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**SECURITY MANAGEMENT OF THE XXI
CENTURY: NATIONAL AND GEOPOLITICAL
ASPECTS. ISSUE 4**

Collective monograph

In edition D. Diachkov, Doctor of Economic Sciences, Associate Professor



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PREFACE

In the early 21st century, the world faces with cardinal transformations accompanied by changes in geopolitical configurations, integration processes and other changes that affect the state of national and geopolitical security. The events of the last decade have revealed an exacerbation of the problems of global security and the ambiguous impact of the processes of globalization on the development of different countries. Under the circumstances, the rivalry between the leading countries for redistribution of spheres of influence is stirring up and the threat of the use of force methods in sorting out differences between them is increasing. The global escalation of terrorism has become real, the flow of illegal migration and the probability of the emergence of new nuclear states are steadily increasing, and international organized crime is becoming a threat. In addition, in many countries there is an exacerbation of socio-political and socio-economic problems that are transforming into armed conflicts, the escalation of which is a real threat to international peace and stability. These and other factors have led to the fact that the potential of threats to global and national security has reached a level where, without developing a system state policy to protect national interests and appropriate mechanisms of its implementation, there may be a question of the existence of individual countries as sovereign states.

The threat of danger is an immanent, integral component of the process of civilization advancement, which has its stages, parameters and specific nature. Obviously, the problem of security in general, and national one in particular, should be objectively considered in terms of its role participation in the development process, that is, to set it up as both destructive and constructive functions (as regards the latter, it is necessary to emphasize the undeniable fact that the phenomenon of safety is based on counteraction to the phenomena of danger, the necessity of protection from which exactly stimulates the process of accelerating the search for effective mechanisms of counteraction).

Taking into account the fact that the traditional means of national and geopolitical security as a mechanism in its various models, forms, systems have reached their limits, since they do not contribute to solving the problems of globalization of the civilization development, there is an objective need to form a paradigm of security management in the 21st century, which aims to confront destruction processes; to harmonize activities of socio-economic systems: society, organization, the state, the world. The joint monograph «Security management of the XXI century: national and geopolitical aspects. Issue 4» is devoted to these and other problems. The progress in the development of the theory of security management on the basis of the analysis of theoretical and methodological works of scientists and the experience of skilled workers presented in the joint monograph creates opportunities for the practical use of the accumulated experience, and their implementation should become the basis for choosing the focus for further research aimed at improving the security

management system at the national and international levels. In the joint monograph, considerable attention is paid to solving practical problems connected with the formation of the organizational and legal mechanism of organization of the security system in terms of globalization by developing methods, principles, levers and tools of management taking into account modern scientific approaches.

In the monograph, the research results and scientific viewpoints of the authors of different countries are presented in connection with the following aspects of security management: national security, food, environmental and biological security, economic and financial security, social security, personnel and education security, technological and energy security, information and cyber security, geopolitical security. The authors have performed a very wide range of tasks – from the formation of conceptual principles of security management at the micro, macro and world levels to the applied aspects of management of individual components of national security.

The monograph «Security management of the XXI century: national and geopolitical aspects. Issue 4» consists of four parts, each of which is a logical consideration of the common problem.

The structure of the monograph, namely the presence of particular parts, helps to focus on the conceptual issues of the formation and development of national, economic, financial, social, food, environmental, biological, personnel, educational, technological, energy, information, geopolitical security, and problems of the maintenance of the practical process of application of the developed cases.

The results of the research works presented in the joint monograph have a research and practice value.

The advantage of the joint monograph is the system and logic of the structure, the simplicity and accessibility of the material presentation, the presence of examples and illustrations.

We believe that the monograph will become one more step towards a scientific solution of the problems concerning the formation of an effective system of security management under trying circumstances of globalization.

Publication of the monograph «Security Management of the XXI century: National and Geopolitical Aspects» is scheduled to be annual. Currently, Issue 4 is offered to our readers.

