

Digital economy in Belarus and Russia: leading underpins of a new reality

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Abstract Many countries around the world have committed to developing national frameworks in order to regulate digital economy. The latter is often regarded as an impetus for the recovery of the world economies. Having undergone some changes and finally managed to use the full potential of the knowledge-based economy such countries as Belarus and Russian Federation are now striving to derive benefits from digital economy by adapting strategy and various guidelines for better use of information and communication technologies (ICT). However, governmental acts, decrees or whatsoever cannot guarantee hundred percent success. The transition to a new model will be much dependent on people's mindsets and attitudes to innovations. Though the changeover to digitalized ecosystem is an obvious and indisputable reality, the paths that each country chooses may be quite long and winding.

This paper focuses on the grasping of the concept of digital economy and its constituent components which are, in fact, crucial elements leading to either success or failure in implementing legal regulations. We also describe the current state and possible development trends of digitalized ecosystems in both Belarus and Russian Federation.

1 Introduction

The growing demands of customers, the dynamic processes of globalization in a sectoral format, the search for effective mechanisms for the development and growth of competitiveness show a clear need for creating a new and improved model of a socio-economic system (Kuratko and Audretsch 2009; Jiroudková et al. 2015).

In 2017, both the Republic of Belarus and the Russian Federation have defined digital economy as such a model, the one which will rely on the use of technologies in the branches of the local economy. The crucial role in digitalization is granted to the state, understanding the importance of this development path to the modern society. The President of the Russian Federation Vladimir Putin at the meeting of the Council on Strategic Development and Priority Projects in July 2017 said: *“digital economy is a new assumption for the system development of government, economy, business, social sphere, and society. Its framing is a question of national security and independence of Russia, the competitiveness of domestic companies, and the country's position on the world stage for the long-term period”* (Putin 2017).

In 2017, the Russian government approved the State Program on Digital Economy of the Russian Federation for the period up to 2024, encompassing five areas: regulatory, cybersecurity, education and personnel, research competencies and ICT infrastructure.

This paper focuses on analysing and comparing digital economy in Belarus and Russian Federation attempting to assess similarities and differences. The paper is structured as follows: Section 2 contemplates over the question what actually constitutes digital economy. It mentions different definitions and concepts trying to find some common grounds. Section 3 describes the factors that might be the drivers of the digital economy. Section 4 concludes by providing the outcomes and policy implications.

2 What constitutes digital economy?

While exploring the process of digitalization of the economy it looks crucial to start with clarifying the notion itself. In a broader sense, 'digitalization' implies a socio-economic shift initiated by the wide influx

and conformity to digital technologies, i.e. technologies for creating, processing, exchanging and transmitting information (Zielińska 2016).

However, we consider it more difficult to make the term digital economy specific by defining the components and the conditions that characterize it. Thus, in 2017 the Analytical Centre under the Government of the Russian Federation proposed an online survey ‘Digital Economy - Towards a Long-Term Strategy’ to select one of the 7 alternative definitions of the term digital economy (Bukht and Heeks 2018):

1. The international web of economic and social activities supported by platforms such as the Internet, as well as mobile and sensor nets (Government of Australia);
2. The system of economic, social and cultural relations based on the use of digital information and communication technologies (World Bank);
3. An economy which relies in its functioning on digital technology, especially electronic transactions made on the Internet (Oxford Dictionary);
4. Digital technologies are the basis of the digital economy, although sometimes it can be grasped as conducting business through markets based on the internet and the World Wide Web. (BCS, United Kingdom);
5. Markets based on digital technologies that facilitate the deals of goods and services through e-commerce on the Internet (OECD 2015);
6. An economy capable of providing high-quality ICT infrastructure and mobilizing ICT opportunities for the benefit of consumers, business, and government (The Economist Research Center and IBM);
7. Digital equipment manufacturing, publishing, media production and programming (UK Government).

With regard to the above, Doctor of Technical Sciences, a corresponding member of the Russian Academy of Sciences (RAS) Vladimir Ivanov (Ivanov and Malinetskiy 2017) gives a broad definition to the concept: ‘*digital economy is a virtual environment that complements our reality*’.

