

COMMENTARY

Digitalization of the economy: Social threats

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Abstract: The article analyzes the hidden threats to society associated with the development of the digital economy. Shown are the main problems that digital can bring to social life and the fate of an individual worker. Chief among these concerns is that with the further digital transformation of the economy, more and more jobs could be threatened with extinction. The disappearance of old jobs this time will not be accompanied by the emergence of new ones. A situation may arise when the workers released due to digitalization will become not only unemployed, but also generally inoperable. A global question arises: what to do with those, who do not work, and what to support them for?

Keywords: digital economy, creative economy, social threats, institutions of power and society, precariat

The formation of the digital market space contributes to increased competitiveness, primarily in the industrial sector, through the creation of new technologies and products and their service system, expanding this market. Moreover, the digital marketplace is a modern mechanism to ensure a gradual transition from limited national markets to a single global marketplace

However, the risk that the consequences of transition to the digital economy will not be as good for people as expected is great. The fact is that the rapid rate of digital technology penetration into all spheres of modern society entails changes in the usual patterns of economic and social structure of states. These changes entail changes in the institutions of power and society, industrial and social culture, and communications. Digitalization also affects the person himself, transforming his worldview, changing values, culture of behavior, ways of socialization and human identification [1].

The scientific and business communities have long been talking about the social problems arising from the development of global processes, including the accelerated development of automation and computerization, and now the digitalization of the economy. For example, as early as 1948, the Chicago Commission called for the regulation of the use of the world's resources, what today is defined by globalists as an international regime of resource control. The emergence in 1965 of the Club of Rome, as a kind of worldwide "think tank" engaged in forecasting the development of global processes, was a response to the emergence of a significant number of worldwide environmental, economic, political, cultural problems associated with the automation and robotization of production. "It's hard to find another period in history when people have looked to the future with such genuine anxiety. Indeed, it is like going back to the Middle Ages, when the human mind was enveloped in fear of the new millennium...." [2]. This is what Aurelio Peccei, the Italian social activist, founder and first president of the Club of Rome, wrote in the mid-1960s.

Studies conducted within the Club of Rome showed that the development of automation and robotization of production processes could cause a large surplus of workers, especially unskilled ones. In this regard, it was assumed that in the future the main concern of the state and society would be to ensure for the individual his employment in the broad sense, both participation in public production, and activities of the worker's own choice for his self-fulfillment. Therefore, according to the Club of Rome participants, the world community should develop special institutions, including international (global) ones, to solve social problems related to the large-scale release of workers because of production automation.

Unfortunately, modern society's comprehension of the ongoing global changes associated with the development of the digital economy, as well as the various socio-economic consequences and its impact on various aspects of human life, lags far behind the speed of the changes themselves. The problem is that today there is a rather "smeared" expert opinion about what fundamentally new the development of the digital economy can bring to human life and society, we are only at the beginning of the road, at the beginning of a systemic understanding of what is happening in

this area. Technological forecasts about the roadmap for the development of the digital economy are much clearer; there is a lot of talk about this now, and it is quite definite. Considerably less attention is paid to the problems that “digital” can bring to public life and the fate of the worker. That is why it makes sense to talk not only about the digital economy, but also about the digital community, about the fact that there are so many new social phenomena, new processes, and new difficulties resulting from the use of modern digital technologies.

The main fear of technological unemployment today is associated with the fourth industrial revolution. This can be explained by the fact that the nature of modern technological changes is fundamentally different from what it was before. During the previous two hundred years, the place of man in the production chain, as well as the forms and methods of his remuneration for work have changed. The labor of low-skilled workers has become less and less in demand, and the labor of those who work with their heads has become more and more important. An ever-increasing segment of the population required very different qualifications from the worker at the machine, especially computer skills. Now automatons and digital technology are gradually replacing humans in intellectual and innovative work as well.

