list of the most developed countries in the world, while the countries of the region: Croatia (44), Slovenia (56), and Serbia (72) are positioned on that list. Nevertheless, if an analysis of the report of the Agency for Statistics of Bosnia and Herzegovina on the use of Information and Communication Technologies in Bosnia and Herzegovina for 2020.is performed, it can be noticed that Bosnia and Herzegovina has a very high rate of application of digital technologies (possession and access to computers, i.e. information com-

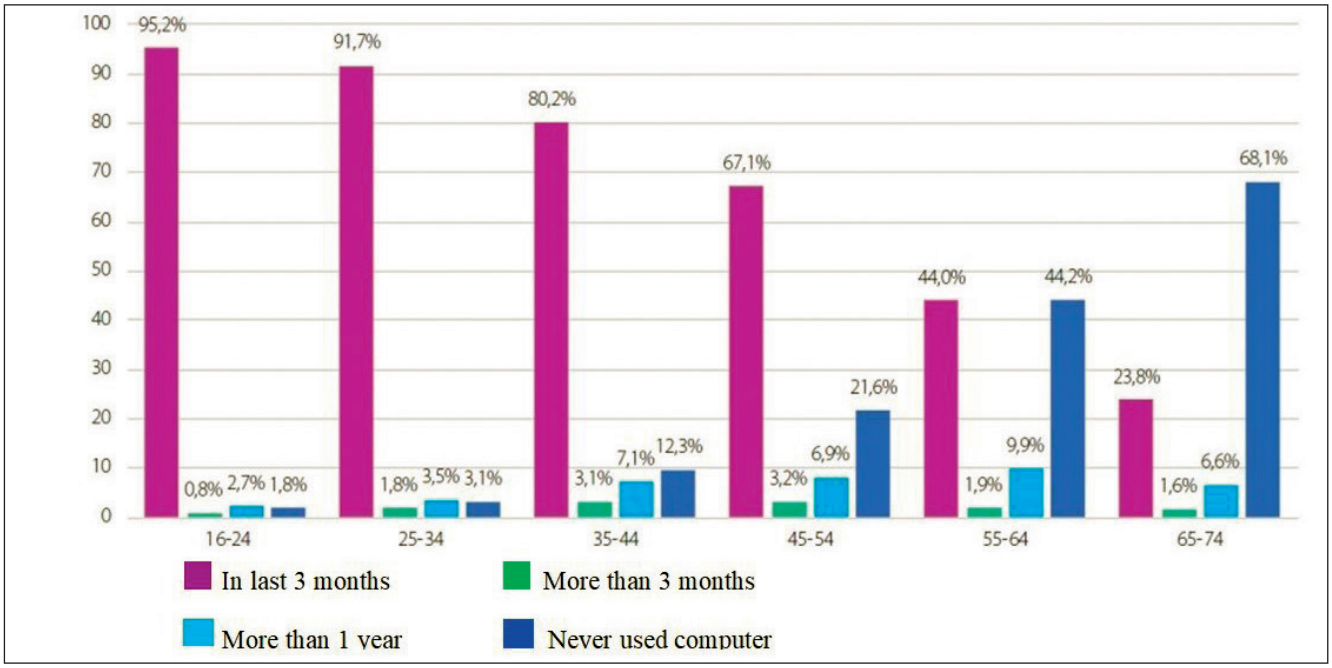

Figure 2. *Percentage of computer users, by age – BiH (Source: Agency for statistics of Bosnia and Herzegovina)*

munication technologies), although it is directly related to standard and monthly revenues of citizens (Figure 1.).

For the statistical image to be complete, it is necessary to look at the percentage of computer users (information communication technologies) by age. It can be observed that the application of digital technologies is present in a high percentage among the younger population and in a slightly smaller percentage in the middle age population, which is directly related to the entry into the digital age and the new industrial revolution (change of consciousness and culture of the social ecosystem).

The above analysis indisputably indicates a certain degree of digital literacy, but also the need for an agile change in the education system, and the introduction of new competencies in all areas of education that are in the new value chain, primarily engineering and economics. The recognized need to change and introduce digital competencies into the education system must be guided by good practices and recommendations by world organizations. UNESCO has defined the Competency Framework for Teachers (UNESCO 2018) in response to the needs of 2030. Sustainable Development Agenda, which recognizes the significant potential of information and communication technologies in the process of accelerating progress and increasing global digital literacy. As potential challenges in this process, concepts have been identified: freely available educational resources, social networks, mobile technologies, internet stuff, artificial intelligence, virtual and augmented reality, processing large data sets, programming, ethics and privacy protection.

