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SOCIAL TRANSFORMATION OF SOCIETY IN COPE OF DIGITAL INFORMATION REVOLUTION: FUTUROLOGICAL FORECAST

Andrei N. Zlobin (a)*, Galina A. Bykovskaia (b), Marina V. Vogormian (c),
Vyacheslav N. Feshkin (d)
*Corresponding author

(a) Voronezh State University of Engineering Technologies, Voronezh, Russia, dronn@yandex.ru

(b) Voronezh State University of Engineering Technologies, Voronezh, Russia, istoria_vrn@mail.ru

(c) Voronezh State University of Engineering Technologies, Voronezh, Russia, marina.ivleva.enteach@mail.ru

(d) Bashkir State University, Ufa, Russia, vjacheslav1976@mail.ru

Abstract

The article deals with possible variations of social changes which are the consequences of digital and industrial revolution. The consequences of total information control as well as the transformations in society's consciousness and relationships between an individual and state are acknowledged. The social consequences of robotic automation are analyzed from the point of unemployment growth as well as commodity saturation which leads to value decrease of goods and services. The increase in the number of people engaged in intellectual and creative activities is predicted as well as the transformations in the system of education. As far-reaching consequences of information revolution, attention is focused on the problems of implementing virtual reality technologies and changes in biological human nature. According to the uneven development of the scientific and technical progress the consequences of digital revolution are analyzed. It is assumed that the technological revolution will lead to emerging of three types of states: producing advanced technologies, those which are able to buy them and outsiders which are beyond the scope of technological progress. Possible social consequences of this classification are considered. Finally, the following conclusions are drawn about the importance of broad public discussions on implementation of informational and digital innovations as well as the importance of process management for technological and social evolution.

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Keywords: Digital revolution, information-oriented society, industrial revolution, post humanity, social transformation, virtual reality



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1. Introduction

The development of informational technologies, robotic automation, money virtualization, the introduction of block-chain and 3D-production technologies alongside with economic and cultural globalization will certainly not only lead to the changing of established economic models but as well to some serious social transformations. A number of these transformations are already being predicted. Others will become obvious in the distant future. As a matter of fact, they are the consequences of the ongoing events.

2. Problem Statement

A number of researchers are working on the prediction of sociable consequences of the technological revolution. Among them there are optimists believing in promising future based on technological progress as well as implementing scientific achievements into all life spheres. Among them are the following researchers: Michio Kaku (2013); Schwab (2018); Toffler (2010). Other researchers tend to admonish against a number of negative consequences of the forthcoming technological changes which were caused by transformation of human nature as well as the destruction of traditional society living principles and foundations. Among the researchers who are in accordance with this course are Bard and Soderqvist (2008); Fukuyama (2008); Harari (2015); Sterling and others.

Among Russian researchers who are noted for reasonable scientific approach are Besstuzhev-Lada and Tuzovski (2009). The research of Turchin and Batin (2013) is considered interesting however controversial. Among the works investigating innovative processes from the perspective of applied sciences, the work of Lukina and Dudchak (2018) as well as Asmolova and Dedov (2018) are worth noting.

3. Research Questions

The methodological basis of the following research is knowledge-based analysis of possible social transformations and other consequences of technological information revolution. While conducting the research, the contributors based it upon the methods of scientific forecasting which are put in practice in modern futurology for instance, extrapolation, probability analysis, correlation analysis, searching for correspondence between future and current systems as well as compiling of future scenarios.

The purpose of forecasting is admonition for undesirable consequences of the socio-economic and scientific information development tendencies. The objectives of futurological forecasts are designing strategies in order to build positive processes of the future social, political, cultural and economic social spheres; designating and analyzing mechanisms for stopping dangerous phenomena for society; working out ways for giving a dynamic impulse to the factors of positive future.

4. Purpose of the Study

The purpose of this work is to analyze the supposed changes in the structure and dynamics of the society development which are performed by the development of digital economics as well as the Fourth

Industrial Revolution processes (Schwab, 2018). In addition, we are going to highlight some remote possibilities of the informational revolution within a framework of knowledge-based futurological prediction.

The objectives of the present research are forecasting of possible negative consequences of the digital informational and industrial revolution alongside with formulation of recommendations referring to developing proper environment in order to overcome negative consequences of innovation-driven growth.

The relevance of the research results from the necessity of new approaches and principles in scientific forecasting of processes consequences ongoing at present.

