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DIGITAL TRANSFORMATION AND SERBIA*

Digitalna transformacija i Srbija

Abstract

The new digital economy, as an economic activity resulting from billions of online connections between people, businesses, data, devices and processes, has created extraordinary possibilities for individuals, companies and countries to improve their competitiveness strategies owing to new technologies. This paper presents the digital globalization challenges faced by the companies. It has developed the proposition that companies must adjust/change their business models by empowering their digital assets and reclassifying the items entered on the digital liabilities side. The paper also includes an analysis of Serbia's innovation ecosystem and its preparedness for digital strategy implementation. Under the assumption of more significant government investments in digital infrastructure, support for the necessary legal framework and development of entrepreneurial and digital competencies, the paper presents measures for improving the digital agenda for Serbia on the road toward its social and economic recovery.

Keywords: *new digital economy, digital transformation, innovation ecosystem, digital strategy, Serbia*

Sažetak

Nova digitalna ekonomija, kao ekonomska aktivnost koja proističe iz onlajn povezanosti više milijardi ljudi, biznisa, podataka, uređaja i procesa, kreirala je izuzetne mogućnosti pojedincima, kompanijama i zemljama da unaprede svoje strategije konkurentnosti zahvaljujući novim tehnologijama. Ovaj rad prikazuje izazove digitalne globalizacije sa kojima se kompanije suočavaju. Otuda i propozicija da kompanije moraju prilagoditi/promeniti svoje poslovne modele jačanjem svoje digitalne aktive i reklasiranjem stavki koje se nalaze na strani digitalne pasive. Ovaj rad takođe uključuje analizu inovacionog ekosistema Srbije i njegove pripremljenosti za sprovođenje digitalne transformacije. Pod pretpostavkom da država ostvari mnogo značajnije investicije u digitalnu infrastrukturu i pruži podršku za potreban pravni okvir i razvoj preduzetničkih i digitalnih kompetencija, rad ukazuje na mere koje je potrebno sprovesti u cilju unapređenja digitalne agende Srbije na putu ka svom društvenom i ekonomskom oporavku.

Ključne reči: *nova digitalna ekonomija, digitalna transformacija, inovacioni ekosistem, digitalna strategija, Srbija*

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Introduction

The 2007 crisis caused serious consequences to the world economy and international economic relations. It posed serious questions about the character of the functioning of the capitalist system, quality of financial market regulations, the perception of new political, social and economic risks, economic policy instruments used in fighting against recession, new sources of growth and so forth. However, the world is now more interconnected than ever before. The globalization process, which was characterized by rapidly growing flows of international trade and finance in the 20th century, continued at a fast pace in the 21st century owing to digital flows (used cross-border bandwidth has grown 45 times since 2005, and it is projected to rise another ten times over the next couple of years). Now the data flows have a greater impact on the world's GDP growth than the goods flows. Those flows have become more knowledge-intensive than capital and labor-intensive, which was the case in the last century. The exchange of free contents and services is much greater now. Digital infrastructure has become equally important as traffic infrastructure. A much more important role has been assigned to small businesses (they are becoming "micro-multinationals" by using digital platforms to connect with consumers and suppliers all over the world) and individuals (direct participation in the global world by using digital platforms to learn, showcase their talent or participate in social networks). Prompt access to information at the global level has been enabled. We are witnessing a distinctly rapid increase in the application of the main technologies (mobility, cloud computing, business intelligence, social media, AI), which transform business methods and open new spaces for new value creation. This is the era of global digitalization.

By presenting the concept of the new digital economy (NDE), the paper aims to point to the challenges that companies and countries are facing in the world of global digitalization and, on the basis of the overview of the status of ICT development in Serbia, offer recommendations for improving Serbia's digital agenda, thus increasing its level of competitiveness.

The new digital economy

According to Rose and Schwab [29], [32], the fourth industrial revolution is the "creator" of the NDE, empowered by advanced "cyber-physical" systems spanning "advanced" manufacturing, transportation, services, and even biological systems.

In other words, the NDE is understood to imply the framework of advanced ICT-based technologies and processes:

1) Robotics and automation;
2) New data sources that enable the use of global mobile and Internet connections;
3) Cloud computing (the model that enables ubiquitous, convenient and on-demand network access to a shared pool of adaptable computing services that can be rapidly provided with minimal management effort or service provider interaction);
4) Big data analytics (set of techniques and tools for processing and understanding enormous sets of data obtained by digitizing various contents and expanding the Internet of Things (IoT) (set of devices and objects that can be changed through the Internet, with or without the user's active participation)); and
5) Artificial intelligence.