Professor of the RAS, Doctor of Technical Sciences, Vice-Rector for Research and Innovation of Tomsk State University of Control Systems and Radioelectronics Mescheryakov believes that there are two approaches to defining the term. The first approach is ‘classical’: digital economy is an economy based on digital technologies and, here we touch upon only such issues as electronic goods and services. The second approach is extensive: ‘digital economy’ is an economic production with the use of digital technologies (Mescheryakov and Savchuk 2011).

According to Engovatova (2017, an Associate Professor from the Department of Economics of Innovations, Faculty of Economics, Moscow State University, digital economy is the one based on new methods of generating, processing, storing, transmitting data, as well as computer technologies. Within the frame of such an economic model, the existing market business models undergo a crucial transformation, the model of value-added formation changes significantly; the value of intermediaries at all levels in the economy is reduced. Moreover, the value of an individual approach to product creation is increasing, as now we can easily simulate anything.

Director of the Institute of Economics of the National Academy of Sciences of the Republic of Belarus Belsky (2018) characterizes digital economy as “... *an economy that exists in a hybrid world. The hybrid world is the result of the merging of the real and virtual worlds, characterized by the possibility of performing all the ‘vital’ actions in the real world through the virtual one*”.

The OECD Digital Economy Outlook (OECD 2015) defines digital economy by the European Community in the following way: digital economy is the result of the transformational effects of general-purpose technologies in the field of information and communication. As a result, we can offer an integrated version of the definition of the term digital economy which is a system of economic and social relations based on the use of information systems and technologies in all spheres of practical activity of organizations. According to Tapscott (1996) or Watanabe et al. (2018), the creation of the economic potential of a given country within the growth path of digital economy depends on such technologies as:

- Artificial intelligence and machine learning;
- The use of computer algorithms that mimic various aspects of human thinking (pattern recognition, speech recognition, robotic control algorithms and automated decision-making);
- Big data and business intelligence;
- Technologies that monitor and analyse ever-increasing information in the network (processing of end-user surveys, reporting/analysis tools and storage management tools);
- Cloud computing, which is a model for providing ubiquitous network (Internet) on-demand access to a shared pool of configurable computing resources that can be quickly provided and implemented with a minimum of administrative effort or interaction with the service provider;

- Internet of Things (IoT) - a fast-growing and extremely heterogeneous class of industrial and household appliances, devices and other gadgets that are mutually connected by the possibility of their joint functioning and interaction using wireless communications (Strielkowski 2017).

3 Factors leading to digital economy

Specific conditions adapted to modern global needs and challenges are necessary for digitalized ecosystem to develop smoothly and evenly. Director of the Internet Initiatives Development Fund Varlamov in his interview explained that the economic effects of the implementation of new digital solutions by 2030 will amount to tens of trillion rubles of added value. However, it is essential to conceive sustainable development conditions for the use of systems with artificial intelligence, big data technologies, the Internet of things, etc. in Russia. A prerequisite for success will be the creation of a globally competitive national jurisdiction and a regulatory system, as well as an effective return-risk ratio in investment business activities (Varlamov 2018).

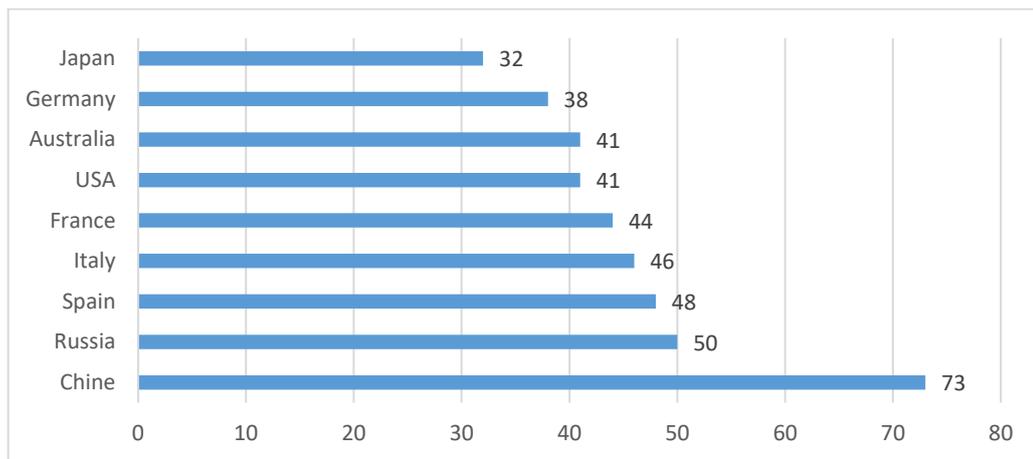


Fig.1. Ratio of people acknowledging that digital technology

Note: (1) will forge new jobs; (2) will help focus on social threats; and (3) overall, will safeguard its positive impact over negative

