

# Business Processes in the Digital Environment in the Context of Sustainable Development

Labazanova Saida<sup>1,\*</sup>, and Peryakina Marina<sup>2</sup>

<sup>1</sup>Kadyrov Chechen State University, Sheripova st., 32, 364024, Grozny, Russia

<sup>2</sup>Plekhanov Russian University of Economics, Stremyanny lane, 36, 115093, Pyatigorsk, Russia

**Abstract.** Despite the significant industry specifics and the uneven introduction of digital technologies, almost all researchers and experts agree in the highest assessments of the importance of digitalization for socio-economic development. Many authors note that this process has virtually no alternative even in the most technologically inert industries. Moreover, the more “strong” term “digital transformation” has recently become widespread, which, in our opinion, reflects the growing expectations of radical shifts and effects from the introduction of a new generation of digital technologies.

## 1 Introduction

Digital transformation - qualitative changes in business processes or ways of carrying out economic activities (business models) as a result of the introduction of digital technologies, leading to significant socio-economic effects [1].

This definition is consistent with existing approaches to the description of digital transformation:

- economic and social implications of digitalization and digitization.
- The ongoing process of multimodal adoption of digital technologies that are fundamentally changing the way in which public and private sector services are created, planned, designed, deployed and operated.
- significant changes in all sectors of the economy and society as a result of the introduction of digital technologies in all aspects of human life.
- the type of change driven by innovation that affects a wide range of industries, from the most digitally advanced (eg financial services) to the more conservative real sector, including the most technologically inert industries [2].

Digital transformation is the next stage of development after digitization, which implies the transfer of analog data and processes into a machine-readable (digital) form, and digitalization, which means the use of digital technologies to increase the efficiency of certain areas. One of the criteria for assessing the achievement of digital transformation goals is the level of digital maturity of industries, as well as public authorities [3]. The research develops various approaches to defining and measuring digital maturity: as a tool for comparing the achieved level with the target one, and for cross-sectoral comparison of

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\*Corresponding author: [saida.labazanova88@mail.ru](mailto:saida.labazanova88@mail.ru)

the level of digital technologies penetration. In particular, the OECD assesses the digital maturity of business sector organizations based on three dimensions [4]:

- ICT opportunities (training employees in digital skills, availability of ICT specialists, introduction of digital technologies);
- advanced ICT functions (information security, business management software adaptation, own developments);
- web maturity (availability of a website with the possibility of e-commerce, online advertising).

Sectoral digital transformation strategies are designed to play a bridge role between various technology policy initiatives. In the system of technological development planning documents, it is the strategies that determine the contours of industry demand, taking into account the tasks of the state and business priorities, the gaps between the solutions offered on the market and the needs of the sectors, and provide for measures to overcome them [5]. With obvious differences in the prerequisites for the digital transformation of industries (including the initial level of their digital maturity, scale and significance in the country's economy, the specifics of processes and business models, etc.), most strategies provide for the development, implementation and dissemination of tools and digital solutions such as : state information systems (GIS); platform, ecosystem solutions and marketplaces; electronic document management; digital communication channels with consumers and service recipients; new industry business models based on digital technologies; customized intelligent services for consumers and industry workers.

## 2 Research Methodology

To assess digital maturity, the governments of OECD member countries use indicators such as the presence of digital platforms, the use and storage of data, openness, and user control [6]. The World Bank is developing a maturity index in the GovTech category (GovTech Maturity Index, GTMI), covering the functioning of state systems and their technical capabilities, the completeness of services provided, and the degree of involvement of the population. BCG uses the Digital Acceleration Index (DAI) to measure the level of development of digital competencies in the company and compare with peers, industry averages, digital leaders in 36 categories (such as customer journeys, digital supply chain and marketing personalization) . The index is calculated based on the opinions of business leaders from different countries [7].

In our country, the assessment of the digital maturity of key sectors of the economy and the social sphere as one of the indicators for achieving the national goal “Digital Transformation” is carried out in three components: specialists who intensively use ICT and are employed in the economy; expenses of organizations for the implementation and use of modern digital solutions; sectoral indices that include a unique set of indicators for each industry (on average, 8-10 indicators for each of 12 industries) [8]. These indicators make it possible to reflect the most important factors for achieving digital maturity - resources (personnel and investments) and industry specifics of the spread of digital technologies. The calculation is carried out on a monthly (for Russia) and quarterly (for regions) basis on the basis of federal statistical observation data, as well as administrative data of federal executive authorities, formed within the framework of automated information systems.