The factor underlying the rapid growth of the new digital economy (still in accordance with Moore's law) involves ICT improvements, prevalently in microelectronics, at an exponential level. Owing to advanced ICT, three trends have emerged within the NDE. First, the accumulation of huge amounts of data, also on the account of new sources (from smartphone to sensors), has opened up extraordinary advancement possibilities, while at the same time observing serious risks. Second, companies have used these technologies to define new competitiveness strategies and platform-based business models, thus changing the characteristics of business activities of many industries. Third, the exponential development of microelectronics has created the possibility for the development of practical applications for machine learning and the breakthrough of artificial intelligence into cognitive areas, as well.

Owing to the Internet, transformations range from consumer behavior to new business models (many sectors, from telecommunications, media, banking, financial services, health and retail trade to entertainment industry and the like, are undergoing a digital transformation process). Like never before, both individuals and companies can participate in the creation of new value, innovations, exchanges of knowledge and experiences and social interaction on the global level. The Internet has become a part of everyday life and has "given birth" to a new generation of young people having different expectations than the previous one. The new development of the Internet has enabled interactivity and participation. It is now the "Internet of everything" which enables companies to radically change their interaction with consumers and supply chain management.

In essence, the Internet consists of three conceptual clouds constituting the infrastructure of the digital economy and enabling accelerated resource flows and the creation of new markets: connection cloud, which is used for information transfer; resource cloud, which is used for data storage, and social cloud, which is used for connection and cooperation.

The Internet has enabled a growing interconnectivity, thus providing scope for digitization (converting information from an analog signal into a binary bit) and the growth of digital technology ecosystems to initiate the digital transformation processes on a global level, thus changing the ways in which people communicate, companies operate and innovate, and countries define new competitiveness policies and digital agendas.

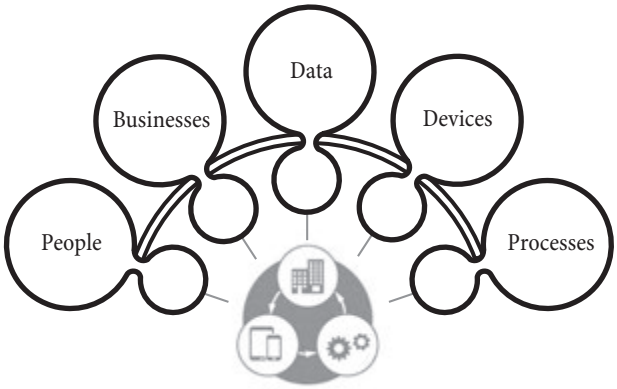
The architecture of the new digital economy is characterized by compatible technologies and production platforms [27].

The NDE has been similarly defined by Van Alstyne et al. [36], using the Amazon platform as an example and all advantages of directly connecting the two sides of the market, maintenance costs and simple possibilities of expansion (and thus extraordinary possibilities for using a rich database).

NDE development generates both opportunities and risks. Using its transformational component, it will create winners and losers. On the basis of the thesis about information accessibility and democratization, some theorists hold that the NDE could lead to a more even and sustainable development rather than to the maximization of profits, and resource extraction and utilization [8]. Rus [30] points out that personal robots may certainly be helpful to the infirm and disabled, and be flexible enough to become well-integrated into everyday life. However, it is more widely held that the NDE will generate new forms of risk and that the differences will be enhanced.

McAfee and Brynjolfsson [13] support the thesis that the development of computerization and artificial intelligence will result in the disappearance of a large

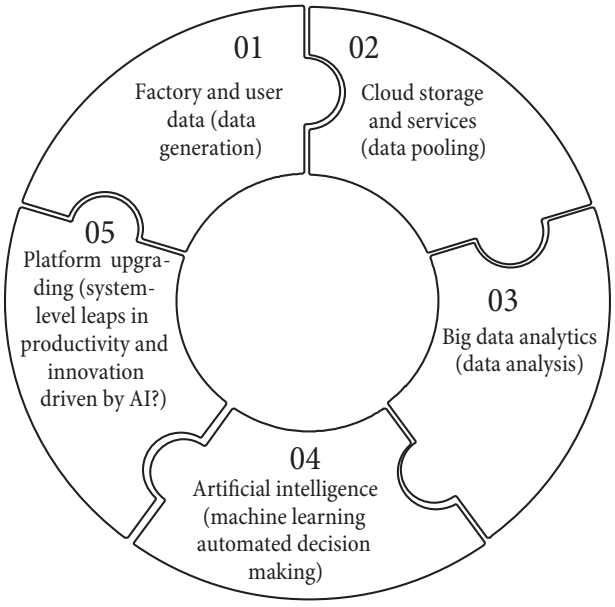
Figure 1. What is the digital economy?



Digital economy is s the economic activity resulting from the billions of online connections.

Izvor: [15].

Figure 2. A cycle of platform upgrading in the new digital economy



Source: [37].

number of jobs, especially in knowledge-based industries and services. On the other hand, Autor [1, pp. 3-30] advances the thesis that developed countries have so far displayed a distinct ability to create new industries and generate demand for new competencies and skills, thus creating jobs.

