

Digitalization of the economy in Kosovo

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ABSTRACT: At the same time, Europe and the rest of the world with a developed market economy were taking the first steps in digital technology, initially through the expansion of the use of personal computers and further, in the implementation of electronic networks in providing an ever-increasing range of games. Services. Over the past 25 years, when and this digital development has begun, radical transformations have taken place not only in the techniques of providing services but also in the very social life of society. It is now very normal to perform banking operations at any time and in any place via smartphones at minimal cost and in real-time. In this wave of change, Kosovo cannot be a spectator. Financial services and a significant portion of public services are on the verge of digitalization to an ever-increasing extent. Of course, the difficulties and challenges of such a process are inevitable, but at the same time, the benefits are significant and vital for a developing country like Kosovo, which seeks to recover as much as possible the difference in development with the countries of The European Community to which it aspires to integrate. In this paper, the focus will be on the presentation of this new revolutionary form of development that the world is taking, as well as the acquaintance with the Kosovar reality and the challenges it is expected to face. Analyzing the challenges, advantages, and disadvantages, it will be aimed to reach conclusions and recommendations, which can serve to encourage strategic planning for the future of this development, as well as to encourage the opening of a discussion about what can be done for embrace these technological innovations as soon as possible and at the lowest possible cost.

KEYWORDS: *Economy, industry 4.0, technology, production*

Entry

Technological developments have not progressed at the same pace. The obstacles created by the lack of scientific development and the artificial obstacles of economic, political, or even religious systems have caused these developments to be lukewarm until the 18th century, especially in the field of mechanics. It was the capitalist system of the market economy, the relations it created, and the spirit it brought, the factors that channeled the rapid development of technology that began in the 1800s, a development that continues at a high pace today. Over the last 2 centuries, technological developments in the heavy and light industry have changed form and content, marking four distinct epochs of development which are often known in the literature as an industry: industry 1.0, industry 2.0, industry 3.0, and industry 4.0. The latter belongs mainly to the era of the last two decades of rapid and global globalization not only of economic relations but also of social ones, radically revolutionizing the world and the relations that develop in IT.

I. TECHNOLOGY AND PRODUCTION

The digitalization of jobs, otherwise known as Industry 4.0, essentially refers to the use of digital technology in the production of goods and services in the economy. This new technology, which has been in use for a few years, will not only increase the speed and accuracy of services but is expected to radically change the markets in the economy, especially the human resources market.

II. INDUSTRY 4.0 - DIGITALIZATION

Industry 4.0 belongs to the revolutionary changes that began in the late 20th century and intensified in the first two decades of the 21st century. The next industrial revolution is called the digitalization of production. The Internet, a mode of communication on a shared network, originally used in the military, is already a vital element, which has affected not only production but also the social life of society. The sharing of information has made it possible to significantly reduce costs and increase the benefits of interaction. The technology

advanced towards the production of independent robots, autonomous cars synchronized through a central system, satellite information on roads, weather, audio and television media, etc. This industrial revolution is developing and at a high speed. More and more public and private services are being digitized, increasing not only easy and fast information but at the same time significantly reducing monetary and bureaucratic costs. The most distinctive features of this development stage are high speed and accuracy, coordination in an ever-expanding network, increased production and cost reduction, the transformation of some existing services and emergence of new services and above all, for a range of increasing service is increasing the competitiveness of the labor market globally. In essence, digitalization or Industry 4.0 refers to the current trend of automation and data exchange at the regional and global levels, significantly improving production and trade efficiency. Today's developments on the Internet, cyber systems, server systems, etc. have enabled not only the rapid exchange of ever-increasing volumes of information but have managed to create a parallel reality in many directions. Market efficiency has increased and customer identification is reaching high levels of unimaginable accuracy. Through networks, mainly social ones, it is being achieved to identify, better and better, the needs of customers individually, which increases the accuracy of production planning and at the same time, orients producers better towards market needs. From these transformational developments, new forms of business have been created, which require new skills of the staff that serves them. This current stage of industrial development appears in the following 4 directions:

Cybersystems: A cyber system is a system in which computers, networks, and physical processes are integrated. In essence, it represents a mechanism that is monitored by algorithms based on computers closely integrated with the Internet and their users (Lee, Seshia, 2011). Examples of cyber systems include networks, autonomous automotive systems, production process control systems, robotics systems, autopilot aircraft, and more. (Hancu, Maties, Balan, Stan, 2007). The economic and social potential of such systems is much greater, which has boosted investment to develop technology in this area.