As we continue to digitally transform the economy, introduce automation and robotics systems, increase labor productivity, and replace analog systems with digital ones, more and more jobs may be at risk of disappearing. The machines that first emerged reduced the demand for muscular energy and needed a large number of operator workers to be productive. As productivity increased, lower demand for human labor could mean less pay and employment. In the coming era of digitalization of the economy, the worker will compete with digital production tools (robots, automata, software packages, artificial intelligence) and inevitably lose out to them because of their high productivity and productivity, resulting in mass unemployment, the further socioeconomic consequences of which are difficult to assess.

For example, in one of PricewaterhouseCoopers reports the shares of jobs threatened by automation in different countries by 2030 are given: in the USA - 38%, in Germany - 35%, in Great Britain - 30%, in Japan - 21% [3]. The experts of the World Bank cite even more threatening figures for developing countries - up to two-thirds of all jobs could be automated in the coming years; the only thing that could prevent this is the lack of funds for automation and low wages of the employed [4]. However, unlike in previous times, when workers released because of automation had a chance to find a new vacancy at the same enterprise, or at least in the same industry, now the release will usually be irreversible.

In this respect, the expert opinion of the World Economic Forum presented in the report “Digital Transformation Initiative” is significant: “estimates of (future) global job losses due to digitalization vary greatly, from only 2 million to ... nearly 2 billion by 2030 [2]. One of the most radical long-term projections, for example, claims that by 2100 the average global unemployment rate will reach 75% [5]. According to WEF Chairman Klaus Schwab, digital technologies will eliminate about 5 million jobs in the 15 largest developed and developing countries in 2020 [6]. On average, one new introduced robot in the world replaces 6.2 workers. According to D. Adzhemoglu of MIT and P. Respero of Yale University, there are between 1.5 million and 1.17 million industrial robots in the world now, the maximum being in the automotive industry (39%), electronics manufacturing (19%), metallurgy and chemistry (9% each) [7].

The main social threat of digitalization may be the emergence of a new phenomenon in society: e-unemployment, due to the release of workers as a result of digitalization of the economy and the emergence of a large number of “redundant people” for whom it is necessary to find some productive occupation and to solve the issue of meeting their domestic and social needs. The most prominent examples of this impact are the professions of cab dispatcher, cashier, salesperson, librarian, typist, and bookstore clerk. The scale and speed of technological changes in their professional fields is already such that dismissed workers often have no alternative but to try to change their qualifications [8]. Otherwise, we may have a situation where workers laid off due to digitalization will become unemployable altogether. This raises the global question of what to do with those who do not work, and how to support them?

In not-so-distant times, the release of workers in industry was compensated for by job growth in the service sector. However, even here there is now a significant reduction in jobs. A very large number of tasks that could previously be performed by human beings, are now performed by industrial equipment that does not involve workers at all.

Morally, society was much unprepared for the rapid breakthrough of digital computer technology, which drastically changed the world of production, while people’s psychology and their paternalistic expectations of the state remained the same. In this regard, it might seem that in the short term it would sometimes be better to freeze the situation, since stability is usually preferable to revolutionary situations, even technological ones. However, here we should clearly understand that it is impossible to restrain the development of technological changes for a long time - they will in any case get to production and society after a short time.

Which professions will be in demand in the digital economy? Obviously, it is primarily highly skilled workers with a technical background. Some of them will produce new digital technologies (programs, algorithms, new technologies, etc.) and the rest will serve the entire digital infrastructure necessary for production. The main question here is: how many jobs will these professions create? Obviously, they cannot “absorb” most of the released workers [9]. The conclusion is that mass unemployment, unfortunately, will be inevitable. Moreover, it may hit the world community, especially the developed countries, much earlier than skeptics now assume. Apparently, robotization will start destroying jobs in masse in the very near future.

Already now, we can see robotic cash registers in many stores, and cars with autopilots are beginning to drive on ordinary roads. Many countries are testing robotic cars, which will be able to almost 100% replace humans behind the wheel. No one doubts that after 2030, driverless cars will dominate the roads. The use of such vehicles in long-distance transportation has so many advantages that it will be impossible for business to refuse them.