De Stefano [5] points out that a "gig economy" may be creating a precarious class of "on demand" workers, or "dependent contractors" [34], including knowledge workers, who are part of a broadly emergent "precariat" without any clear institutional means for organizing. Shiller [33] points to the potential jeopardization of the bargaining power of consumers using big data analytics and artificial intelligence in real-time analyses of their buying behavior and projections of their price expectations. On the other hand, however, automation, mass customization and shorter supply lines could lower prices and greatly improve consumer satisfaction [2].

It is evident that, in an attempt to understand the possibilities and risks associated with the NDE, there are different views on numerous topics. Thus, we can expect various debates on widely varied topics, bearing in mind the pace of technological development and its possible consequences.

Business challenges

The nature and pace of technological change have also forced the companies to face serious problems of how to adjust their organizational structures and business models in order to maintain and/or enhance their competitiveness levels. A considerable number of companies, however, face the challenge of surviving in conditions of intensive digital disruption.

Digital transformation has imposed a change in the business model. Abundant data and the possibility of their exploitation have fundamentally changed business-to-customer (B2C) and business-to-business (B2B) relationships. The application of new technologies and the vigorous increase in use of mobile devices have opened up extraordinary opportunities for a more productive development of all economic activities, putting the consumers at its center, where they have set out their demands through the expectations matrix that their needs can be satisfied any time, any place (24/7).

Many companies have redefined their business models and joined various platforms in search of a sustainable, more efficient and competitive business model (under a credible threat of digital disruption in their area of business, as well). Naturally, apart from opening up plenty of business opportunities, these tectonic changes have also generated numerous challenges and topics for discussion.

One question that has become at least as important as the inevitability of joining digital transformation flows is the question of cybersecurity, data protection, privacy and intellectual property. In the labor market, the "war for talent" is evidently ongoing, coupled with the need to change the educational curricula in order to suit the current and future demands of employers.

It should also point to the importance of the impact of digital transformation, as well as of cultural and digital trends, on the work environment and evolution of the traditional work environment into modern collaborative networks where companies rely to a greater extent on performance results, thus providing employees with more flexible and technologically advanced working conditions, and destroying organizational silos. The trend of business model diversification entails the efforts of individual organizations to direct knowledge and skills development toward empowering employees to learn new things and to become "authentic digital companies" regardless of their field of activity or industry.

Companies face a serious demand to first understand, and then strengthen their digital balance sheets. In other words, while searching for an adequate answer in the world of digital challenges, companies must build their own digital assets (big data and advanced business analytics relating to consumers, suppliers, employees, competition; development of leadership and digital culture in companies; building digital infrastructure, etc.) and reduce their own digital liabilities (organizational and cultural restrictions; IT systems, processes and tools limiting flexibility; preservation of inflexible strategies unsuitable for a rapidly changing business environment…). Some kind of digital transformation has been inevitable. The improvement of the innovation culture in companies and strengthening

the human potential by raising levels of digital skills, improvement of processes and organizational structures to meet the demands of the global digitalized world have become a conditio sine qua non for modern business.

In an IBM study [9] based on a representative sample of more than 800 CEOs, we found some answers to the questions of how some companies and their CEOs prepare themselves for new challenges. The survey shows that the highest percentage of respondents understand global developments and focus on strategy and its directions while trying to explore the potential for new and nontraditional sources of growth. To this end, they assume a new or different role in their ecosystem (Figure 3).

Using the examples of new business models (Uber or Airbnb and similar platforms that have eliminated traditional market imperfections because classic intermediaries have disappeared – by directly confronting supply and demand, consumers get promptly what they need), the surveyed CEOs have mostly reported that they intend to use new and emerging technologies and ecosystems to generate new revenues or create new business models. Also, more than two thirds of the respondents predicted personalized approaches to customers, which implies a much better knowledge concerning their needs, habits and lifestyles. This will certainly be contributed by the development of cognitive technologies (instead of limited traditional algorithm-based systems), which will be applied to new tasks and needs owing to experience-based learning.

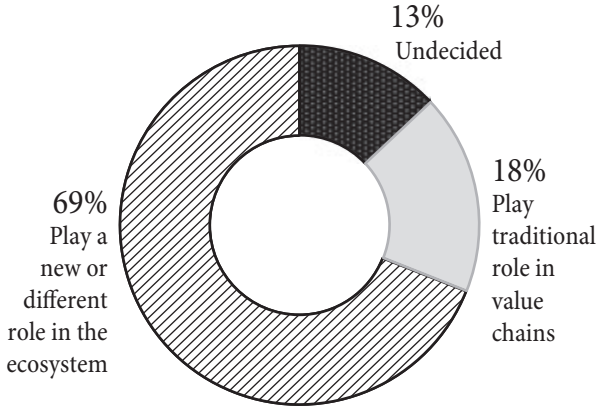
In that context, the demands of the modern consumer and the unprecedented speed of communication and transactions have imposed the need for companies to operate and adjust their models to real-time business. The main factors imposing the need for real-time business include technology, consumers, employees and business networks in the supply chain (Figure 4).