Internet of Things: The Internet has made it possible to connect to the same network of electronic devices, vehicles, and machines that are equipped with programs and sensors that enable them to connect and exchange data in real time⁵. Everything is uniquely identifiable through the computerization system and at the same time can interact with all existing internet infrastructure (Brown, 2016). The term "Internet of Things" was coined by Kevin Ashton of Procter & Gamble in 1999 (Hendricks, 2015). The things that are affected by the internet are diverse and expanding. These include heart monitoring implants; security cameras and production monitoring; vehicles with integrated sensors; DNA analysis equipment for monitoring the environment, food, pathogen or; field operations equipment, assisting firefighters in search and rescue operations, etc. (Lindner, 2015). According to expert estimates⁹, by 2021 over 30 billion objects are expected to be included in Internet networks and the total market value that will be organized through the Internet is expected to reach 7.1 trillion dollars (Nordrum, 2016).

Cloud systems for data storage: Server systems called "cloud" represent a common environment, where in addition to the ability to store data are provided many services with high quality and low management requirements by users. The advantage of this form of data storage is that it manages most of the processes itself and provides ready-made results, according to user requirements. Each user of these systems benefits from the service and pays as much as he benefits and for as long as the service is used. These systems reduce the cost of computer infrastructure and maintenance, as well as eliminate some of the work for businesses by enabling them to have higher concentrations in their core activities. Among the most pronounced advantages of these systems is the possibility that they give companies to avoid or minimize the costs of IT infrastructure¹¹. Proponents also argue that cloud computing allows businesses to get their applications up and running faster, with improved management and less maintenance, and to enable IT, teams, to quickly adjust resources to meet requirements. Fluctuating and unpredictable business (Baburajan, 2011; Oestreich, 2010).

EFFECTS OF ECONOMIC DIGITALIZATION

The Fourth Industrial Revolution, which focuses on digitalization, naturally carries the challenge of confrontation. Collecting and transferring large volumes of information creates management difficulties and brings previously unknown risks. Not only that but like any revolution it is giving its impact on the socio-economic life of individuals and societies as a whole. Among the main challenges of this transformative process I can identify 7 of them listed below (Lambert, 2017), which are divided into 2 basic categories:

1. Challenges of a technological nature such as cybersecurity, piracy and risk assessment;
2. Challenges of an economic nature such as the impact on the labor market, the transfer of data between countries, and the legal aspects related to them.

DIGITALIZATION IN KOSOVO - EDUCATION AND CHALLENGES

Digitalization Promoters: Germany has been the first country to promote the digitalization of the economy since 2011 through an economic platform. With this promotion, this country became the first to increase the

digitalization of the economy through the interconnection of production lines. Germany has been widely accepted as a pioneer in the fourth industrial revolution and is taking a leading role in building international standards and norms. Recognizing the need for international cooperation, Germany is working with other countries to develop and adopt global standards and norms that promote interaction and data flow. Many other countries have lined up on the front lines of promoting this new industrial revolution with great economic benefits. Czech Republic, Switzerland, England, France, China, Japan, South Korea, USA, etc. have announced their medium-term development programs in which digitalization of production is increasingly taking place. There are 25 countries from Europe, North America, East Asia, and the Pacific that produces over 75% of global production today they are also well-positioned for the future of production. Many of these countries are at the forefront of designing, testing, and pioneering emerging technologies and have developed government-led strategies to take advantage of the Fourth Industrial Revolution.