Source: Digital Society Index (2018)

An important condition for digitalized ecosystem creation is the development of human competencies. The President of the Skolkovo Moscow School of Management Sharonov once mentioned this issue by explaining that according to him, the crisis in the development of technologies and industries comes from the crisis of leaders. He thinks that we need to grow people, who are ready to take the lead in this area, develop certain competencies and expand the class of technological entrepreneurs and managers. The development of digital technology begins with the creation and development of an environment that gives the opportunity to experiment, gives the right to make mistakes and attracts the best minds to ambitious projects (Sharonov 2017).

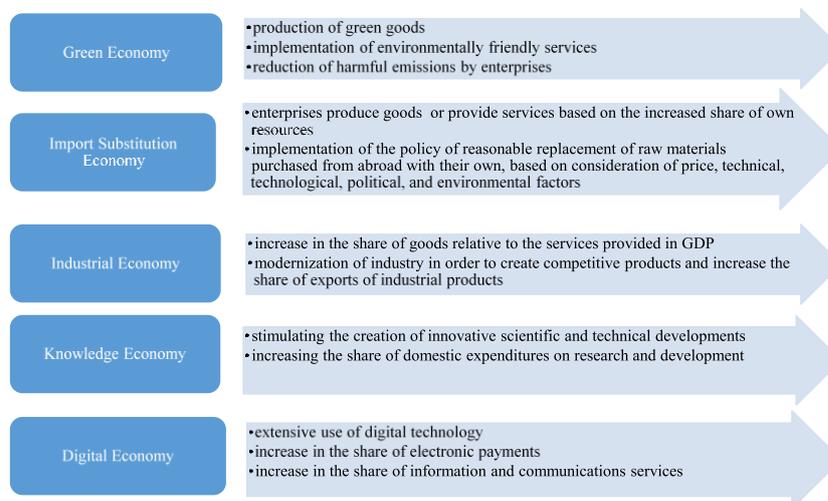


Fig. 2. Transitional stages of economic development

Source: own results

The human awareness and capacity to adapt to innovations is a major aspect of transiting to a new system. According to Dentsu Aegis Digital Society Index 2018, the average ratio of persons (global index) who are confident that digital technologies will forge new jobs and help address social challenges is 45% (Figure 1 above).

Each new model of economic development relies on factors and conditions crucial for the successful implementation and achievement of social and economic returns (Figure 2 above).

Another important issue that will ensure the effective implementation of the intended growth path of digitalized ecosystem in the country is a pertinent institutional framework (Watanabe et al. 2018). In 2018, the Republic of Belarus and the Russian Federation adopted regulatory legal acts that govern aspects of the employment of digital economy model (see Table 1).

Table 1. Legal regulation of digitalization of the economies in Belarus and Russia

Republic of Belarus	Russian Federation
Decree No. 8 of December 21, 2017, ‘On the Development of the Digital Economy’ <i>“This regulatory legal act creates favourable conditions for the development of the IT industry and gives the country a competitive edge in creating the digital economy of the 21st century”.</i>	Order of the Government of the Russian Federation of 28.07.2017 No. 1632-p Program ‘Digital Economy of the Russian Federation’ <i>“The program aims at creating conditions for the development of a knowledge society in the country, improving the well-being and quality of life of citizens by increasing the availability and quality of goods and services produced using modern digital technologies, raising awareness and digital literacy, improving the availability and quality of social services for citizens, as well as security both inside and outside the country”.</i>
Resolution of the Council of Ministers of the Republic of Belarus of 23.03.2016 No. 235 ‘The State Program for the Development of Digital Economy and the Information Society for 2016-2020’ <i>“The purpose of the State Program is to improve the conditions that facilitate the transformation of human activities under the influence of ICT, including the establishment of digital economy, the development of the information society and the enhancement of the e-government”.</i>	State Program of the Russian Federation ‘Information Society (2011 - 2020) of 20.10.2010 N 1815-p’ <i>“This program aims at effective information support for the functioning of the main institutions of power: the Federal Assembly of the Russian Federation, the Presidential Administration, the Government of the Russian Federation, the Central Election Commission of the Russian Federation, the legislative and executive authorities of the subjects of the Federation”.</i>
Strategy for the development of informatization in the Republic of Belarus for 2016-2022’, approved by the Presidium of the Council of Ministers of the Republic of Belarus (Minutes No. 26 of 03.11.2015). <i>“The Strategy defines the principles of the state policy of the Republic of Belarus in the field of informatization and the main path of development of the information society, taking into account the combination of factors affecting its progress”.</i>	Presidential Decree of 09.05.2017 No. 203 ‘On the Strategy for the Development of the Information Society in the Russian Federation for 2017–2030’. <i>“The strategy defines the goals, objectives and measures for the implementation of domestic and foreign policy of the Russian Federation in the field of information and communication technologies, focusing on the expansion of the information society, the creation of a national digital economy, ensuring national interests and exertion of strategic national priorities”.</i>