*With best regards Dmytro Diachkov,
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FEATURES OF THE FORMATION OF INDUSTRY 4.0 AND ITS IMPACT ON THE ECONOMIC SECURITY OF THE STATE IN THE CONDITIONS OF THE DEVELOPMENT OF THE DIGITAL ECONOMY

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The rapid development of the world economy, the informatization of society, and significant scientific and technological progress have led to significant changes in all areas of human life. All this became a prerequisite for a new round in the historical development of the industrial sphere of the world. The exclusive role of the industrial sector in the world is due to several factors. Firstly, the efficient and well-coordinated functioning of the industrial sector leads to an improvement in the results of social labor,

creates new jobs and new sources of profit, which, in turn, is a powerful factor in the fight against poverty and the solution of a large number of social problems, such as gender inequality, employment of the younger generation and the generation of pre-retirement age.

Secondly, the industrial sector is an indicator paper of the beginning of significant reforms in the world. Throughout its history, the technogenic world has gone through three major crisis periods, which are commonly called industrial (industrial) revolutions, and currently, according to most scientists, is in the process of the fourth industrial revolution called Industry 4.0 [1].

As a result of the first industrial revolution, significant changes took place in the social sphere of the country. Thus, the rapid development of industry and the active need for new jobs led to the massive migration of people from the countryside to the city, forming such a phenomenon as urbanization. For example, from 1790 to 1900, the population of Manchester increased 10 times.

The second industrial revolution was not marked by revolutionary changes in the industrial sphere. Most scientists are inclined to believe that it took place on the basis of the discoveries of the first. The beginning of the second industrial revolution falls on the second half of the 19th century, and the end - on the second half of the 20th century [2].

The Second Industrial Revolution is considered a period of improvements in the manufacturing industry, as well as innovative achievements in the industrial field. During this period, methods for extracting steel and oil were invented, as well as an indispensable thing for us today – electricity and energy security.

The fundamental elements of the third industrial revolution were the global informatization of society, the development of new energy sources, automation of production, the introduction of mass production of goods, the use of digital logic, integrated circuits, and other technologies in the field of production.

The third industrial revolution has significant socio-economic consequences. Yes, the creation of the internet has been a powerful driver of globalization and outsourcing, forever changing the manufacturing paradigm. So, small-sized companies, which previously focused their own production only on the domestic market, got the opportunity to enter the world arena. New software and technical equipment made production not only as profitable as possible but also safe from the point of view of labor safety and environmental [3].

Digital technologies have a significant advantage – the ability to constantly adapt in a short time, given this, the production sector has got the opportunity to work in any external and internal conditions. The transition

of a large part of financial transactions to digital format allowed the state financial supervision authorities to form a system of continuous financial monitoring, which greatly improved economic security.

Over time, scientists began to realize the beginning of the next critical period in the industrial sphere of mankind. So, for the first time the term "fourth industrial revolution" or "Industry 4.0." was used by German scientists in 2011 when developing a high-tech and innovative strategy for the German government. In 2015, at the Hannover Fair, in his report, a German professor used the term "Industry 4.0" for the first time, interpreting its essence [4].

Some of the main factors that characterize Industry 4.0 include:

1. Make manufacturing and manufacturing processes more automated than ever before.

2. Reduce human interaction in the production process by bridging the gap between physical and digital systems, so that people do not control physical systems, but can give them commands through digital systems. These systems are called cyber-physical systems.

3. Help all the machines involved in the process to connect with each other, exchange information, and make decisions based on data via the Internet.

4. Transfer control of the entire production process from the management process to each machine, which makes its own decision and is controlled locally.

5. Better use of closed-loop data models, i.e. models improving their performance based on feedback from their prior performance.

6. Increasing trend towards personalization and customization of products in the production process according to customer needs.

Ukraine lags far behind the leading countries both in terms of production structure and drivers. Ukraine, first of all, needs to pay attention to improving such indicators as "scale", "technology and innovation", "institutional structure". In addition, the Industrie 4.0 Global Context: Strategies for Cooperating with International Partners project analyzed countries such as Germany, China, Japan, South Korea, the UK, and the USA. The choice of these countries is obvious, because they are the potential representatives of services/solutions in Industry 4.0, as evidenced by the results obtained in the study of the World Economic Forum [5] (Fig. 1).