According to a SAP study [31], some technologies, which have determined certain technology trends while simultaneously being developed, impose the need for companies to conduct real-time business and thus increase the level of their agility, which is of the utmost importance for the improvement of their competitiveness in a highly dynamically changing environment, including:

1. Hyperconnectivity, which shapes the way people buy and sell their products, and changes the way technology and other companies conduct their business, owing to the IoT and sensors, Internet and mobile devices;
2. Supercomputing. Enterprise systems are shifting from a single cost-performance approach to two distinct paths: in-memory computing and distributed computing;
3. Cloud computing, which offers software, infrastructure and platform as a service;
4. Smarter world, which uses sensors, various predictive models, augmented reality, 3D printing and the like; and
5. Cybersecurity, which poses one of the greatest risks, and forces the companies to face new security standard challenges.

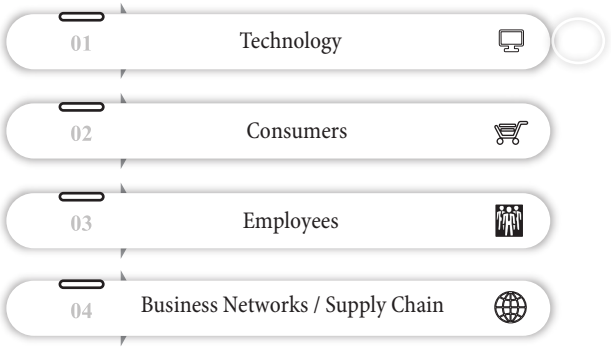
Apart from technologies, consumers also accelerate business responses, since they want personalized services

Figure 3. Business biome: CEOs want to reposition their enterprises in the ecosystems they inhabit



Source: [9].

Figure 4. Real–time business drivers



Source: [31].

and need them right away. Anytime, anything, anywhere! The hitherto dominant focus on the product, material, price and quality also shifts, since the consumers can get what they wish exactly where, how and when they wish to get it. The path of the consumer journey and its dynamics have also changed. It is now interactive and followed in real time.

Company employees are also an important driver toward understanding the need for real-time business. Owing to their customer experience and demands, they can contribute to a large extent to shaping and innovating processes, tools and business organization, thus improving customer service.

The supply chain, services and distribution partners throughout one's business network are driving the expansion of digital ecosystems. It is of utmost importance to adjust them to consumer experience strategy in order to be able to deliver products and services as promised.

Improving the digital agenda for Serbia

There is no doubt that the development of the Internet and new technologies has also opened up new opportunities for countries to achieve competitive advantage.

Any country has the instruments that should empower the market forces to differentiate winners from losers in the process of digital transformation. Investments in the expansion of digital infrastructure and the widest possible access to the Internet are of utmost importance. By encouraging innovation and entrepreneurship, countries also create the basis for improving productivity and ensuring long-term sustainable economic growth. To this end, priority should be given to education and raising the level of digital literacy.

The general state of the innovation ecosystem and digital transformation readiness

International studies on innovation, competitiveness and digital transformation readiness always present a broader picture of the digital economy than the one we see through the prism of the domestic IT industry. The recently published Global Innovation Index [3] analyzes the relevant data from many studies dealing with education, science, migration, entrepreneurship, rule of law and the like. The Figure 5. shows a diagram (based on the data from the above mentioned study) in which the scores awarded to Serbia's innovation ecosystem are compared with the typical scores in Europe for "lower" and "upper" middle GDP countries in seven index categories: institutions, human capital and research, infrastructure, market sophistication, business sophistication, knowledge and technology outputs and creative outputs. It is evident that Serbia's scores are below the European average in all seven index categories; its scores are almost the same as those typical of upper-middle GDP countries, with the exception of the market sophistication score.

The Readiness for the Future of Production Report [23] enables the comparison with the neighboring countries in several important categories, based on 59 indicators. Two categories refer to current production, while the remaining six refer to the drivers of production or, in other words, the readiness of the economy to respond to future challenges. Serbia scored 5.2 on the structure of production and 4.6 on the drivers of production, due to which it ranks among the "beginner" countries.

When comparing the drivers of production, the indicators show that Serbia has a very modest capacity in terms of the demand for innovative products and services, as well as the adoption and application of new technologies [23].

In all innovation ecosystems, the ICT sector is the "basic element" that brings together different disciplines and makes them more competitive. The OECD Digital Economy Outlook emphasizes that the ICT sector is a key driver of innovation, accounting for the largest share of research and development and one third of total patent applications worldwide [19].