Source: own results

It appears that Russian Federation demonstrated positive dynamics in the enhancement of digitalized ecosystem on the basis of a set of the main factors characterizing this transformation model (Zlyvko et al. 2014). It also becomes apparent that Russia is among slowly advancing countries characterized by the break out (based on 2008–2015 data) of the general level of ‘digitalization’, which is a transitional stage to a group of rapidly advancing countries (such as Norway, Sweden, Switzerland, Denmark, Finland, Singapore, South Korea, the United Kingdom, Hong Kong, and USA).

Continuous enhancement of information and communication technologies, an increase in the share of goods and services in this area, an increased level of customer demand for product quality stipulate an objective, integrated evaluation of the conditions of digital economy development at the national level. We should point out the positive experience of the Republic of Belarus. According to the recommendations of international organizations, it is essential to use collective groups by type of economic activity to measure digital economy: Information and Communication Technology Sector, Content and Media Sector, and Information Technology Industry (Belstat). As a result, the national statistics that represents the dynamics of the evolution of digital economy in the Republic of Belarus was offered.

The system of 43 indicators is grouped into 5 clusters:

1. Information and communication infrastructure (4 indicators);
2. The usage of information and communication technologies by organizations and general public (11 indicators);
3. ICT infrastructure (1 indicator);
4. Digital transformation (17 indicators);
5. National ICT industry (11 indicators).

The annual growth dynamics of the presented indicators shows the gradual transition of the Republic of Belarus to digital economy model (Figures 3 and 4).

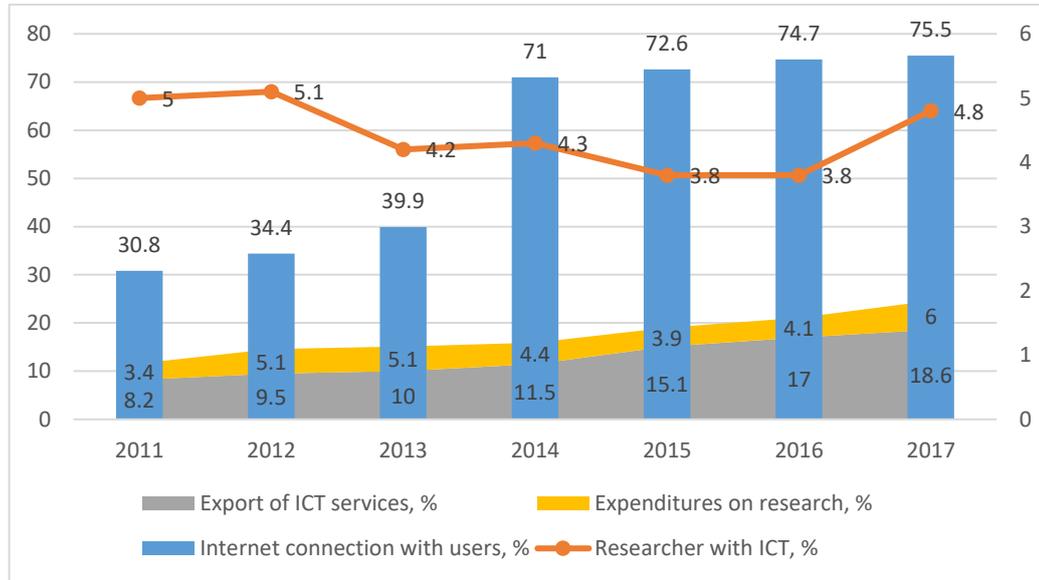


Fig. 3. Dynamics of specific indicators of the development of the digital economy in the Republic of Belarus for 2011-2017, %