DIGITALIZATION IN KOSOVO

The level of development of digitalization in Kosovo, unlike economic or social and legal parameters, has progressed at a relatively satisfactory speed compared to developed countries and in some sectors carries almost the same level and is at the same stage of development (p .sh. banking sector). According to INSTAT data, in 2016 in Kosovo, the vast majority of enterprises (95.6%) and a significant proportion of employees (28%) used the computer for business purposes. There are 96.8% of enterprises that have internet access and 7.1% of them sell products through the internet. A wide range of public services is in the process of digitalization, offering not only convenience but also cost reduction for both the state and the citizen. Audiovisual broadcasts are in the process of full digitalization offering advantages in terms of capacity expansion and services. In the financial sector, the cyber systems represented mainly in banking networks have improved in the last 12 years, especially after 2005. There are 16 commercial banks distributed in 350 branches and agencies throughout Kosovo, which simultaneously provide banking services at 7,911 digital devices, respectively 500 ATMs and 7,111 POS (Ang. Point Of Sale). About 11% of the population made online payments in 2017, worth \$ 551 billion, up 60% from a year earlier²⁹. Insurance companies are aiming to expand the online service, as well as provide digital products such as identification of the location of motor vehicles through the satellite identification system of the location. Special trade companies in various sectors are trying to introduce digital technology through individual investments to take advantage of the advantages it offers in terms of capacity building and reducing Kosovo.

Sectors affected by digitalization in Kosovo

Among the most prominent services that have benefited from the advantages of digitalization in Kosovo are:

- Digitalization of financial services. The increasing level of financial services, especially banking operations, which is reflected in the total digitalization of banking services, the increase in the number of POS, ATMs, as well as the ever-increasing massification of the use of cards and finally banking applications.
- Transfer of services. Increasing the call center sector, which uses digitalization to transfer some services from high-wage countries to Kosovo, where wage levels are more competitive. This, of course, has transferred part of the unemployment from a developing country like Kosovo to developed countries, mainly Italy, Germany, etc.
- Benefits for tourism. Attempts to exploit the benefits of digitalization in the tourism sector have been intensifying for several years. Along with the increase of capacities and quality of tourist service that is being targeted by public and private investments and support with favorable legislation, there is a growing use by Kosovar tourism operators of the most important portals in the field of booking tourist services.
- Digitalization of public services. Kosovo has a satisfactory level of digitalization of public services compared to countries in the region. Through the MAP Kosovo system, in real-time and at minimal cost, they provide an ever-increasing range of services for companies and individuals, ranging from certificates, health cards, and certificates of contributions to the taxpayer's condition, to vehicles and driving licenses. Information, certificates, and permits related to immovable property, etc. In medicine, the project of digital transfer of all medical recommendations, prescriptions, and other services of an administrative nature are in progress.
- Digitalization of audiovisual broadcasts. In 2012, the Audiovisual Media Authority (AMA) announced its transition strategy from analog to digital broadcasting. This strategy was the first step towards the complete digitalization of television broadcasts in Kosovo. This transition is part of a global coordinated process of the International Telecommunication Union. Although June 2015 was the deadline for the closure of all analog broadcasts for Kosovo, this deadline was not reached by other countries either. The process is currently in its implementation phase, wherein some cities' analog broadcasting is finally being disconnected to be completely replaced by digital. The objective of

digitalization of television broadcasts is the digitalization of terrestrial networks to increase capacity by introducing new media technologies HD TV, DVB-T2 and DVB-H. Through this new technology, it is intended to cover at least 85% of the territory and 90% of the country's population.

- Digitalization in education. Education in Kosovo has begun to affect the comforts and advantages of digitalization. Although in the first steps, there are signs of testing platforms combined in teaching, organizing and controlling knowledge electronically, providing ample information and notifications via websites and social networks, opening personal accounts for students of universities from where they receive information online and in real-time about the obligations, exams and exam results, etc.

The impact of digitalization in the labor market in Kosovo

One of the main concerns of the digitalization of work processes is the impact it is expected to have on the level of unemployment in Kosovo. In principle, there is expected to be a shrinkage of jobs and difficulties in staying in their jobs for staff over the age of 50. But I believe that the concern here may not be as it seems. The impact of digitalization on the labor market in Kosovo is not a black and white issue. Kosovo carries its strong and weak points in this process and is facing new opportunities and threats.