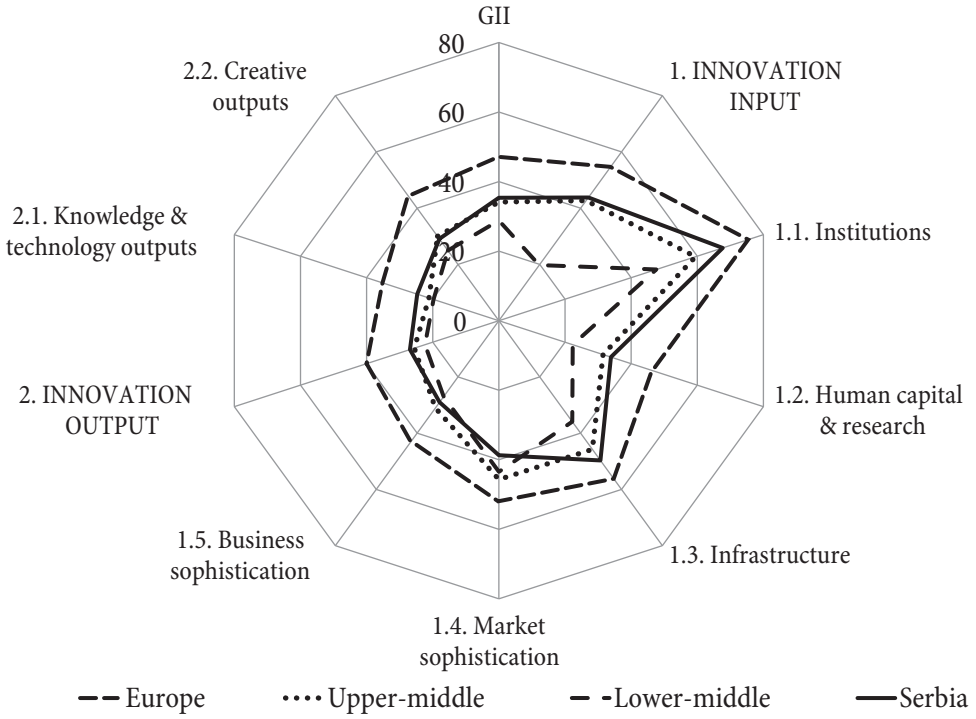
The situation in the ICT sector

IT-related jobs are simply outsourced to other parts of the world via the Internet, which is why the labor market has become global. Big software companies have created a large number of jobs in Serbia, offering much higher salaries than the country's average salary.

At present, the supply of IT specialists is much lower than the demand for them. The limited high-quality human resources are not sufficient to satisfy the needs for the digitization of the government administration, digitization of domestic enterprises, future IT human resources training and export-oriented IT industry. In fact, only the IT industry is able to offer competitive salaries and employ almost the entire available human capacity.

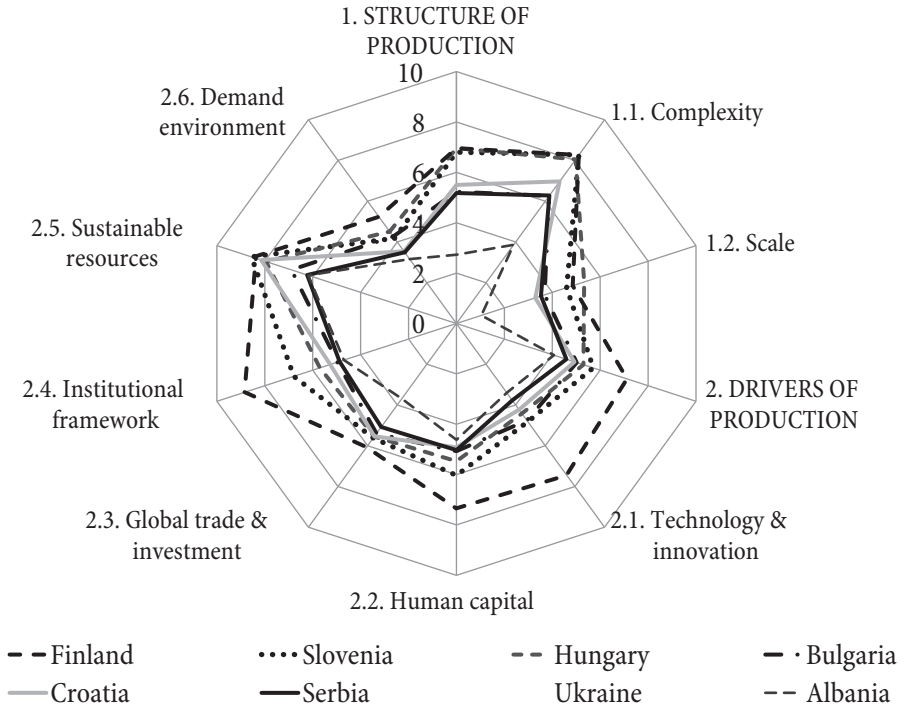
The result of labor market disruption is a large outflow of the most talented people from the part of the IT sector

Figure 5. Global innovation index



Source: [22].