The COVID-19 pandemic has made significant changes in the lives of millions of people around the world and in economic relations [9]. Temporary shutdowns of production, logistics and commercial processes were observed. Many companies have temporarily transferred their employees to remote work, some of them began to think about such changes in the long term. In the first half of 2020, the use of the Internet in the world

increased by 50-70%. The demand for energy has fallen sharply. At the end of 2020, the International Energy Agency (IEA) expects a decrease in global demand for electricity by 5%. At the same time, electricity generation from all traditional energy sources (fossil fuel and nuclear energy) is declining, only generation from renewable energy sources (RES) is growing []. The sharp decline in the mobility of the population has reduced the demand for oil. The Organization of the Petroleum Exporting Countries (OPEC) forecasts that oil consumption will fall by 10% in 2020 compared to 2019. Such unprecedented changes will lead to strong economic consequences, the scale of which has not yet been fully manifested. Thus, according to the June forecast of the International Monetary Fund (IMF), by the end of 2020, the global economy will contract by 4.9%, which is 1.9% percentage points lower than the April forecast of the same organization. The World Bank's June forecast predicts a 5.2% contraction in global GDP in 2020. The world is facing such a deep recession for the first time since the end of World War II.

### 3 Results and Discussions

The level of digitalization achieved by the beginning of 2020 ensured the sustainable functioning of the economy and its individual sectors in the context of the corona crisis [16]. Over the past 20 years, fundamental conditions have changed radically (digital infrastructure, the level of development of the Internet, the spread of mobile devices, etc.), which has made it possible to create a wide range of digital products and services for the public and businesses [10].

The involvement of the population in the digital environment is largely determined by the level of development of digital skills - the ability to use computers / tablets / smartphones, various software tools, search for the necessary information on the network, etc. Despite the fact that the level of digital skills of Russians is increasing every year, it still remains extremely low among the older generation. However, if current trends continue, it can be expected that the gap in the intensity of Internet use for different groups of the population will be leveled [11]. The results of the study of the factors of integration of the population into the digital economy show that in families, regardless of belonging to the household, mutual assistance in the development of digital technologies is widespread. Two-thirds (66%) of respondents said they had helped other family members use the Internet (eg taught them something, did something online for them, etc.) in the last six months. This indicator is higher among respondents under the age of 24 (75%), people with advanced digital skills (77%), representatives of the two upper categories in terms of material well-being (71% and 82%, respectively) [12]. The involvement of the elderly in the digital environment is mainly provided by relatives (41% of respondents helped their parents and 9% helped their grandparents).

Key drivers of digital transformation in 2019-2020 consumer orientation and rapid changes in business models (including the growth of online platforms) have become [13]. The digitalization of business and the state has made it possible to proactively provide services and a personalized approach to meeting the needs of people. The introduction of quarantine, social distancing, remote work and other realities of 2020 led to a sharp change in consumption patterns and an increase in the share of remote communication channels. Digital transformation has thus evolved from desirable to essential for business competitiveness and improved quality of life [14].

The COVID-19 pandemic is certainly having a strong impact on digital markets. On the one hand, the scale of the use of digital technologies has increased significantly, primarily due to the growth of remote services and online platforms [10]. At the same time, the global IT industry has seen a decline since the start of the pandemic due to lower costs in the real sector. In the global market, sales of software (software) in 2020 fell by 3% (with corporate

software - by 4.5%), equipment - by 9.1%, IT services - by 3.4%, while At the same time, cloud services grew by 25% [17]. In the medium term, the situation is likely to stabilize due to a gradual recovery in demand and the emergence of new growth points in the field of CovidTech - digital solutions to combat COVID-19 and its consequences. Demand for digital solutions can be expected to increase, while the impact of the pandemic on the development of various technology areas will be uneven [9]. According to the results of an expert survey conducted by the National Research University Higher School of Economics<sup>11</sup>, demand for developments in the field of artificial intelligence and new production technologies is expected to grow [10-11]. Positive trends in terms of demand are also expected in the field of wireless technologies (according to 22% of respondents) and robotics and sensor components (18.5%) [15]. It is these technologies that form the core of solutions in the field of CovidTech (including monitoring and forecasting the spread of the pandemic, diagnostics and telemedicine, ensuring the continuity of the education process and remote work, informing and social support for citizens, etc.). The impact on demand for distributed ledger systems is ambiguous and is expected to be rather neutral; at the same time, almost half of the experts (44.4%) predict an acceleration in the pace of technology development. The negative impact of the pandemic is affecting less mature technology areas such as virtual and augmented reality technologies [12]. A possible reduction in funding puts pressure primarily on fundamental areas that do not have broad commercialization opportunities, including developments in the field of quantum computing and communications, and may lead to restrictions on the supply side.

## 4 Conclusions

According to the results of an online survey, during the period of self-isolation, approximately three-quarters (76%) of Russian Internet users (the most active part of the country's population) began to use digital tools more often to solve various everyday tasks. Half of the respondents (49%) have installed additional applications and programs on computers and mobile devices. Every third (34%) has mastered some new skill, and 48% plan to learn something new in the near future. In many ways, forced digitalization, provoked by the corona crisis, has changed the population's approach to solving various problems. Remaining "digital natives" in terms of the development of digital skills, Russian Internet users have begun to actively engage in the online environment, preferring digital opportunities instead of traditional offline methods. Most of all, this affected the sphere of consumption of various digital content (information and entertainment), government and financial / insurance services, communications with authorities, sales of own goods and services, education and interpersonal communication.

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