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## Fourth industrial revolution and its influence on social security of the state

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### ABSTRACT

The article attempts to assess the trends of the fourth industrial revolution, which is a new stage of scientific information or scientific and technical revolution (the first stage of which is the third industrial revolution) as an industrial revolution in the modern era related to the transition to a new production principle, namely: scientific information, which replaces the industrial one. Positive and negative tendencies that may appear in the field of social security in Ukraine were indicated. Based on the examples of previous industrial revolutions, the conditions of the fourth industrial revolution were found to create a gap between the necessary and practical level of consumption of services providing social security, and the processes of spiritual degradation of society are intensifying. Therefore, it is necessary to improve the social security system in the future.

**Keywords:** industrial revolution, social security

### 1. INTRODUCTION

The first industrial revolution used water and steam for the mechanization of production. The second - used electricity to create mass production. The third, which lasts from the middle of the last century, was based on the use of electronics and information

technology for automation of production. The fourth industrial revolution is characterized by the merger of technologies that blurs the lines between physical, digital and biological spheres. The most prominent representative of the discourse of the fourth industrial revolution, Klaus Schwab, regards it as the further development of electron-digital technology and technology, leading to revolutionary changes in virtually all spheres of public life, and above all in production and management [7, 8]. A similar vision of the future development of mankind, but within the framework of the concept of the third industrial revolution, also sees J. Riphkin, who is the author of this concept, which seems as relevant as the concept of the fourth industrial revolution [4, 10].

Considering the actual concepts of the third and fourth industrial revolutions it may be noted that the last emphasis is on enhancing the role of state-of-the-art technology and technology, merging them into a single self-regulating system that will ensure at least the human intervention in the production process. Thus, we can note that the fourth industrial revolution is a new stage in the scientific information or scientific and technological revolution (the first stage of which is the third industrial revolution) as an industrial revolution of the modern era associated with the transition to a new principle of production, namely: scientific -information that is replacing the industrial one.

## **2. CHARACTERISTIC FOR ASSESSING THE IMPACT OF THE CONSEQUENCES OF THE FOURTH INDUSTRIAL REVOLUTION**

Characteristic for assessing the impact of the consequences of the fourth industrial revolution is their difficult predictability [7]. And this is a well-justified position. Indeed, as the experience of forecasting and futurological activity shows, it was impossible to predict even the very appearance, not to mention the socio-economic consequences of the proliferation of such material phenomena of the modern world as computers, the Internet, mobile communications, smartphones, without which now the life of a modern person can not be imagined.

At present, it is not easy to clearly identify the effects of environmental threats. In the discourse of the Fourth Industrial Revolution, the main cause of environmental threats is human activity, which in fact becomes increasingly "geological" force. And formalize the claim scientists and geologists now proposed amendments to the geochronological scale, adding a new geological epoch, namely: the Anthropocene, a marker which in geological deposits can be considered various traces of human activity that persists for a long time, from radioactive contamination and ending with pollution by waste from plastics [5]. Accordingly, the result of accumulation of these and other consequences of human activity, primarily greenhouse gases in the atmosphere, in the discourse of the fourth industrial revolution recognizes the growth of environmental threats due to global climate change. However, along with this vision of valid reasons for global climate change that truly represents the beginning of a new geological time, can also be the result of some cosmic cycles, which affect mankind in general is not capable.

However, in the aspect of social security, the specified definition of thematic issues in the context of the Fourth Industrial Revolution as a whole seems rather realistic, since, unlike the most common environmental hazards, it covers the human-dimensional perspective, that is, is directly implemented in the time scale of human life.

In general, this discourse is a kind of existing more than one generation of civilizational discourse on the implications of the introduction of new technology and technology, which in the previous century has gained new thematic components, namely: not only the threat of displacement of low-skilled labor machine-automated, as well as the destruction of the traditional way of social life with the corresponding values and institutions, but with regard to the very existence of humanity within the framework of the technosphere generated by it, which includes unprecedented in the past epochs of the natural techno threats and the threat of total dehumanization of human existence.

## **2. 1. The purpose of the article**

Study of the state of social security of the state and the outline of the threats caused by the fourth industrial revolution.