The peculiarities of the impact of Industry 4.0 on each component of the economic security of the state should be carefully studied.

The peculiarities of the impact of Industry 4.0 on each component of the economic security of the state should be carefully studied.

To begin with, concerning the social security of the state as part of economic security, then, firstly, it is impossible to ignore the data for 2016,

when it was confirmed that new production technologies and robotization will leave 5.1 million people without work. The largest reduction in staff is expected among office and administrative employees [6].

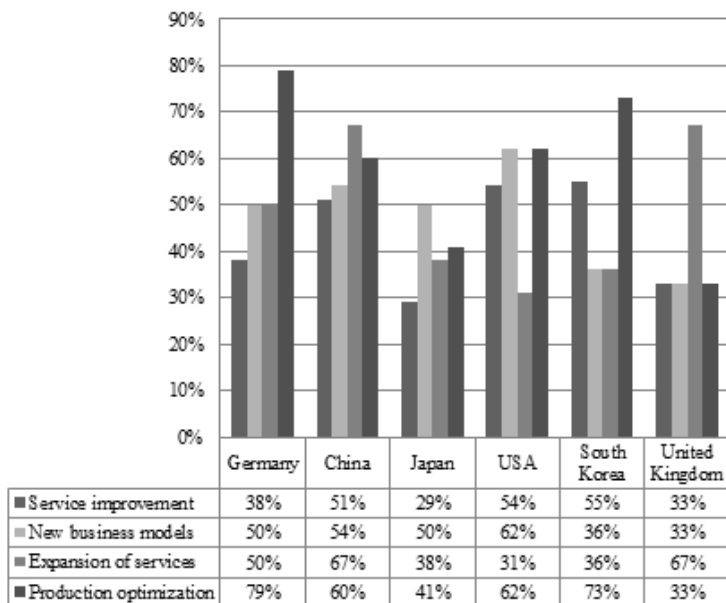


Fig.1. Economic opportunities of Industry 4.0 for the leading countries of the world

But not only the emergence of Industry 4.0 can boast of a negative impact on the social security of the state, but also the fact that with its advent a large number of new professions and activities have appeared that simply did not exist. That is, as a result, there are cutbacks in one area of activity and a need in others.

Demographic security, in the context of ensuring the economic security of the state, is affected by Industry 4.0 no less than its other components. On the positive side, modern technologies can be canceled that allow the birth process and thereby increase the level of trust and security among the population. However, Industry 4.0 brings not only a positive impact, but also threats to increase the level of migration of "intelligence" to countries where this revolution took place faster, and thereby several countries where technologies will attract young "intelligence" are growing.

Gadgetization increases social withdrawal among young people and leads to an increase in the so-called "loneliness level", in which people refuse to build serious relationships in the "real world".

Ensuring the food security of the state as a component of the economic task is not an easy one, since the population is growing, and the scarcity of resources is only increasing. On the one hand, thanks to new technologies, we get new opportunities for creating "environmental" products and "replacement" options for some of them. But on the other hand, Industry 4.0 brings technologies that can produce an artificial type of food, the nutritional value of which is much lower, and this becomes a significant threat to ensuring the food security of the state.

As for the external economic security of the state, here Industry 4.0 promotes international cooperation, technology exchange, and the development of an appropriate external infrastructure as such. However, new technologies can fall into the wrong hands, and then there are threats to foreign economic security, such as cyberterrorism and cybercriminalization.

For energy security, in the context of ensuring the economic security of the state, the emergence of Industry 4.0 works in both directions: on the positive side, we have the opportunity to use new technologies to develop alternative fuels (electric vehicles); on the negative side, we face the threat of becoming dependent on those energy resources that are now being actively used to support these new technologies.