Figure 6. The Readiness for the future



Source: [22].

working for the domestic market toward the part of the IT sector working for foreign employers and exporting software. In most cases, software and intellectual property rights belong to foreign companies.

Foreign IT companies mostly employ programmers, due to which IT is still not the "horizontal sector" that will bring together various sectors and thus become the driver of economic development. Domestic IT companies are few and do not have enough capital to exert greater influence on the economy as a whole.

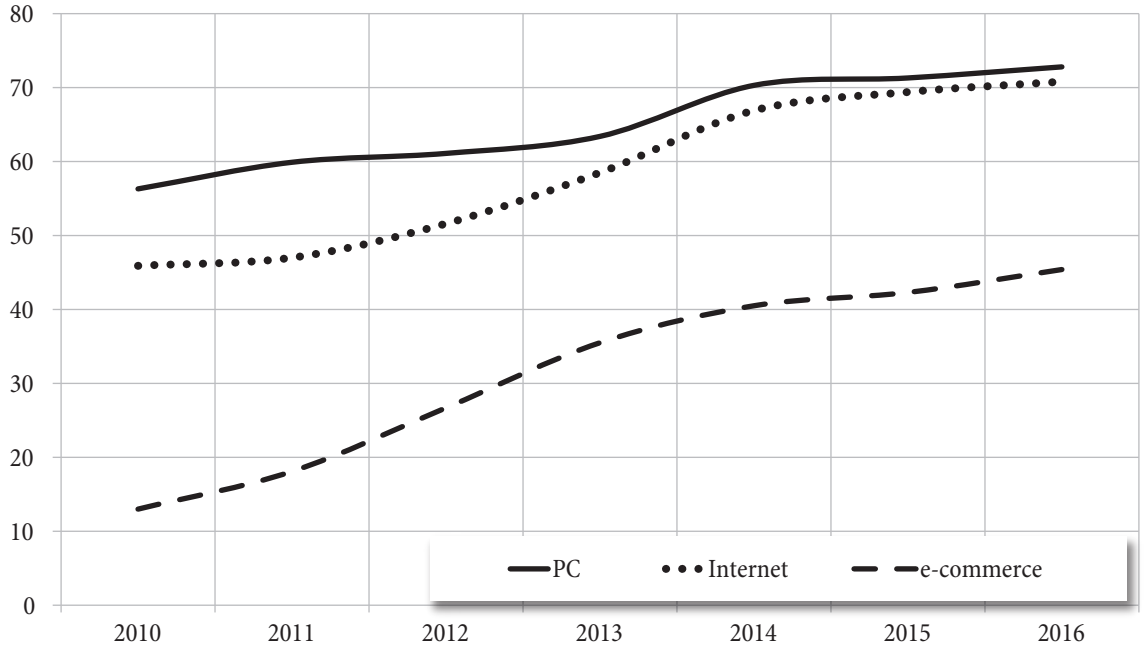
Due to the constant well-paid job offer from abroad and the unfavorable business environment in Serbia (lack of incentive for beginners, difficulties associated with foreign exchange operations, lack of financial instruments for micro and small-sized enterprises, etc.), a great number of programmers work in the informal sector. It is estimated that there are few tens of thousands of freelancers in Serbia whose labor and legal status has not been resolved. Therefore, they rarely decide to set up a company, hire workers and expand their business.

In general, the Republic of Serbia invests little in IT infrastructure and human resources. Although the return on IT investment is evidently the highest, investment in infrastructure (Internet, hardware, software and databases), is far below the EU average [12]. The situation is similar with respect to investment in human resources where, despite the declarative strategic recognition of the necessity of digitization, there is a shortage of as many as 10-20 thousand IT specialists for such a process [11].

The data on the use of ICT products and services during the 2010-2016 period (Statistički godišnjak Republike Srbije 2017/Statistical Yearbook of the Republic of Serbia 2017) show that the upward trend in the number of users has entered the saturation stage, which means that coverage cannot be expanded without significant investments in ICT infrastructure. In 2017, 67.1% of the Serbian population had access to the Internet, in comparison to the European average of 77.9%. According to the data of the International Telecommunication Union, the Internet in Serbia is, on average, much slower than in Europe (26.3 versus 178.0 kbps) and two to three times more expensive per megabyte of data transmission [37].

Serbian IT companies, which achieve the best performance results or, more exactly, the highest value added, and employ the greatest number of new people, mostly provide outsourcing services to foreign companies. Due to a small and insolvent domestic IT market, outsourcing contracts are frequently the only "survival" strategy for some IT companies, especially micro and small-sized enterprises [12].

Figure 7. User of ICT products in Serbia



Source: RZS

Relevant research yields rather poor results on e-commerce. Matijević and Šolaja [12] point out that only 40.2% of companies with access to the Internet were engaged in purchasing goods or services online, and that 20.9% of the companies were approached through the Internet to deliver goods or services.