5. Research Methods

Even today such common constants as freedom of correspondence, life privacy, banking secrecy, etc. are fading into past. People are more and more being controlled, monitored and not only by state institutions. The aim of this tracking is to maintain security, control of financial flows and revenues as well as corporations for marketing purposes. It can be assumed that personal data access will continue to be simplified, expanding on the one hand security zone of individuals, on the other hand, reducing the level of privacy both in personal and financial matters. A society where nothing is a secret will not be able to preserve the system of values and norms that still exists today. Social morality is going to transform, the concept of unacceptable might narrowed down to a minimum. Alongside with the collapse of traditional social institutions, indifferent attitude will become dominant for concerning “private consumption, individual safety, conveniences and life satisfaction”.

At the same time, state and corporations that gain uncontrolled access to personal data of their citizens will get unlimited leverage over them. For instance, by means of blocking bank cards and transfers, property seizure, spreading defamatory information, etc. the civil society sphere will become more manageable. This may result in narrowing of the democratic procedures scope, concentration of power and finally an increase in authoritarian tendencies. We tend to agree with the opinion of Schwab (2018): “in the modern information society, the asymmetry of information may lead to the considerable asymmetry of power as someone who knows how to use this technology, acquires the power to use it” (p. 174).

The production growth, connected with the use of robotic automation, multi-dimensional printing along with rapid industry adjustment the demand will eventually lead to market saturation as well as the cost reduction in the mass consumption sector. At the same time, robotic automation will certainly lead to unemployment increase. What is more, a large number of people will have a considerable amount of disposable free time. Experiments concerning paying of the Universal Basic Income (UBI) to citizens planned in a number of countries are designed to test the mitigation of the consequences of the future negative transformations. Harari, a professor at the Hebrew University in Jerusalem, considers risks are being taken in dividing people into two large subspecies, suggests that the elite should be separated into specific kind of people – «homo deus» (God human) endowed with supernatural capabilities, including eternal life (Harari, 2015).

Even considering the best outcome against the declining production background, an average resident of the Golden Billion countries will lack a basic set of goods and services purchased with UBI to maintain decent living conditions nevertheless, self-realization as well as free-time organization issues will turn into the main problem of the society.

The solution to problem of self-realization of people who remain outside the traditional economy will definitely consider creating of new jobs in those areas where human labor is irreplaceable. Such professions include teachers, doctors, scientists, mentors, writers, performers etc. alongside with the development of technologies, automation of processes which used to require human labor, the value of human interaction is likely to increase in humanitarian and service sectors. Consequently, after going through a difficult period of reconstruction, the economic and social structure of the society will be balance out.

Theoretically, since birth every child will get a personal mentor – a qualified teacher-psychologist who determines the education pattern, engaged in nurturing positive human qualities, leveling deviation occurrences. The mentor should not work with more than 7–10 children; in addition, they will be very well acquainted with every child as they are supposed to have close relationships with the parents, teachers and friends of their mentees. The groups and classes will be selected based on the children's individual characteristics as well as their personal education courses. The increase in the number of teachers will reduce the number of students in one class down to 5–7 people which will make school education inseparable from tutoring. Such transformations will occur in the system of professional education, which will be based upon the principles of individual learning courses as well as the necessity to constantly improve or change obtained qualifications.

People's liberation from routine professions will allow a significant number of people to engage themselves in creative activities as well as scientific research.

Futurologists Turchin and Batin note:

“The main dilemma of the future is whether physical immortality will be achieved or a global catastrophe will take place. The reason for this dilemma is that technical progress opens up the possibilities which can lead to both positive and negative results... By physical immortality we mean unlimited existence alongside with self-realization whereas by global catastrophe we mean events leading to perishing of all mankind” (2013). Developing this controversial thesis, we may assume that the technological changes of the future can simultaneously lead to the immortality (unpredictably long continuation) of a human being as well as to a global catastrophe associated with the leveling of the basic culture foundations and principle, which make it actually humane.

We can assume the long-term consequences of the current technological revolution. This is the development of virtual reality technologies which alongside with the accumulation of technological experience, medical innovations aimed at the transformation of human organism, accumulation and reduction in cost of energy produced by mankind, may create a new way of living accepted by large groups of people and transform the existing ways of life. A well-known American inventor and futurist Raymond Kurzweil (2005) analyzing the development tendency of computing powers at an ever-increasing rate, predicts that mankind will soon be able to access limitless computing powers, which will expand the capabilities of our civilization, bringing it to the “posthuman” level of development, having

the capacity for extraordinary technological achievements. The development of virtual reality technologies may in the future lead to no less unpredictable consequences than common social transformations in basic reality. Supposing a group of people is simultaneously immersed in an energy-intensive virtual plan and inside a high-tech “game” is immersed into a different simulated reality considering all body organs are functioning the same way as in the real plan of being. It means that virtual reality will become real in its own way even though only at the level of perception. Kurzweil (2020) considers that:

“We will not own biological bodies. We will be able to create virtual bodies with the use of nanotechnologies; we will be able to create virtual bodies as well as virtual reality which will be real due to the fact that virtual bodies will be as detailed and convincing as the real ones. We will be able to choose the way to create new bodies” (para. 8). The speed and the quality of modeling such new realities, the number of the subjects immersed, the duration and the intersection of virtual plans may considerably change relationships between people, the course of economic and social processes in terms of basic reality.