## **3. RESULTS**

### **3. 1. Trends and trends of threats to social security**

Considering the positive and negative trends that may arise in social security in the context of the Fourth Industrial Revolution, it should be noted that the fourth industrial revolution, like any previous industrial revolution, represents a radical revolution in the development of productive forces, With the transition to a new principle of production, manifested not only in technology, but also in the relationship of society and nature. Accordingly, based on examples of previous industrial revolutions: the agrarian, first and second industrial revolutions, one must conclude that, in the process of their implementation, they must engage in a business turnover fundamentally new renewable or for a long time inexhaustible resources, which are sufficiently distributed in most territories, and also increase the productivity or capacity of the medium (that is, the output of useful products per unit area) by several orders of magnitude, which finds expression in creating more than a few orders of magnitude products and changes in demographic development.

With regard to the latter, it is widely known that now indicators that characterize the demographic development of the most economically developed countries, which can be considered as the main base of the fourth industrial revolution, are characterized by persistent tendencies to reduce fertility, but with an increase in the life expectancy of the population, due to which occurs its total aging [8, 9].

However, regarding the processes occurring in productivity, according to experts, in most industrialized countries and the world in general, it is observed stagnation, despite the technical discoveries and investment in innovation. It is noted that this is a problem of the current statistical methodology, which is intended to reflect changes in labor productivity. And this problem is caused by the fact that the driving force of the Fourth Industrial Revolution is an intangible substance, namely: information, knowledge gained as a result of cognitive activity of a person. Also, the impossibility of catching significant changes in the growth of labor productivity as a result of the fourth semantic revolution can play an essential role in the virtual character of many products that are currently being produced [7].

However, it is obvious to researchers that, as a result of the processes of the fourth industrial revolution, fewer jobs are created than in the process of previous industrial

revolutions. Innovation in information and other breakthrough technologies contributes to reducing existing jobs in favor of automating production, turning it into desert, but does not contribute to the creation of new products that require additional labor for production. This situation obviously conceals the risks of technological unemployment, which, undoubtedly, can cause social tension and thus endanger social security.

But even more threatening to social security will be the fact that in connection with the fourth industrial revolution in the labor market there is a tendency towards polarization, namely: employment will grow in high-income cognitive and creative professions and low-income manual labor, but it will decrease significantly in the middle-income standard professions inherent in the employment of the middle class [7]. Thus, apart from the fact that the development of this trend will lead to a significant inequality in the incomes of the population, which is one of the main preconditions for the strengthening of social tensions, a significant reduction of opportunities for the growth of incomes of the middle class, which is the basis for the formation of a stable democratic civil society, threatens its decay and destruction.

Noting, above all, those trends in the development of the fourth industrial revolution, which can cause threats to social security, it is necessary to mention those trends that will contribute to improving the situation in certain spheres of human activity, exercising a direct impact on social security. In this case, it should be noted the positive effect of the implementation of the alleged achievements of the fourth industrial revolution in health care. Health is one of the important areas in which genetic engineering has to be implemented, which has to radically change approaches to combating incurable diseases and to contribute to a significant increase in people's livelihoods.

One of the technological drivers of the fourth industrial revolution should also be distinguished as the development of new polymeric materials suitable for re-use, which is an important step towards the creation of a circular economy (closed-loop economics) that works on the principle of self-healing and is not rigid causal relationship between production growth and the need for resources [7]. The implementation of all these achievements will undoubtedly contribute to sustainable development that preserves the environment, and therefore contributes to social security.

The new reality formed by the technological and technological achievements of the fourth industrial revolution will not only give people many new opportunities, but also change the person himself. Changes will affect the living space in which the person works and relaxes, communicates with others and expresses himself. As a result, certain ethical and aesthetic principles of human life, its ways of knowing reality will probably change. But all this also threatens the decline of traditional social mechanisms regulating human behavior in society, which will undoubtedly negatively affect social security.

Along with this, all researchers predict the growth of cybercrime. Also, the negative consequence of the fourth industrial revolution, which will increase the threats to social security, can be called a significant increase in opportunities for the spread of extremist ideas and ideologies. The fourth industrial revolution, moreover, has more opportunities for detecting destructive forms of behavior. Accordingly, the importance of educational activities, as well as cultural and educational activities and leisure activities, which must meet the requirements of ensuring social security, is growing significantly [10, 11].