Driverless cars, according to expert estimates, will become commonplace by 2025, and driverless vehicles will take over the entire market in 2030 [10]. Innovation will lead to enormous changes in the economy - society has never experienced such shocks before - a huge part of the population will lose their jobs, entire markets will collapse. However, the same technology will lead to the preservation of tens of thousands of lives due to a sharp drop in the number of traffic accidents.

Today we regularly hear about mass dismissals of accountants and lawyers in banking and finance. Enterprises and organizations are getting rid of human resources specialists, transferring recruitment, and personnel management functions to robots. Robotic surgeons have already appeared that are able to perform surgeries on live patients independently with the help of corresponding commands from operator-assistants. There are many such examples.

It is not digitalization per se, but people who can use the power of digitalization to achieve the right results that will be trending in the labor market. That is why the global labor market is currently experiencing a contradictory but not contradictory trend - a decrease in demand for labor while competition for versatile and highly skilled digital talent is increasing.

In ancient times, a thousand horses created jobs for a thousand coachmen, and later automobiles created jobs for chauffeurs in the same proportion. However, a thousand modern unmanned cars would have almost no need for chauffeurs, so a thousand jobs would simply disappear. Moreover, all that needed to maintain them, would be a few programmers who create the software for these cars. It will not be possible to retrain all the unemployed drivers as programmers, not only for professional reasons, but because such a number of programmers in the industry would simply be unnecessary.

Already now, we can see an active decrease in employment in the industrial sector, the globalization of the labor market and tougher competition, and a sharp increase in people working remotely. The digitalization of agriculture is actively developing. This includes improved logistics, smart irrigation, soil and crop control (including plant disease detection systems), “smart” machinery (equipped with sensors, sensors, etc.), etc. The changes in the agricultural labor market will be comparable to what we have seen before in this industry, which not so long ago employed more than 80 percent of the population. They will happen in a shorter period, but they will be comparable in scale.

Unmanned tractor projects are being tested in many countries. For example, Case1 unveiled the cableless Autonomous Concept Vehicle in 2016 and the Case IH Magnum unmanned tractor in the summer of 2017. Experts estimate that the use of unmanned tractors and combine harvesters will increase the production cycle from 8-10 hours to 24 hours, because unmanned agricultural machines are not limited in their operation to the light part of the day. An unmanned harvester is the basis for a new innovative infrastructure structure of “Smart Farming”, which will have a single digital platform, common standards and communication protocols between all machinery involved in agriculture, unified rules and requirements for it. The emergence of such a system in agriculture will significantly reduce the number of people involved in the management of equipment.

Another industry, which is threatened by technological unemployment in the near future, is construction. For example, the mason’s profession will practically disappear with the beginning of large-scale use of robotic bricklayers. Such as the Australian machine Hadrian X, which can lay 1000 bricks per hour, which is 8-10 times more than a highly skilled bricklayer can do.

New technologies, which became widespread in construction, not so long ago, have already seriously changed the way of production in this industry. These are prefabrication (and the 3D printing that goes along with it) and building information modeling. Serial 3D printing of buildings is becoming a reality - with construction 3D printers printing houses in various countries. In Mexico, for example, New Story is building the world’s first village this way. The walls of houses are erected using an Icon Vulcan II 3D printer, which squeezes cement from the nozzle

layer by layer. The process takes about 24 hours per house, and for the construction of a house with such a technology is enough for two people, one of which will control the availability of mortar, and the other - lay the reinforcement. The erection of the roof, installation of doors and windows and interior decoration is still done by special teams of builders (apparently, until the invention of appropriate robots). Two houses have already been built. The remaining 48 houses are expected to be inhabited in 2020.