Joint Research Centre of the European Commission, defines the European Framework for the Development and Understanding of Digital Competence - DIGCOMP, which represents 21 competencies classified into five groups (Table 3.):

Information management - identification, locating, obtaining, storing, organizing and information analysis in digital form, where it is necessary to possess knowledge and skills to assess their relevance and purpose;

Communication skills in a digital environment - sharing resources through online tools; connecting with others and collaborating by digital tools; communicating and participating through communities and networks; building intercultural consciousness.

Creating digital content - creating and editing new content (word-processing, images and videos); integrating and refining previously acquired knowledge and content; making creative expressions, media elements and software programs; applying intellectual property rights and licenses.

Security in the digital environment – private and

data protection; digital identity protection; security measures implementation; safe and sustainable usage.

Problem solving - identifying digital demands and resources; decisions making about to choose and apply the most suitable digital tools according to needs or purpose; conceptual problems solving by digital resources; creative usage of technologies; solving technical problems; developing one's competencies and competencies of others.

Table 3. *DIGCOMP – competencies (Source: https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework)*

Dimension 1	Dimension 2	Dimension 3
5. Area	21 Competencies	Competency level
AREA	COMPETENCIES	
Information	1.1 Review, search and filter information	
	1.2 Information evaluation	
	1.3 Information and digital content management	
Communication	2.1 Digital technologies interaction	
	2.2 Digital technologies content sharing	
	2.3 Digital citizenship inclusion	
	2.4 Digital technologies collaboration	
	2.5 Correct and acceptable mode of communication	
	2.6 Digital identity management	
Content creating	3.1 Digital content development	
	3.2 Digital content integration and processing	
	3.3 Licensing and copyright	
	3.4 Programing	
Security	4.1 Device protection	
	4.2 Private data protection	
	4.3 Health care and wellness protection	
	4.4 Environmental protection	
Problem solving	5.1 Technical problems solving	
	5.2 Determining the needs and responsibilities of tech.	
	5.3 Digital technologies creative application	
	5.4 Determining digital companies deficiencies	

Conclusion

The pandemic has harmed both, consumers and businesses, changing the way people work, consume and spend free time. The pandemic Covid-19 has brought business and society to the necessity to adapt the new technologies. Regardless of the companies desire, digitalization has became necessary to facilitate companies, depending on measures and circumstances, to make changes, as: remote work, create channels to shop online, apply technology in everyday work, adjuste to consumer demand and expectations, identify suitable channels for communication and distribution, and other changes that have resulted from the need to adapt to the emerging situation.

Generally, digital technologies and digitalization are yet at the centre of the debate, due to their use during the outbreak of the pandemic Covid-19. In normal circumstances focus of the company is to increase revenues and market shares. In this pandemic situation, BiH companies are struggling in controlling the costs, maintaining their liquidity and survival. Pandemic Covid-19 continues to bring a crisis to public health, and make a severe economic consequence. After prevailing the pandemic Covid-19, companies have to evaluate the impact of these changes, and further to adjust the way to design, communicate and build value for the consumer.

The Digital transformation has helped many BiH companies to survive the effects of the the pandemic. This is related to the companies that have already started their digitalization before pandemic have started. Companies, that have not been prepared from the digitalization point of view, and did not have any action plan or strategy before the pandemic, responded without thinking to the process of digital transformation. It is clear now that it is necessary to adapt existing business models and processes, as well as regulations, to enable measurable and efficient work from home, i.e. remote work, which takes place on the digital platforms and which have all functionality that the company management needs.

By introducing digital technologies into daily work, the way of thinking and problem-solving approach of employees in production chains is changing, as well as the way users access new services. The question of the set of competencies that are necessary for the full integration of people and the working environment into the digital sphere arises, which leads to a radical change in the education system and gaining the new skills and knowledge needed to fully enjoy the services offered by digital technologies. Although the possibilities of working from home have been an available option since before, just the current pandemic has enabled such a system of work and has forced a large number of people to increasingly rely on digital technologies.

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