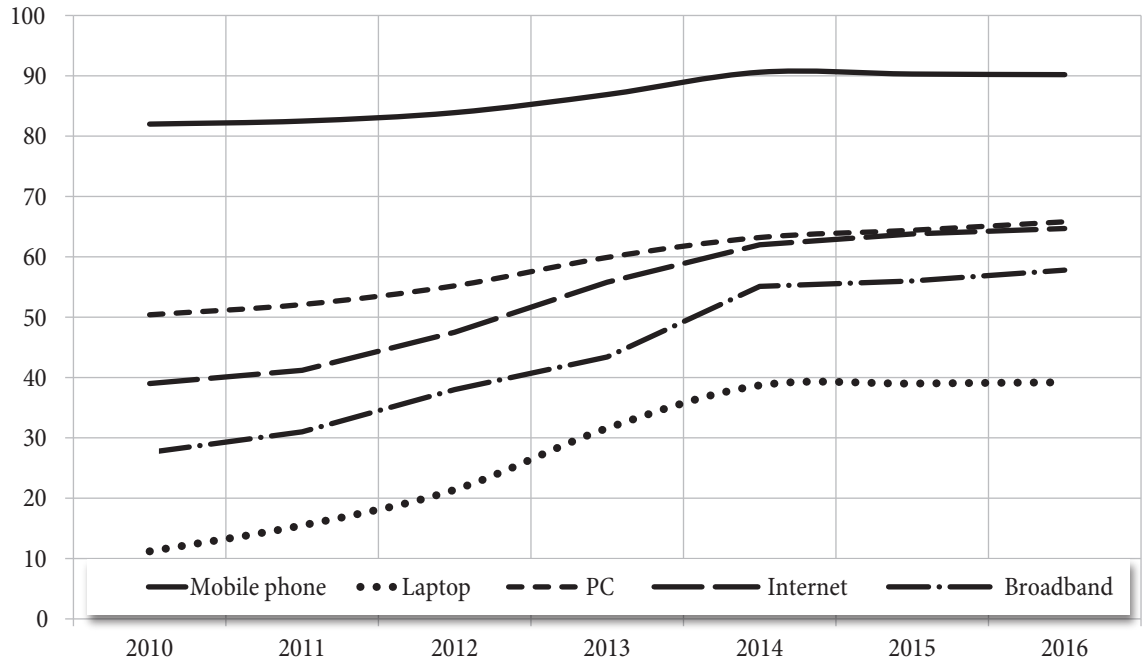
The number of people employed in the digital economy changes dramatically, mainly owing to an increase in the number of programmers, whose number was doubled from 2008 to 2016. Most of the newly employed people are sole proprietors (one-man company). From early 2017 until the end of October, 1,900 new computer programming companies were established and 1,888 are still active. About 90% of new business entities operating in this sector are registered as sole proprietorships [4].

Despite accelerated employment and high earnings of persons employed in the domestic IT industry, a very significant brain drain continues. The recent survey including 1,846 programmers, which was conducted by the StartIT Association, shows that as many as 31% of respondents intend to leave the country [21].

International studies [22] point out that Serbia ranks among the countries with the lowest capacity to attract and retain talent. There are no clear data on the impact of this disadvantage on the loss of capacity in the digital economy, but it seems that the formal education of information literate human resources cannot meet the increased expectations of the Scientific Society of Economists in terms of expansion. The Future of Production Report [23] points to one more alarming finding according to which the current workforce (it ranks 40th on the world's list with a score of 6.8) ranks better than the one we can expect in the future (i.e. 72nd with a score of 3.2).

Finally, there is a very significant regional disproportion in the distribution of ICT companies in Serbia. The data of the Business Registers Agency show that about two thirds of the total number of persons employed in the ICT sector (in programming, in particular) work for companies registered in Belgrade. The seats of the companies employing as much as one fourth of the total number of programmers in Serbia are located in Novi Sad. Up to 90% of the total number of programmers are employed in companies registered in Belgrade, Novi Sad and Niš. The highest disproportion refers to the capital of the companies registered in different regions. About 90% of total capital is held by companies registered in Belgrade. The disproportion between the number of companies and the number of their employees is much lower when it comes to sole proprietorships.

Figure 8. Households and ICT in Serbia (%)



Source: RZS.

Public policies

The most important strategic document setting the development trends of digital economy in Serbia is the Strategy for the Development of Information Technology Industry for the 2017-2020 Period[1]. The prominent strategic priorities in this area are as follows:

- Development of successful information technology companies and related products;
- Improvement of the administrative environment suitable for IT industry development;
- Improvement of human resources potential;
- IT-based modernization of business in all business sectors.

In accordance with the abovementioned strategic priorities, the Strategy anticipates the measures that should be implemented in the following fields:

- Support for IT entrepreneurship and start-up projects;
- Incentive tax policy;
- Support for entry into foreign markets;
- Support for the application of information technologies for the purpose of modernizing business in all business sectors;
- Improvement of the legal framework;
- Improvement of the human resources potential; and
- Promotion of the Serbian information technology industry.