Kosovo's positive points in the face of digitalization

1. The young age of the population makes it easier to train to be trained for new professions, which require new digital equipment. According to the data, the average age in Kosovo has increased to 34 years, but the world remains the first country in Europe for the youngest population. The population in Kosovo is on average 8 years younger than the population of Germany, 6 years younger than Italy, 5 years younger than Greece, 4 years younger than Serbia, 3 years younger than Mali black, etc.
2. The high level of connection of Kosovar companies with their foreign partners increases the level of penetration of technology. Almost all financial institutions in Kosovo, banks, insurance companies, pension plans, stock exchanges, etc. are either part of powerful international financial groups (such as Intesa San Paolo, Raiffeisen, Procredit, Sigal, etc.) or are partners with these groups. This makes digital technology, which these powerful financial groups are among the first to implement, bring at the same time or in a short time to their investments or partners in Kosovo.
3. Government support. Due to the increase in the quality of services and at the same time the positive perception by the public, Kosovo governments have had a positive approach to the digitalization of public services by trying to promote and use them more and more for public services.

III. POSSIBLE POINTS FOR DIGITALIZATION

1. Being the only consumer of digital products requires large volumes of funds to purchase technology. The impossibility of being a provider in the new technological environment makes Kosovo invest great values to acquire new technology. Kosovo is a small economy and, as before, is only a consumer of digital products. As before, when the Kosovar economy has bought new machinery, computers, programs, etc. from abroad, so now it will spend funds on the purchase of software and intelligent equipment,
2. Emigration of the "brain". Although to a lesser extent compared to years ago, Kosovo still suffers from the emigration of qualified specialists and talents to Western countries, where the rating is higher. This phenomenon encourages the "importation" of senior specialists from other countries, which hits the labor market in Kosovo.

The benefits that come from digitalization

1. Free labor cost. Increasingly the introduction of services using digital devices is expected to increase the level of transfer of these services from high-cost jobs to Kosovo. This is expected to increase the number of Kosovar specialists employed in providing services to high-cost countries of specialists, mainly EU countries.
2. High level of foreign language teaching. Fortunately, Kosovo inherits a learning tradition at a satisfactory level of more than one foreign language. This increases the competition of Kosovar youth in the labor market to provide various services to foreign companies, which are expected to transfer these services from their countries of origin.
3. Lack of a saturated labor market. The labor market in Kosovo is not saturated. There is still room for investment and new jobs. This could balance the impact of digitalization on job cuts by opening up new jobs that will come from new investments that can boost digitalization.

Even recognizing the high unemployment rate among young people, there is a chance that digitalization will increase with the increase in investment to produce more jobs than those that will be closed.

4. European integration. Kosovo's EU membership would put the country in a preferential position to provide goods and services to EU countries, which would encourage job growth at the same time as the digitization of the economy. In this way, integration would balance to some extent the decline of jobs that would be caused by the ongoing process of digitalization.
5. Reduction of population and labor force. This is not good news, but it is true: Albania's population, like that of many other countries, has stopped growing. Considering the number of births, which has dropped to 1.54 children per couple, as well as the high level of emigration of young people during these years, one can expect a decline in the labor force in the coming years that will decrease. Labor market pressure and consequently the unemployment rate.

Threats from digitalization:

1. Increasing the average age of the population. Demographic and social changes in Kosovo have increased the average age of the population. From year to year births do not increase sometimes show declining trends. The number of births is 1.54 children per woman, which shows that a couple does not replace themselves, and if this continues, the age of the population is expected to increase and the relationship between the third and younger ages will deteriorate.
2. Import of unemployment. There is a possibility that many domestic products will be completed by mainly Asian producers, who offer competitive prices for goods and services. This threatens the labor market in Kosovo.
3. The protectionist policies of EU countries. The possibility of drafting and implementing protectionist economic policies by European Union countries threatens companies that provide services from Kosovo to these countries. One such example was the legal change in Italy in 2017, which discourages the provision of call center services by non-Community countries such as Kosovo.

Conclusions and recommendations

Based on the level of development and the spirit brought by the digitalization of the economy, the impact of this process on the labor market, as well as recognizing the reality and challenges of the labor market in Kosovo during the development of this process, some conclusions and recommendations have been drawn.

