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SCIENTIFIC AND PRACTICAL SIGNIFICANCE OF THE PARADIGM OF THE DEVELOPMENT OF THE NEW NETWORKED WORLD ORDER AND THE 9TH TECHNOLOGICAL ORDER

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ABSTRACT

The subject of the article is the scientific and practical significance of the paradigm of the development of scientific support of the 9th technological order in the world economy; the object of the article is the competitiveness of organizations in the ninth technological order; the purpose of the work is to increase the competitiveness of organizations during the ninth technological order; to achieve this goal, the following tasks are solved: the socio-economic roles and results of the transition of organizations to the conditions of the ninth technological order are described; a systematic analysis of technological modes is carried out; the image of the future of the ninth technological order is formed; the tasks of the policy of entry of organizations into the ninth technological order are developed; the indicators of evaluating the effectiveness of the policy of entry of organizations into the ninth technological order are described; the scientific methods of this article are: historical analysis, system analysis, comparative and logical analysis; heuristic synthesis, political science, system approach, system engineering, expert methods, efficiency theory; The scientific novelty of the work is determined by the synthesis of the image of the future, the paradigm and policy of the transition of organizations to the ninth technological order, the formation of a system of performance indicators of the entry of organizations into the ninth technological order.

Keywords: science, significance, organization, practice, ninth technological order, policy, analysis, system approach, efficiency, indicator, structure

1. Introduction

The relevance of this work is determined by the need to improve the effectiveness of the policy of entering of organizations into the ninth technological order (NTO) in the world economy. The article deals with commercial organizations (corporations, firms, entrepreneurs) and non-profit organizations (states, local governments, public organizations). The task of entering the NTO is also faced by other types of organizations: regions; corporations, technology platforms; clusters and firms. The process of entry of all types of organizations (the state, corporations and others) is influenced by the global systemic crisis. This crisis is closely connected with the process of forming a new technological order.

The entry of all types of organizations into the NTO can be called the most important problem of the world economy and society for the period up to 2040.

The subjects of the process of transition to the NTO are: global governance bodies (the World Monetary Fund, the World Bank, etc.); national governments; political parties; managers of corporations and firms, etc.

The hypothesis of the article is the statement that the development of the paradigm and policy of the organization's entry into the NTO will ensure an increase in the efficiency of the processes of formation of the NTO in the world economy and society.

The purpose of the work is to increase the competitiveness of organizations during the ninth technological order (mode).

To achieve this goal, the following tasks are solved:

- the socio-economic roles and results of the transition of organizations to the conditions of the ninth technological order are described;
- a systematic analysis of technological orders is carried out;
- the image of the future of the ninth technological order is formed;
- the tasks of the policy of entry of organizations into the ninth technological order are developed;
- the indicators of evaluating the effectiveness of the policy of entry of organizations into the ninth technological order are described.

The object of the article is the competitiveness of organizations in the ninth technological mode.

The subject of the article is the paradigm of entry of commercial and non-profit organizations into the ninth technological mode.

In the conditions of transition to a new technological order, modernization of enterprises is necessary [1, pp. 214-215; 2, pp. 182-184].

Modernization is also necessary for national economies and the social sphere of states [3, p. 272-278; 4, p. 46-49]. In the process of modernization, an important role belongs to the industrial policy of the country [5, p. 307-317].