### **3. 2. Features of the state of social security in Ukraine**

An analysis of the state of social security in Ukraine suggests a significant number of problems. Over the last quarter of the century, economic reforms have seen a significant reduction in production in all spheres of the economic complex. Inflation and drop in production have considerably reduced the standard of living of the population. The latter was also influenced by the underdevelopment of the legal and regulatory framework, economic and political instability in the country, the limited range of services offered, the lack of a comprehensive vision of a promising social sphere, including the imperfection of advertising for the development of the latter.

The identification of trends in the formation of social security is impossible without a thorough analysis of its current state, without identifying factors designed to reduce uncertainty in the adoption of certain decisions in the field of this economic activity. It should be borne in mind that the process of occurrence of hazards is multifaceted, extremely complex.

In the Concept (foundations) of the state policy of national security of Ukraine, a significant place is assigned to the definition of threats to the state in the economic, scientific-technological, informational and social spheres which are essentially interdependent [3]. And the consequences of these threats and threats are the growth of unemployment, the growth of antagonisms in the social structure, increase of disadvantaged categories of people.

It is known that the more complex the object of research, the greater the number of factors affect its development, the more difficult it is to trace the many interconnections that objectively exist between its elements. Therefore, the most correct, in our opinion, should be considered such approaches to the study of factors that predetermine a hazardous situation of any level (national, regional, sectoral or local). On humanity, as you know, affects a lot of dangers, from which it (mankind) suffers great losses. Statistics show that humanity loses 7-8 people only from accidents at work every minute. The report of the United Nations Development Program (UNDP) on human development has identified 7 components of personality security:

- economic security (guaranteed minimum income);
- food safety (physical and economic availability of food);
- health safety (relative safety against diseases and infections);
- ecological safety (availability of clean water, air, land use system, which maintains soil fertility);
- personal security (freedom from physical violence and threats);
- security of minorities (preservation of cultural identity);
- political security (protection of basic human rights and freedoms) [1].

As is clear from the foregoing, UNDP does not specifically highlight social security, although it is visible in virtually all of the above types of security. Market relations, constant underfunding exacerbated all these problems in so-called budget industries, thus creating preconditions for the emergence of social danger. Thus, the medical and demographic situation in Ukraine remains tense, which is manifested primarily in low birth rates, in a relatively high mortality rate, especially among men of working age, negative natural population growth, and so on. At the moment, it is extremely important to create socially safe conditions, which include providing people with quality services, taking care of every

member of society, enforcing laws, observing ethical standards, etc. Moreover, a socially safe environment can contribute to this. Let's say an effective system of education and upbringing is an important condition for the development of society. For example, we have found a direct correlation between the level of education of workers and the amount of gross value added per capita.

Social security is seen by us as a natural result of improving the quality of life and involves the need for the formation and implementation of a social package, protection of the population, social infrastructure. After all, social security is a state of protection of vital rights and freedoms of citizens, the social interests of Ukrainian society from internal threats and external interference and a system of social and political measures that provides this security [2].

It should be noted that there is insufficient volume of works devoted to the coverage of scientific research of objective tendencies in the development of social security in accordance with the formation and implementation in Ukraine of the main trends of social security development in accordance with socio-economic and scientific and technical aspects of the development of society. Their understanding makes it possible to rank and systematize all problems associated with the formation of social security.

Our studies have shown that objective trends in the formation and development of social security are viewed. The scientific approach to improving social security in the country requires not only knowledge and understanding of objective tendencies, but also the skillful use of various variants of their combined action. So, recent developments in the field of social security, primarily related to organizational factors. Recently, as you know, innovative technologies have been actively implemented and disseminated to all components of social security. This was confirmed in September 2000 by the heads of state and government of 189 countries (including Ukraine) who adopted the UN Millennium Declaration.

The latest document identified the global Millennium Development Goals by 2015. And in September 2010, at the plenary session of the UN General Assembly, world leaders assessed the implementation of the tasks, identified problems taking into account the consequences of the global economic crisis, and confirmed their readiness for specific measures to achieve these goals.