At the heart of building information modeling (building information modeling, BIM) - is a digital technology to optimize the design and construction processes, ensuring the exchange of necessary information about the object of construction between all participants throughout the life cycle - from the idea of the owner and the first drafts of the architect to the maintenance of the finished building. Building information modeling now means much more than just a new method in design. Now it is also a fundamentally different approach to the construction, equipping, operation and repair of the building, to the management of the entire life cycle of the facility, including its economic component. According to the forecast of the international construction and development company Balfour Beatty by 2050, robots will displace people from the construction industry. Drones will scan the construction site, analyze the data and transmit the necessary information to robotic equipment. Humans will be left in the role of a remote supervisor managing the construction process.

The development of technology, the digital transformation of companies, increased competition for jobs, and increasing life expectancy will force workers to change their field of professional activity several times during their lives, acquiring new competencies and skills. In order to remain in demand on the labor market, a person will have to acquire new knowledge faster than before. The very notion of a profession is being transformed, since the set of competencies which an employee trained for a certain profession or specialty should possess is no longer fixed, static; competency profiles become changeable, they are modified following technological and organizational changes, turn into "dynamic portfolios".

Until recently, one could be sure that one could get an education and an appropriate profession, safely live, and work with them for the rest of one's life. Today, however, the speed of digital technology development in manufacturing is such that the relevance of the education received can be very limited in time. It turns out that most of the current professions may disappear either altogether or change significantly in the near future. A big problem in the near future will be structural unemployment, associated with the inability of people to find employment due to differences in the structure of supply and demand for labor of certain qualifications. In other words, structural unemployment arises from the mismatch between the structure of the labor force and the structure of jobs. In practice, this means that workers laid off because of the digitalization of production will not be able to find a job in their specialty. The structural unemployment also includes people who have entered the labor market for the first time, including graduates of higher and specialized secondary educational institutions, whose profession is no longer needed in the economy.

Apparently, the main impact of robotization will fall on people engaged in work requiring medium skills, such as engineers, service personnel, and working class, since their functions contain a sufficient number of template functions to allow them to be automated. It is feared that in the very near future society will no longer need people with low and medium qualifications. In addition, the need for mass education of the average level, which arose in the period of industrialization, will disappear - with many not only routine, but also intelligent operations algorithms will cope better. At the same time, the need for cooks and hairdressers will never disappear. The social consequences of such automation will lead to an unlimited increase in the number of people that society can feed but cannot occupy. Psychologically, this will create a highly uncomfortable environment for humanity as a whole. Nevertheless, the main thing in the digital economy will still be human beings. One way or another, but it will have to support and develop digital processes. This will require a lot of highly qualified workforce. In the process of digitalization, the distinction between different businesses will be blurred, leading to global competition for labor between sectors of the new digital economy. In the digital era, the difference in the competition for personnel between, for example, a machine-building company and a bank will practically disappear. Because both will need roughly the same people who will be able to modernize these industries, solve problems, create new models and business processes, process and analyze data.

When hiring personnel, priority will be given to candidates who are focused on acquiring new knowledge and skills, who strive to be in the "trend" of products of the technological revolution, rather than being focused only on the traditional model of training with narrow specialization. The conclusion from all this is that mass unemployment, unfortunately, is inevitable. Moreover, it may hit the world community much earlier than skeptics now assume. Many experts believe that robotization will begin to destroy jobs in masse in the next three to five years.

In the context of constantly evolving digitalization, it becomes impossible to learn finally, it is necessary to constantly multiply knowledge, be able to find non-standard solutions, be constantly ready for risks and make instant decisions in a multitasking environment. The main competence that needs to be developed is creativity, readiness to constantly master new knowledge on new emerging technologies. It is a key factor for successful professional growth in today's digital world.

The competence "creative thinking" means the ability to generate ideas. Creativity as a competency is becoming more and robots replace more in demand as man-machine labor. Human beings in digital production will have to focus their attention on the complex task of creating new innovative technologies, products, and solutions. Emerging non-standard situations, rapidly changing environment will require appropriate fast creative solutions.