Source: Own results

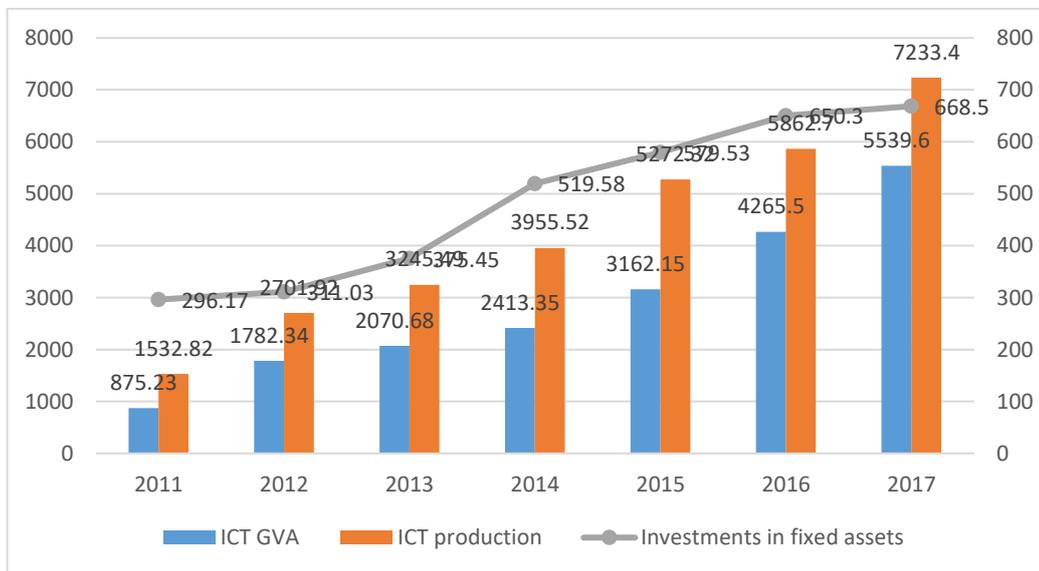


Fig. 4. Dynamics of specific value indicators of the development of digital economy in the Republic of Belarus for 2011-2017, thousand rubles

Source: Own results

4 Conclusions and implications

Overall, it seems that the paths by which the countries transit to digitalized ecosystem may be disputable. Some counties have displayed high degree of advancement, but now are at risk of falling behind. A smaller percentage

of governments has been among the leaders and does not seem to be willing to lose their prime position. The results of our analysis revealed some interesting implications.

First of all, there is a need for the multi-categorical apparatus to the definition of the term 'digital economy'. Thus, we defined that it is a system of economic and social relations based on the use of ICT in all spheres of a country's life. The potential of countries to develop strong digitalized ecosystems is much dependent on how well the countries use artificial intelligence, machine learning, big data, robotic control algorithms, Internet of things, and the like.

Secondly, the factors that frame digitalized ecosystem seem to be important. Human competencies are playing crucial role in how quick a country will transit from knowledge-based to digital economy and adapt to realities of 'virtual' world (Dufva and Dufva 2019). Any further analysis should start with people's digital literacy. Thus, Russian and Belarusian societies should switch into more positive thinking about the opportunities that technologies would bring by creating jobs and helping fight societal issues. If one day those countries want to be and remain among the developed economies, they should start with educating their people with definite competencies and expand the class of technological entrepreneurs and managers. The low level of people's engagement can be elucidated by the fact that they do not understand and see their future within this 'digitalized' and 'computerized' reality. Therefore, the citizens need to be refined and updated on understanding of the digital opportunity.

Third, governance of digitalized ecosystem is required. Enabling regulatory frameworks is essential to secure the effective implementation of the intended path to digitalized country's ecosystem (Stoica et al. 2013). The Republic of Belarus and the Russian Federation, which adopted regulatory legal acts regulating aspects of the implementation of digital economy model, took the first steps in 2018. A number of research papers and reports demonstrate that Russia is doing well. In fact, it is slowly advancing and moving in the course of stand-out countries. The time will show whether the measures adopted were helpful and did not have an adverse effect by putting rather limitations on innovations.

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