It is clear that the improvement in this context of social security will require the involvement of significant human, material and financial resources, which, unfortunately, is lacking in Ukraine. At the same time, the latter are not always used rationally. Thus, the analysis of statistical data shows that in recent years the labor market has been oversaturated by graduates of higher educational institutions, which leads to unwanted consequences, to stress in the social environment. At the same time there is an imbalance between the training of specialists with higher education and the real needs of the economy, that is, there is a mismatch between the scale and structure of training with a real need for them. Today in Ukraine, for one disciple of vocational education institutions, there are four students of higher educational institutions. To reduce the social tension in society, in the labor market, this ratio should be reciprocal.

Social danger is conditioned by the intensification of the process of aging of the population, an increase in the demo economic burden on the able-bodied population, the aging of the able-bodied population, which in the overwhelming majority does not actively use the achievements of technological progress, modern technologies dictated by the fourth industrial

revolution. And as a result of this - the slowdown of the process of updating knowledge and ideas, scientific and technological progress.

In these conditions it is important to radically rebuild the entire socio-economic system, to adapt society and economy to the characteristics of the "old" population, in which the number of consumers exceeds the number of economically active population. In particular, the state has assumed a significant part of the responsibility for creating a security social environment.

The results of our research show that the system of social safety management in Soviet times was determined by the then ideology, social practice and the needs of the economy. And today, the system of social safety management has not undergone significant positive changes. On the contrary, in the process of numerous administrative reforms, many positive ones have been lost, in particular, the clear management vertical has disappeared. Many of the components of the social security field are devalued by the institution of inspection, which results in professional supervision and supervision of the functioning of, for example, the educational system at the professional level. The current normative documents have eroded the functional definition of the departments of the relevant subdivisions of regional state administrations.

In our country, public administration bodies have not gained a proper level of development as it takes place abroad. We have virtually no charitable or supervisory councils that are formed from people who are not subject to management. It should be noted that in Western Europe, social security activities are carried out by civic organizations. In Ukraine, all control functions are concentrated in the hands of the relevant ministries and departments. The latter also determine the policy in all components of the sphere of social protection. The community can not influence (neither legally nor in fact) the appointment or dismissal of officials that affect the state of social security.

In Ukraine, as we know, there are many threats that lead to a low level of health of the population, which in turn leads to an increase in the need for accessible, qualified medical care and medical services. World practice shows that it is precisely by improving the accessibility and quality of medical care and medical care that mortality can be reduced by 28% for men and by 37% for women. The state and level of the health system, technologies of treatment of the population have a significant impact on the development of society as a whole.

Therefore, social security should provide for the need to ensure that all citizens have access to the basic services mentioned above. The absence of this causes an increase in morbidity. The number of first-time cases of illness in Ukraine per 100,000 population has a tendency to increase. Among the latter - diseases of the endocrine system, disorders of the diet, tuberculosis, metabolic disorders, blood and hematopoietic organs. In terms of mortality rate from tuberculosis, Ukraine ranks first in Europe. Annually, the number of patients with tuberculosis increases by 28-40 thousand (at the beginning of 2016, the incidence was 79.8 per 100 thousand population, and death rate - 22.6) [5].

For comparison, for example, in Germany, for example, these figures are respectively 8 and 1, in Italy - 7 and 1, in the USA - 5 and 0.5. All this leads to a decrease in the proportion of persons belonging to the I-II groups of healthy ".

Especially dangerous is the use of alcohol, especially adolescents. According to WHO, more than 10% of the population drinking alcohol is prone to drinking. In general, the prevalence of tuberculosis, HIV / AIDS, alcoholism in Ukraine is the most acute medical and

social problem, the solution of which depends on the existence of the Ukrainian nation in the future. At the same time, there is a strengthening of the negative tendency towards retirement of health workers and the emergence of many vacancies that negatively affects the medical serving the population, on the quality of social security [15-18].

Among the positive trends in the development of the medical sector, the development of primary health care, based on family medicine, which is increasingly becoming a solid foundation for the functioning of the medical sector, reducing the number of deaths of children under one year, facilitates implementation, is an important component of social security. One of the tasks of social security, namely, strengthening the health of the nation, extending the life expectancy, increasing the number of years spent by every inhabitant of Ukraine without illness.