The development of clusters has led to the emergence of cluster policy as a new segment of economic policy [6, p. 11-14]. The regional innovation policy of the country plays an important role in the modernization of regions [7, p. 353-358]. A distinctive feature of the policy is the coordination of the interests of the participants in the modernization process [8, p. 272-278]. At the same time, innovation policy and strategies of economic entities (corporations, firms) play an important role [9, p.2]. An important role in increasing the effectiveness of modernization policy belongs to the methodology of system and management approaches in such a policy [10, p. 30-63]. It is known that researchers describe the process of capitalist development in the form of six successive technological orders [11; 12, p. 3-29]. The world order determines the external geopolitical conditions of the transition of the world economy to a new technological order [13, pp. 85-98]. The choice of an enterprise strategy plays an important role [14, pp. 108-115]. Scientists propose methods for creating programs for the transition of enterprises of various industries to work in the conditions of the new 9th technological order [15, p. 22]. To substantiate the content of measures for the transition of enterprises to a new technological order, it is necessary to develop a scientific theory of technological orders (ways) [16, p. 65-82; 17, p. 12-20]. System analysis can be the basis for the development of modernization programs for enterprises and the global economy as a whole [18, pp. 22-34]. Such an analysis shows that the technological order is a large multi-level system. The theory of multilevel (hierarchical) systems was proposed for the study and design of large systems [19, pp.12-17]. Scientists express the opinion that the level of technological development affects the geopolitical position of the state [20, p. 19]. Risks can significantly affect the process of formation of a new technological order, affect the economic efficiency of innovative projects in the country [21, p. 80-88]. In the process of developing a new technological order, it is necessary to modernize scientific and innovative activities on a scientific basis [22, p. 2].

In the process of developing a new technological order, it is necessary to manage the formation of a system of new institutions (a system of new professional relations) [23, pp. 554-563].

The development of new technologies will affect the risks of the activities of geopolitical and socio-economic entities [24, p. 34].

The development of the technological basis of organizations affects, among other things, the global and national currency systems [25, p. 85-111].

The degree of innovative development of the economy affects the stability of the national currency and currency risks [26, p. 77-88].

The formation of the 9th technological order will affect the forms of educational activity and the development of project higher education [27, pp. 36-44]. The development of a new technological order can generate acute conflicts in the scientific environment [28, p. 3-14]. Scientific and technological progress leads to the expansion of human rights [29, pp. 303-339].

The process of forming a new technological order is usually accompanied by a crisis. This crisis removes obstacles to the creation and implementation of new technologies [30, pp.15-30].

Active synthesis of nanotechnologies is considered the most characteristic feature, characteristic of the new 9th technological order [31, p. 2].

Scientists predict the emergence of new technological platforms, in particular, in the field of creating neurotechnologies [32, pp. 44-63].

For the successful formation of a new technological order in the national economy, it is necessary to create a mechanism for managing the development of the 9th technological order [33, pp. 14-24].

In the process of developing elements of a new technological order, paradoxical management decisions may be made, in particular, in the field of reforming the world monetary system [34; 25, pp. 85-111].

Corruption can slow down the processes of creating new technologies, the formation of a new technological order [35, p. 5-30].

Scientific support for the formation of a new technological order may include the creation of new scientific theories [30, pp.15-30; 36, p. 2].

In the process of forming the 9th technological order, it is necessary to pay great attention to anti-crisis management [37, 250-255].

Marketing remains an important development tool [38, pp. 20-36].

In 2022, the formation of the methodology of anti-crisis management of all sectors of the economy continues [39, pp. 333-354].

In anti-crisis management at the state level, the state model can be applied. Within the framework of such a model, the state can be considered as a non-profit public corporation [40, p.7].

In the process of transformation of organizations in the conditions of the 9th technological order, it may be necessary to rebrand these organizations [41, p. 6-8; 42, chapter 123; 43, p. 326-345].

The analysis of publications on the topic of this article carried out in this article showed the following:

- the problems of the formation of a new technological order are actively studied by scientists;
- at the same time, publications are most often of a single nature, which may indicate the absence of powerful scientific centers for the study of the process of formation of a new technological order;
- the problem of forming a paradigm for the development of a new technological order is relevant.

This indicates the relevance of the topic of this article.

Method. Under the world order in this article, we will understand the totality: the totality of the main global (supranational) institutions (systems of relations); methods of decision-making at the global level; organizational culture of global governance; methods of resolving geopolitical conflicts.

The most common opinion is the assumption that the unipolar world will be replaced by a multipolar world. However, during the global geopolitical crisis in 2022, will there be a situation when none of the states will be able to dominate? This is an objective consequence of the policies of developed countries, which they carried out in the previous period. For example, in 1944 (during the International Bretton Woods Monetary Conference of the countries of the anti-Hitler Coalition) The US GDP was about 50% of world GDP. At the beginning of 2022, the share of US GDP is about 20% of world GDP, while financial transactions in US GDP account for about 50% of this GDP?