Sublimating reality into virtuality, a person will be able to change physical natural constants, creating new mentality categories. Alternate logics will create new ethics. Consequently, it might occur that only the memory of oneself remains from a former person. It does not mean that virtual humans will walk upside down. They might not even have a head. They might be able to exist nowhere as well as in different places at the same time, disintegrate and reassemble. The course of time will go according to the given constants. In addition, a possibility of free transition from one virtual universe into another, preserving consciousness might be assumed.

6. Findings

Taking into consideration the most infernal way of development, the humanity will not be able to avoid going beyond their biological nature, automatically overpassing traditional moral principles. The new or rather a number of new realities will raise fundamentally new questions for the humanity: is it more important to develop, do research or create things in the existing cosmic space or sublimate new existence in their own? Perceive or change given reality or create virtual otherness, immersing into it, creating new consciousness in a new produced world. The basic reality risks morphing into a specific basic plan, where human’s body being a carrier of consciousness between transitions to certain virtual worlds, satisfies necessary biological and sanitary needs. It may occur that the basic plan might cease developing and will be supported in static condition that is sufficient for maintaining life, studying, personal life as well as creative activities will build up in virtual space. It may occur that biological bodies will be transformed according to the needs of virtual existence, as a result, gradually losing basic human nature. On the basis of static society, a number of intersecting and non-intersecting virtual societies occur, where a personality status is blurred in accordance with chosen roles. Moreover, in some cases, according to the programme, people may not assume that they are in virtual space, perceiving the matrix given as the only true reality. It is also possible that both basic plan and created realities characteristics will intersect which will make possible to go beyond basic physics: for instance, go back in a million light-years or into the past. Considering this context, basic reality might turn out to be anything, for instance, a

phantom of imagination of someone with super-human brainpower or according to Nick Bostrom (2020), a Swedish philosopher at the University of Oxford; it might be an imitation, an artificially created super-developed civilization, having obtained-super energetic and technological powers etc. In any of these ways our reality will occur as a result of our consciousness activity, a result of creativeness, the main objective being the development of life and consciousness, which in turn having reach a certain level, deals with creative activities including creating life and matter.

In the context of these assumptions and prospects of artificial intelligence development, there is increasing risk that real physical world will appear under its power alongside with unpredictable consequences.

A considerable problem caused by digital revolution that is taking place today, is uneven economic and social development in different countries. The countries included in the so-called “Golden billion” zone (Kara-Murza, 1999) or “wealthy North” are an oasis of prosperity compared to the rest of humanity – contingent “poor South” (Kuliabin & Semin, 1991). The level of consumption in richer countries is considerably higher, social relations are much more stable; furthermore, environmental situation is much better. A significant number of people living in Central and South Africa, India as well as several other countries are suffering from famine, lack of high-quality communication, access to basic public health services along with basic education. Due to relocation of harmful industrial manufacturing from the “Golden billion” countries to a number of developing ones, experts and public activists are deeply concerned about the ecological situation there (Lebedeva, 2020).

The important feature of the world differentiation is that developed countries alongside with the transnational corporation within their jurisdiction, have opportunities to sustain and support the infrastructure of “big science”, fund, maintain and implement advanced developments (Lebedeva, 2003). These countries and corporations are the centres of world finance concentration in addition to being key investors. Therefore, technological innovations of the Fourth Industrial Revolution will take place within the territory of the “wealthy North”. These countries will find it easier to cope with social costs of the new technological reorganization (Keohane & Nye, 1972).

The forthcoming technological changes are most likely to lead to a new kind of state differentiation. Technologically developed countries possessing powerful science, investment prospects and developed industrial assets will belong to the first world countries. These countries will be able to produce new-age technologies as well as export them.

Those countries which will possess considerable financial possibilities due to accumulated funds, exporting of energy resources as well as military and space technologies are likely to belong to the second world countries. These countries will be able to purchase advanced technologies from the first world countries and thereby reequip their own industrial base. It can be assumed that the countries of this group will eventually face the same social problems (primarily mass unemployment) as the first world countries. Except solving these problems due to the limitation of funding, ineffectiveness of the state apparatus as well as considerable costs of maintaining law enforcement agencies will be much more difficult. The growth of labour productivity in the second world countries may become an indirect cause of mass social movements, which in turn are a threat to the stability to state institutions which are main organizers as well as beneficiaries of innovation-driven technological changes. This closed circle will become an

important issue for the ruling elite of these countries in the forthcoming decades; thereby overcoming it will become one of the mandatory conditions of their further development.