The states in Ukraine have been familiar with information security for a long time, its provision is very important today, due to the negative actions of the Russian Federation. As in the case with other components of the economic security of the state, we get the opportunity through the latest technologies and total gadgetization of quick access to any information. But here we also have a negative side, which manifests itself in the fact that not all information can be useful and correct, which creates a significant danger to the process of ensuring the information security of the state.

The investment safety of the country is also significantly affected by Industry 4.0. At the present stage, investment processes are of particular relevance, since the improvement and development of the investment climate are of decisive importance for national and world economic development. The international flow of capital largely contributes to the fact that national economies are becoming more and more dependent. However, in countries with different levels of economic development, foreign investment plays a different role [7].

The scientific and technological security of the state and its level in the country is becoming perhaps the most important factor in competitiveness in the international arena. For certain countries, the opportunities of Industry 4.0 have given a significant boost to the production potential and allowed to significantly increase the intellectual and technological resources. Unfortunately, in the case of our country, even with the advent of new technologies, the indifference of their integration into the production

process only negatively affects the level of scientific and technological security in the context of ensuring the economic security of the state.

Thanks to Industry 4.0, financial markets have completely switched to on-line mode. Modern computer technologies have opened up the possibility of almost instantaneous communication on a global scale. They have become both the main means and the medium of financial activity [8].

Exchange trading has become an actively developing high-tech industry. Today, the stock market needs mathematicians, physicists, and programmers. Stock exchanges use more advanced software and hardware.

At first glance, you might think that the financial security of the state with the advent of Industry 4.0 is only flourishing and strengthening, but this is not so. New technologies are used not only for the development of financial activities but also for illegal enrichment. Every year, organizations, enterprises, and the state must spend millions of US dollars to protect finances, financial markets, etc., from illegal intrusion by third parties [9, p. 10].

Hijacking any information that could harm financial security has become commonplace, which can be learned thanks to modern technology and performing this kind of operation without leaving home [10, p. 77].

In general, if we consider Industry 4.0 through the prism of the development of the leading countries of the world, we should also emphasize the presence of certain threats that may occur (Fig. 2).

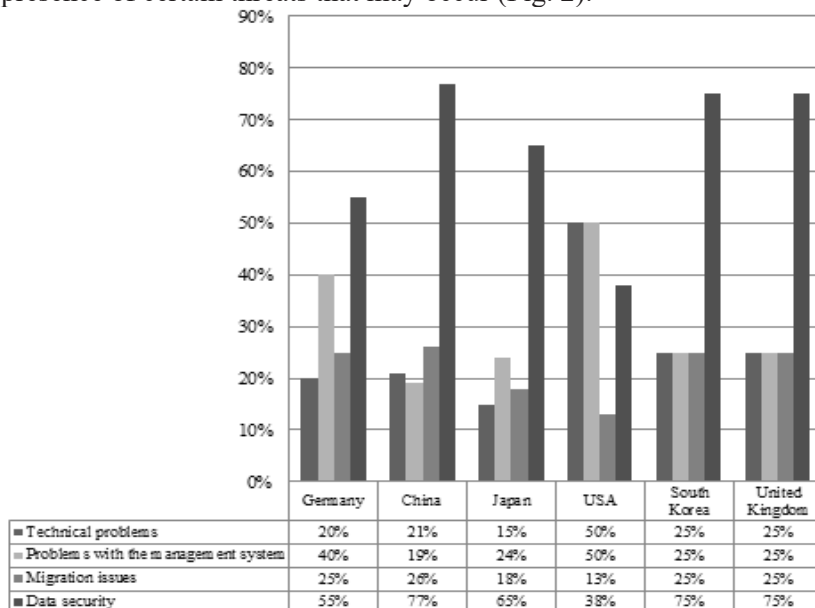


Fig.2. Threats of Industry 4.0 for the leading countries of the world

Summing up, it should be noted that today it is impossible to imagine a world without the technologies that Industry 4.0 has brought to our world. Like any revolution to it, it has both positive and negative sides, some of which we tried to highlight in our study. In the future, more attention should be paid to the analysis of the economic security of the state in the conditions of industry 4.0 and to determine what is happening exactly on the example of Ukraine in recent years.

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