In this situation, the geopolitical behavior of a number of States indicates that these states seek:

I. firstly, to avoid direct involvement in a military conflict;
II. secondly, they seek to avoid falling under sanctions, embargoes, etc.;
III. thirdly, they declare their desire to form multi-vector relations, seeking to benefit from the emerging geopolitical situation?

Does this mean that the new world order will be networked? Suppose this hypothesis is correct? This may mean that the new world order will be networked. This will mean that the new world order will be characterized by the following: a "pool" of leading states will be formed that will offer the world community their "products (tangible and intangible)" in areas important from the point of view of the life of society and the individual; the interaction of the state will have a "situational character" in the process of meeting the social needs of the relevant countries; in international relations, the emphasis will shift towards the leadership of key countries (rather than their dominance); the importance of partnerships in the implementation of joint mutually beneficial programs and projects will increase; the importance of regional and global new economic unions will increase?

At the same time, in 2022, the existing world order is undergoing its changes in the process of an acute geopolitical crisis. In some aspects, this acute crisis takes the form of hybrid wars. Hybrid warfare in this article is proposed to understand the acute phase of geopolitical competition, in which a number of tools and methods are simultaneously used to achieve superiority: direct military actions and clashes; international sanctions are applied, an embargo is imposed, a moratorium on payments and much more; there is a massive informational impact on the elite and the population (including neurotechnological effects can also be exerted), and others.

The paradigm of the entry of an organization (state, region, corporations, clusters, technological platforms, etc.) into the NTO will be called the systematic unification of such elements of activity: the philosophy of activity; the ideology of activity; the policy of the organization. The concept of "paradigm" can be considered quite close to the concepts of "concept", "model", "method".

The concept can be interpreted as a systematic view of the process and results of the formation of this technological structure in society and the economy. At the same time, the paradigm harmoniously includes such parts as: philosophy; ideology; organizational culture; politics; strategy and tactics of such a transition to a new technological order.

The philosophy of the organization's entry into the NTO will be called the most general, wise view of this process and its results. There may be a philosophy of self-development of a new technological order. Such a philosophy implies the spontaneous self-development of a new technological order. This philosophy excludes the management of this process.

Another variant of this philosophy should be recognized as the philosophy of purposeful influence of the heads of organizations on the process of entering these organizations into the NTO. The practical significance of the philosophy of the organization's entry into the new technological way is to substantiate the principles of the policy of managing the process of organizations ' entry into the NTO.

The following provisions can be called the principles of the entry of organizations into the NTO:

- the principle of focusing on achieving greater comfort and safety for the population;
- the principle of scientific justification in managing the process of entering an organization into a new technological order;
- the principle of rational use of the available resources of society and the economy;
- the principle of minimizing conflicts in the process of forming a new technological order;
- -the principle of minimizing losses in the process of transition to a new technological order.;
- the principle of managing the efficiency and risks of this process and others.

These principles can become the values of the organizational culture of the management system of the organization's entry into a new technological order.

Let's agree to call the organizational culture of the organization's entry into a new technological way: norms of behavior; beliefs; values of the organization; ways of responding to the problems of the organization's personnel in this process.

The ideology of the entry of organizations into the NTO can be called: firstly, the way of distributing managerial power in this process; secondly, the key idea of forming a new technological order (improving the safety and comfort of people's lives).

The policy of entering organizations (state, region, corporations, clusters, technology platforms, etc.) into the NTO in this article will be understood as a set of measures. Such a policy includes a set of measures aimed at: modernization of the production capacities of organizations; modernization of the products of these organizations; improvement of the organization's management systems; design of new types of technologies (nanotechnologies, neurotechnologies, digitalization technologies, information technologies, resource-saving technologies, environmentally friendly technologies); the introduction of these new technologies into the products of previous technological orders; the development of new economic and social production institution; [23 p. 554-563], etc. The activities included in such a policy

should be harmonious and coordinated with each other.