Conclusions

- Software and electronics have been advancing rapidly over the last two decades. High-speed devices, systems with high data storage capacities, and sofas have been created which can process this data in real-time. This highly dynamic nature of digitalization necessitates occasional investment in equipment and systems to ensure that processes are carried out successfully and without loss.

- Digitalization of work has created many new professions that require high technical training and occasional training to adapt to new technology and high dynamics of digital developments. These needs for information and training exclude from integration into new jobs the existing experienced staff, who do not have the necessary time for training and integration.

- One of the elements that affect the digitalization of services is the easy transfer of some jobs from one place to another, which has significantly increased competition in the labor market and has affected the transfer of employment from one place to another, mainly from countries. Developed in developing countries such as Kosovo. Due to the lower cost of labor, many services such as call center services, accounting services, cybersecurity services, the provision of products in the field of design, architecture, marketing, etc. provided by entities and individuals located in different parts of the world. In other words, it is a growing global market for several growing categories of services.

- There is a current and potential need for legal adjustments in line with the changes and challenges that the digital revolution will bring. On the one hand, the legal protection of the "victims" of this revolution is needed, who are expected to be unskilled workers and those of above-average age unable to train according to the requirements of the new digital equipment and on the other hand lack coordinated laws. globally, who would

protect personal data in the context of expanding the volume of data and extending it, especially beyond the borders of a country?

- The level of digitalization development in Kosovo, unlike economic or social and legal parameters, has progressed at a satisfactory rate compared to developed countries and, in some sectors, carries the same level and is at the same stage of development. It should be noted here that Kosovo is almost a user of technological innovations, coming from digitalization, offering only "feedback" in the process of evolution of this advanced form of development. However, the individual contributions of Kosovar scientists and innovators should not be underestimated here, who make individual contributions to countries and institutions that are at the forefront of the digitalization of production machinery. Of course, these cases are few due to the small population of Kosovo.

- The labor market in Kosovo in recent years has benefited from digitalization. The implementation of digital equipment has enabled the opening of over 20,000 jobs in call center companies, as well as hundreds of other jobs in accounting firms, audit firms, designer offices, IT service, etc., which offer company services mainly from EU countries.

- In Kosovo, there are parameters of advantages regarding the future of digitalization in the country. The relatively young age of the population and the relatively satisfactory level of education combined with the demands for a higher quality of it, give premises for faster implementation and ease of innovation, which will stem from technological advances.

- Increased competition in the labor market due to digital technology risks fading the competitive advantage that Kosovo has compared to European countries in terms of relatively low labor costs concerning the level of qualification. From the data, it turns out that in mainly Asian countries the cost of labor for the same level of qualification is very competitive.

Recommendations

- Due to the high dynamics and relatively high costs of new technology, public institutions and companies in Kosovo should provide more funds available for the purchase of digital equipment. These funds must anticipate not only the cost of purchasing the technology but at the same time the costs of covering some of its consequences on the labor market. Specifically, these funds will be needed for staff training, as well as social support for those strata, which will not be able to integrate with the new technology.
- Since Kosovo is in the process of integration into the European Union, it is necessary to adapt labor legislation and those directly related to the labor market, with the best and most advanced models of EU countries. Here, those models should be selected in particular, which offer solutions to the problems that digitalization causes in the labor market and at the same time do not become an obstacle to the process.
- Full and medium-term government policies and programs are needed regarding the inclusion of digitalization in the country's economy. By highlighting the country's strengths and weaknesses in detail, the benefits that can be derived from analyzing the opportunities and threats posed by digitalization, especially threats to the labor market, need to be analyzed.
- Politicians in Kosovo must always keep in mind the fact that one of the current benefits of digitalization is the import of jobs from developed countries, mainly the EU. Care must be taken here in addressing those businesses that bring jobs to Kosovo using digital devices. After analyzing the reasons why they choose Kosovo and recognizing the competition coming from the countries of the region, such economic policies should be built so as not to diminish Kosovo's competitive advantage in these sectors that produce (import) jobs by using the equipment. Digital.

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