The distinctive features of the first and second world countries are the differences in the nature of political systems as well as the level of corruption in state institutions. The most technologically developed countries are stable democracies with low level of corruption and developed civil society. The countries which are most likely belong to the second world group, especially, China we can see a clearly developed authoritarian political model that tend to restrict the freedom of civil institutions.

According to this, solving the problem of total corruption and establishing effective interaction between the state, business and society is of great importance for the future of Russia. The group countries that Russia may have an opportunity to join to is going to depend on solving long-standing internal contradictions, creating models of effective fund raising in order support technological projects. We assume that considering proper administration, Russia has enough technological, industrial, scientific as well as human potential to overcome crisis and therefore be among the developed first world countries.

The group of third world countries will include those ones that will not be able to produce technologically advanced goods based on robotic manufacturing and block chain, or purchase appropriate technologies. Poor countries will face the consequences of global digitalization without any ability to manage or influence these processes. A number of developing countries will face the challenge of bringing businesses by owners within their own jurisdiction, due to the fact that robotic labour will become cheaper as well as more efficient than the most poorly paid human labour (Utkin, 2001). In some countries, problems related to the environment and uncontrolled population growth may worsen. The lack of drinking water as well as food may lead to circulation of huge masses of people (Nye, 2002). Against the background of mass migration of millions of people from India and Central Africa, modern difficulties of European countries related to reception and living arrangements of migrants may become less significant. Therefore it may be assumed that wealthy countries are likely to cope with the problem of unemployment and maintenance of free workforce however, mass migration can seriously undermine stable innovation development of postindustrial economies. This will eventually cast doubt on the transition to a new phase of social and technological development (Huntington, 2006).

The uncontrolled proliferation of chemical and nuclear weapons, which may become easier to produce taking into consideration new technological platforms, can become a serious problem. It may be assumed that rich and influential circles of the third world countries that are funding terrorist organizations today will be able to sponsor the production of portable nuclear warheads as well as other kinds of equally destructive weapons. The growing crisis situation in poor countries will become an important factor in exacerbation of the sense of the world order injustice, which in turn may lead to terrorist-oriented opinions in underdeveloped countries (Malashenko, 2006). Rich countries run the risk of facing not just a flow of migrants, but an invasion of aggressive people who rather want not only to find shelter, food and a job, but also to let out anger and aggression on the representatives of more successful societies.

7. Conclusion

Considering the framework of the article, we were not able to focus on all predictable social consequences of digital revolution. The prospects of social evolution related to environmental, migration,

space as well as other aspects of technological and information transformation were beyond the scope of our work. The issues of uneven technological and social changes in different parts of some larger states as well as possible conflicts which might be caused by the disproportion should become the topic of a separate research. The analysis of risks connected with the evolution of artificial intelligence, coming to a point of technological singularity, when machine intelligence go beyond human control and technological development may be characterized as uncontrolled and irreversible should be assumed a related issue (Chalmers, 2010).

Nevertheless, we consider it possible to draw the following conclusions based on analyzed data in the article.

According to the fact that technological progress is inevitable and social transformations are inevitable consequences, the humanity should realize these processes and analyze their social, cultural and economic consequences. Without analyzing as well as understanding the consequences of economic and technological revolution, there is no possibility to manage and control them. We consider it is an issue of developing and surviving of our civilization.

Planning of technological innovations and their consequences plays an important role. The regulation issues should be discussed internationally among a wide circle of expert community as well as civil society.

As a result of profound analysis, broad public discussion and realizing risks, it is important to develop clear goals for society development. The absence of a global goal leaves modern society with the only objective – to consume as much as possible, produce and consume even more. We assume that humanity deserves a better aim.

We consider it important to pay attention to conservative institutions and skeptical scientists in the course of studying modern technological and social transformations.

The processes which might lead to dehumanization require a gradual approach.

Managing the processes of technological and social evolution might lead to global changes in the system of power distribution in favour of transnational structures. Research and development projects along with business investments should be controlled externally. Such reallocation of responsibilities might cause conflicts which should be prevented in due course.

Finally, humanity-centered interests as well as self-realization goals should gain priority against egoistic government and capital interests.

Without shifting priorities, information and technological revolution will tend to develop in chaotic manner, causing uncontrolled social changes alongside with unpredictable consequences.

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