The policy of entering the economy and society into the NTO includes strategy and tactics. The strategy is responsible for the long-term perspective of the entry of organizations into a new technological order [16, p. 65-82]. Tactics ensures the current implementation of strategic plans, taking into account the need to fulfill such requirements: the sustainable development of this process of entering a new technological order; ensuring the solvency of the organization and others.

The subjects of the paradigm formation should understand that the "technological order (way)" is a complex multi-level (hierarchical) system. Therefore, the main research methods should be: the theory of hierarchical systems [19, p. 12-17]; system approach; system analysis; search heuristic forecasting and others. The subjects of the paradigm development should take into account that the authors of the theory of large systems consider: 1. "First of all, the very concept of system complexity depends on the point of view. What seems to a psychologist to be a complex or large system may turn out to be just an elementary link in the eyes of an economist"; 2. "We can even say that the importance and wide prevalence of multi-level systems are not yet well understood" [19, p. 12-17].

This opinion of the authors of the theory of large systems is confirmed by the practice of forming an economic approach in the field of studying technological orders. Economists study the technological order as a purely economic object [12, pp. 3-29]. Within the framework of this approach, scientists and economists define the technological order as a set of major global institutions. At the same time, economists express the opinion that the subject of technological development is the process of expanded reproduction of capital [12, pp. 3-29]. Therefore, within the framework of the economic approach, there is no place for production technologies in the technological order itself.

It is more logical to assume that the structure of the technological order (as a large system) includes: firstly, the technological basis of the organization; secondly, the system of industrial and social relations(institutions); thirdly, methods of personnel management and its organization; fourth, forms of doing business; fifth, the world order and more. At the same time, the technological basis of the organization is primary. For this reason, all economic and humanistic elements should correspond to the specifics of the technological basis of organizations.

The paradigm (philosophy, ideology, policy) of the entry of organizations into a new technological order should be based on the methodology of the system approach. The systematic approach consists in studying and considering all the elements (parts) and/or properties of the technological order (object of research)

in their mutual connection.

The system analysis of the NTO can be called: determining the structure of this mode; establishing the nature of structural connections of elements; studying the properties of elements; studying the composition and properties of the entire technological order as a whole.

The system analysis carried out in this article shows the presence of a system connection between the technological basis of organizations and the factors of the world order [24, p. 34]. The analysis shows that there is a systemic influence of the technological basis of organizations on the following elements: types of the state; types of money (gold, credit money; mottos; cryptocurrencies [25, p. 85–111]); management methods in organizations; the type of the world currency system; forms of doing business in the economy, in the corresponding historical and, at the same time, technological periods of development.

On this basis, we will agree under the concept of "technological order" to understand the system integration into a single whole of such elements: the technological basis of production in the economy and society; social production relations; world order; types of business processes in the economy; management methods and tools; concepts of personnel management of organizations in the economy and society at a certain stage of the historical, technological, economic, social, cultural process of economic and social development.

The main provisions of the general theory of technological orders are described in [16, p. 65-82; 17, p. 2]. Further development of the general theory of technological orders should become an effective methodological tool for forming the paradigm of organizations ' entry into a new technological order.

Historical analysis shows that the invention of a sail for sea and river vessels as a mover can be called the first technological order. Presumably, the Egyptians invented the sail for sea and river vessels.

An example of a system analysis of the course of technological development of the economy and society is given in Tables 1. In Table 1, a system analysis of the structure and content of elements of technological orders is carried out.