In society, social tensions connected with the needs of a person concerning the arrangement of a place of residence are becoming increasingly widespread. There is a low quality of services and an increase in the wear of fixed assets of housing and communal services. The latter is due to the lack of economic incentives for reducing the costs associated with the provision of housing and communal services, the underdevelopment of competitive relations, inefficient work of enterprises, large losses of energy, water and other resources. The situation in the housing and communal services of Ukraine can be characterized as a systemic crisis. Among the trends in housing and communal services in Ukraine that adversely affect the provision of social security, the following should be highlighted:

- the growing gap between the necessary and practical level of consumption of housing and communal services;
- unsatisfactory condition of the water supply and sewage network, the presence of a significant part of emergency plots of water supply networks and drainage. According to statistical data, a significant part of water conduits (25-50%) of street, water and inner water supply water mains are in worn or emergency condition;
- sewage treatment facilities, in particular towns and cities requiring repair and reconstruction;
- the mechanism of payment control of the use of resources for the development of housing and communal services is ineffective and incompatible with the socially oriented economy.

In the process of studying social security in the context of the requirements of the revolution, we have identified the following trends:

- a change in the ratio of the needs of different social groups in certain types of services under the influence of an increase in the overall level of satisfaction of these needs;
- restructuring of the needs of the population in services with a change in the social, vocational and qualifying and gender-age structure;
- increasing the demand for high-quality services that can be provided by highly skilled personnel;
- output growth rates compared to the growth rate of national income;
- accelerating the growth of the number of employees in the field of social security in comparison with material production;
- territorial differentiation of indicators characterizing the state of social security per capita according to local natural, demographic and economic peculiarities;

- constant insufficient budget financing of the sphere of social security;
- the need for material and technical re-equipment of this sphere;
- deterioration of the conditions for the provision of the corresponding services at the level of European standards, the impossibility to make them diverse;
- preservation of the archaic system of management of the sphere of social security;
- lack of effective financial management in this area;
- Significant lag of social security from public needs;
- lack of practice of forming social security by civil society.

#### **4. UNTETHERING HEALTH AND INCOME PROTECTION FROM INDIVIDUAL EMPLOYERS OR JOBS**

A sustainable social protection system needs to address the changes and challenges described above, ensuring fair payments from employees and employers during times of earning to fund payments that ensure appropriate income support when earnings are not possible. New social protection systems could include a range of approaches, with selected innovations set out below.

Intermittent, part-time and informal employment or self-employment, with frequent career changes, is becoming the norm in developed as well as developing economies, but most pension systems are still built on the model of continued employment throughout life.

Health benefits are provided irrespective of employment in most European nations and Canada, but continue to be largely tied to employment in the United States.

Potential responses include *creating portable health and pension plans* to maintain coverage as workers move geographically and between employers, or between periods of formal employment – by an employer – and periods of unemployment or self-employment; and *ensuring that risk and responsibility for social protection continue to be shared by the state, employer and employee*. Employers' contributions to funding social protections could be recast to benefit society as a whole rather than their employees only.

#### **5. CONCLUSIONS**

Thus, trends in the development of social security, the identification of factors influencing it can yield important results, forecast opportunities, develop schemes for preventing (warning) threats in the presence of negative phenomena, developing relevant strategies, etc. It was established that under the conditions of the Fourth Industrial Revolution, the gap between the necessary and practical level of consumption of services providing social security is continuously increasing, and the processes of spiritual degradation of society are intensifying. Therefore, in the future, it is necessary to improve the system of social security, through:

- Significant structural changes in the development of a network of institutions that provide social security;
- overcoming the high level of morbidity in general in Ukraine, reducing the spread of the epidemic of tuberculosis, HIV / AIDS, alcoholism;

- ensuring the optimal structure of health care expenditures and other components of social security;
- development of an optimal model of state regulation of the development and functioning of the social security system, which would provide the best results of the quality of the relevant services and their accessibility;
- ensuring the effective use of existing resource potential for the formation and functioning of social security, etc.

All this should have a positive effect on the socio-economic development of the country, which is not possible without the participation of institutions that provide social security.

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