As it is known, creativity is both a natural ability and a result of upbringing, education and life experience. The more creative there is in a person's life, the more creative he or she becomes. Certainly, there are people who are more predisposed to creativity and creativity and have the appropriate talent. People who are naturally creative need proper motivation to engage in innovative activities, above all, they need inspiration. Individuals with a naturally technical mindset and appropriate education need ways to develop their own creativity in order to work in the digital innovation economy. There are already schools that study creativity and high quality institutions of higher education that teach knowledge and skills for the development of creativity. Their experience suggests that flexibility of thinking can be developed through training and, with enough persistence; it is possible to learn to go beyond pattern thinking in a short time.

Creativity is considered the most important competence of a worker in the digital economy. However, a society in which most people are engaged only in the production of ideas is economically unsustainable. Innovative theories and inventions need to be put into practice if they are to be useful. Creative people who absorb new ideas and copy them must also do this. What should be the optimal balance between creative workers and workers who reproduce their ideas in a creative economy? According to experts, there should be no more than 30 percent of the creative class engaged in the production of ideas to maintain a balance. The remaining 70 percent of the creative class should be involved in copying (i.e., putting into practice) the concepts created.

During the 20th century, the creative class grew more than tenfold, from three million people to what it is today; its number has more than doubled since 1980 alone. Many states are now intensively building up their "creative class", as it is an engine for overall economic growth. In the U.S., the creative class is numerically larger than the traditional working class, which unites those who work in manufacturing, construction or transportation, about 38 million people, 30% of all working Americans, belong to this class. In Singapore, such people currently account for more than 50%. In European countries with developed economies, such as Great Britain, there has long been a list of occupations that belong to the creative industries, and together these occupations employ about 40-42% of the population.

The creative class includes a super creative core (creators of innovative ideas) and creative professionals involved in the materialization of ideas of super creative creators, who develop and improve digital technologies that contribute to the creation of new innovative products and services. The super creative core represents the intellectual elite of modern society (scientists and engineers, university professors, major cultural figures, experts, politicians and other people whose views shape public opinion), who are completely consumed by the creative process. In the U.S., for example, it is estimated that today approximately 15 million professionals, i.e. more than 12% of the workforce, belong to the super creative core.

One of the main differences between the creative class and the other classes lies in the source of pay: the creative class earns money by creating something new and innovative, while members of the working and service class are paid mostly for routine and routine work. Creativity changes existing values and norms of behavior, ultimately forming a new identity. Although it is considered to be a purely personal phenomenon, creativity is an integral part of the social process; it promotes new ways of life and forms of communication between people, which, in their turn, promote creative activity.

According to expert opinion of psychologists and sociologists, the natural norm of birth of "active" people, predisposed to leadership, is within 10% of the total population, to about 90% of "passive" people. Among active people, about half are born creative, businesslike, communicative and active. They form the basis of a "super creative core". Talented, tenacious and persistent in acquiring scientific knowledge and skills, creative smart people contribute to the creation of "knowledge capital" through their activities, put it into circulation and rise to the top in the digital economy. The remaining 90% of society is the majority that does not have outstanding creative qualities and follows the active ones in their lives [11].

Development of creative class and formation of specific creative innovative relations within production process leads to formation and development of creative economy, which based

on intensive innovative use of creative and intellectual resources of society and its members. Creative economy becomes the main motivator for modernization of science and education, many other sectors of social production, creating social attractiveness of investment climate. Creative economy produces, in addition to new economic and social goods, socially significant intangible values and provides sustainable human-oriented development. It creates a socio-economic environment in which people want to live, work, learn, invent and create.

Thus, the digitalization of the economy is radically changing the labor market. The creative class will be in demand, while the rest of the workforce will be at risk of being disengaged from the digital economy and the ensuing systemic unemployment. Because of the robotization and digitalization of the economy, the productive middle class begins its social drift toward the precariat - the population without a "normal" job characterized by permanent employment, stable wages and social guarantees. Only the poor can be lower than the precariat. There is every reason for the evolution of the proletariat into the precariat to continue in the near future. This new class is rapidly becoming a threat to the entire modern world - the precariat is especially characterized by: constant dissatisfaction with its position and life in general; loss of reference points in everyday existence; restlessness and alienation from society. The main characteristic of this class is the permanent status of the temporarily employed. These people can become unemployed at any time. Their lack of permanent income or stable earnings makes their social and economic situation chronically precarious.