As in the case of the previous strategy for information society development, ambitious goals are not supported by an appropriate action plan, due to which most of the anticipated activities have not yet been carried out. Action plan for the year 2018[2] of the Strategy for the Development of Information Technology Industry for the 2017-2020 Period adopted in January 2018 has quite a modest budget and does not meet the ambitious expectations of the Strategy. IT companies recognize the significance of the announced measures and the government's responsibility for establishing a system that will not only be a partner in digital transformation, but also its active promoter [6].

The Economic Reform Program for the 2017-2019 Period recognizes the significance and needs of the digital economy but, with plenty of reservations, announces more modest measures than the Strategy for the Development of the Information Technology Industry. In early 2017, according to the Economic Reform Program, the work began on a project involving the preparation of the Strategy for Smart Specialization of the Republic of Serbia. The significance of digital economy already became evident after the preliminary statistical analysis conducted by the associates of the Fraunhofer Institute [10] in which computer programming is recognized as the greatest potential of the City of Belgrade, while other digital economy activities such as IT application in agriculture or automation are recognized as an important potential for other regions.

In September 2016, the Ministerial Council for Innovative Entrepreneurship and Information Technologies was established. The Council coordinates the activities related to the implementation of operative tasks, including the improvement of conditions for digital economy development, ranging from supervision over the implementation of large infrastructure projects to solving the specific IT-related problems of entrepreneurs, such as electronic payment and equal access to Internet infrastructure.

Recommendations for improving Serbia's digital economy

After summing up what should be done in Serbia, we recommend the following:

- Fully enable e-business, which implies further harmonization of e-commerce regulations with the relevant EU regulations, abolition of the obligation to keep paper documents, harmonization of foreign exchange business legislation, etc.;
- Prepare the package of measures for freelancers and innovative sole proprietors operating in the grey economy because it is impossible for them to resolve their labor and legal status; this package of measures would enable sole proprietors to register their business in the most favorable way and obtain insurance coverage for themselves and their families, take out loans, compete for tenders, advertise themselves publicly, etc.;

1 "Official Gazette of RS", No. 95/2016.

2 "Official Gazette of RS", No. 007/2018.

- Open up the possibility of tax incentives for firms, especially small and medium-sized enterprises, which digitize their business, invest in research and development, or finance high-tech start-ups;
- Encourage companies to boost the demand for innovations through tax concessions, public procurement of innovative solutions, programs for promoting cooperation with universities and public scientific and research organizations [18];
- Manifold boost of investments in IT infrastructure, from the purchase of hardware and software to capital investments in Internet infrastructure and data centers [12];
- Prepare the package of measures that will encourage the establishment of innovative and high-tech spin-off companies of scientific and research organizations as separate legal entities that will open up the possibility of employing high-skilled human resources and researchers outside academic institutions;
- Formulate the strategy for attracting direct foreign investment to Serbia's high-tech companies, especially scientific and development centers;
- Boost investments in the human resources of the public sector, i.e. ICT competencies of the persons employed in public services and enterprises, since the digitization of the government administration and provision of their services to citizens largely depend on their ability to absorb innovations;
- Invest in all forms of formal and informal education which improve the ICT competencies of students and employed and unemployed citizens through work practice, on-the-job training, distance learning, study visits and various lifetime learning programs;
- Introduce basic registers into the e-government system [17], thus obliging the government bodies to digitize one part of their activities;
- Work systematically on the promotion of Serbian IT products and services;
- Encourage large companies and financial institutions to invest in open innovations, seed capital funds, accelerators and start-ups;
- Increase technology absorption and diffusion [18], specifically by using mobility and international cooperation for the purpose of better absorption of new technologies and exchanges [3];
- Use the existing research and development capacity for the analyses needed for the digital transformation of society, piloting the application of new technologies, public-private partnership in the high-tech field, creation and commercialization of intellectual property, etc.;
- Enable high-tech sole proprietorships and companies to gain insight into the data on the existing equipment and other resources in public scientific and research organizations, facilitate access to laboratories and use of equipment;
- Promote cooperation through clusters and value chain development, which would become Serbia's competitive advantage vis-à-vis the global market;
- Provide a detailed mapping of the scientific and economic potential through the process of smart specialization, thus optimizing investments and possibilities for international assistance and cooperation;
- Ensure technical and mentoring support for beginner sole proprietorships in the field of innovations and high technologies; and
- Ensure a greater availability of investments in the early development stage of innovative companies through alternative investment types and new financial institutions prepared for higher-risk investments.

By offering these numerous recommendations for improving the digitization of the Serbian economy and society, we have pointed out that in building the NDE, as the crucial global process which the Serbian economy is exposed to, Serbia has a great chance to be actively included in this process. At the same time, it is faced with a great challenge – how to complete the task successfully. These recommendations are merely the first step on that road which should be taken as soon as possible.

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