The precariat, as a social social stratum, is completely alien to the digital economy. A specific and very dangerous phenomenon has already taken shape: a "militarized lumpen" has emerged based on the precariat, who does not (and cannot!) return to peaceful daily work. He is interested in stirring up conflicts, because participating in conflicts as well as enriching oneself through robbery is his livelihood.

Thus the digitalization and robotization of production, on the one hand, relieves man of monotonous and uncreative labor. On the other hand, it also "frees" people from their jobs. To mitigate the possible social dangers of this, there are already discussions about the creation and distribution of national income associated with the release of workers because of digitalization. In particular, the construction of a special "compensation mechanism" for them, including the possibility of introducing a universal payment, whereby a citizen of the country would receive a minimum income, regardless of their contribution to the workplace. Another very important social result of digitalization arises when it turns out that free time in modern society is no less important than working time.

The digitalization of the economy poses a very big social problem to the state and society: how can the people released from production be supported and occupied with something socially useful? That is why today the introduction of a permanent social payment for voluntary idleness is being seriously discussed in many countries. Overall, it may turn out that by the middle of the 21st century most European countries will be populated by lazy and socially passive mediocrities with free gadgets in their hands.

If we take the experience of past centuries as an example, we can notice that social dependency in all forms of its manifestations has always been a huge threat to the states, often entire civilizations have perished from it. Therefore, the primary task of the state is to ensure the softest possible transition for specific citizens who lose their jobs due to the digitalization of the economy.

It is already necessary to adapt the entire educational infrastructure to the fundamentally new requirements of the digital economy. The main competence that needs to be developed is creativity, the willingness to constantly master new knowledge on new emerging technologies. However, overall, the current system of secondary and higher education continues to produce specialists to perform template, stereotypical tasks, and training "humanoid robots" to work at various "conveyor belts" on a massive scale. In the new digital economy, most of those who are being trained today in secondary and higher education will not be in demand at all. In the digital economy, there may be many professions that do not exist. In a digital economy, many professions may emerge that do not exist now, and we should be prepared for the fact that the transformation of functions will require managers to take new approaches to working with personnel.

Authorities should promote a labor market where workers can coexist comfortably with computers and robots, complementing each other. The excessive release of workers because of the digitalization of the economy may drastically reduce effective demand, threatening the reproduction process. The economic and political systems must, in order to survive, prevent their own gravediggers - an army of unemployed, freed by robots and angry at the power that has allowed this to happen - from growing by their own hands. For humanity as a whole, global robotization and the introduction of basic unconditional income will mean another round of natural selection, with some choosing the path of passive degradation while others can use the time freed up for personal growth, learning and self-development. Thus, the digital economy brings many problems to people and society, requiring the creation of adequate structures, mechanisms and

institutions that would help create a fundamentally new environment for industrial development, improve the investment climate, free up resources and effective redistribution and use of labor.

What problems of e-unemployment can Russia face in the coming years and in the future? As early as the 1930s, Russia may be flooded with an influx of medium- and low-skilled workers from developed countries who have been freed because of digitalization and robotization. This process will be accompanied by social protests over the loss of Russian workers' jobs (it will be difficult for them to compete with Western workers), outbursts of nationalism, and the strengthening of authoritarian ideology.

Much later (due to the technological backwardness of the economy) Russia will face serious problems related to the development of its own digital economy. The primary task of the state is to be proactive. Otherwise, we will see an unprecedented increase in social tension. First, it should be a thoughtful government policy to improve training for the digital economy, develop new and transform old industries, and create new high-tech jobs accordingly.

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