Table No. 1 System analysis of the structure and elements of technological orders (fragment)

№ п/п	Properties of technological orders (structures) /number, names technological orders, time period	New types of products; Types of production enterprises	World order, socio-economic formation; the form of the state
(1)	(2)	(3)	(4)
1.	the first technological order; the time period from 5500 BC to 2000 BC; sails for river and sea vessels	products of agriculture and animal husbandry; organization of subsistence farming within the genus	primitive communal system, rodos, tribes, slavery
2.	the second technological order; time period 2000 BC – 9th century AD; horse traction;	Natural raw materials, agricultural products, transport services; Family, community	Individual goods (grain, cattle ,furs) are equivalent; money changers and usurers
3.	the third technological order; Time period 9th century-1770; Windmill, a water mill;	Flour, sunflower oil; products of mechanical processing of agricultural products; Family, clan, craftsman, miller	feudalism; principalities; kingdoms; land empires
4.	the fourth technological order; Time period 1770-1830; Textile machines;	Machine-made fabrics, manufactory products; Textile manufactories, Enterprises;	monarchies; maritime empires; capitalism;
5.	the fifth technological order; Time period 1830-1880; steam engine;	Steam engines; mechanisms; locomotives, rails; sleepers; International monopolies	land and sea empires; monarchies; capitalism;
6.	the sixth technological order; Time period 1880-1930; electric motor and internal combustion engine;	Cars, diesel locomotives, airplanes, washing machines, refrigerators; radio, telegraph; Multinational corporations,	Capitalism; imperialism; nation-states; republics
7.	the seventh technological order; Time period 1930-1970; nuclear reactor, electronic computers;	Electronic computers, televisions; automation tools; flexible automated production complexes; Multinational corporations,	States, military-political blocs of States, a bipolar world; the United Nations (UN)
8.	the eighth technological order; Time period 1970-2010; microelectronics and microprocessors;	personal computers; ATMs; plastic bank cards; mobile phones; Multinational corporations, virtual corporations; strategic alliances of corporations	Globalization; States; trade and economic blocks of states; military and political blocks of states; Global unipolar world, Post-industrial society
9.	the ninth technological order; Time period 2010-2040; nanotechnologies and neurotechnologies;	3-D printing products, information products, transformation of human thinking (clip thinking); global information systems; clusters; technology platforms	States; trade and economic blocks of states; The process of decentralization of the global unipolar world; Post-industrial society;

Source: developed by the author

The system analysis of the entire historical technological process of the development of modern civilization carried out above allows: to form descriptive models of all technological structures that took place; to form a descriptive model of the NTO. A descriptive model of the NTO will be obtained in this article by combining descriptions of elements of this mode. To do this, you need to combine the contents of rows # 9 of the tables given in this article.

This descriptive model of the NTO acts as an image of the future for the current period of historical and technological development.

The system analysis of the entire historical technological process of the development of modern civilization carried out above allows: to form descriptive models of all technological structures that took place; to form a descriptive model of the NTO. A descriptive model of the NTO will be obtained in this article by combining descriptions of elements of this order. To do this, you need to combine the contents of rows # 9 of the tables given in this article.

This descriptive model of the NTO acts as an image of the future for the current period of historical and technological development.

The image of the future NTO may include such structural elements.

a) New elements in the technological basis of organizations: nanotechnologies; neurotechnologies; information technologies; digitalization technologies; resource-saving technologies; environmentally friendly technologies [16, 65-82].
b) The sector of advanced economic development: the service sector, including science and education.
c) The main direction of the development of the monetary system: cryptocurrencies, settlements on the Internet.
d) Direction of development of management systems: distributed management systems; management of social development of personnel.
e) Methods of competition between organizations: at the level of organizational cultures, organizational design and company values.
f) Key types of resources: intellectual and financial resources and others.

In turn, this image of the future becomes the basis for the formation of the paradigm of the development of the NTO. At the same time, the very paradigm of such development acts as a philosophical and ideological basis for developing a policy for the transition of organizations to the NTO.

The role of the paradigm of development of the NTO is related to the following. The formation of the correct paradigm of the development of the NTO will allow the organization to get the maximum effect in the process of technological development.

Let's explain the importance of effective development of NTO by the example of an organization such as the state. The formation of the NTO means the transition of the technological base of advanced organizations to this ninth technological level. The products of enterprises of the ninth technological order will have a higher (ninth) technological level. For this reason, these products will be characterized by a higher monetary multiplier of innovation. The innovative money multiplier shows how many times the cost of the final product exceeds the cost of raw materials [25, p. 85–111; 26, p. 77-88].

It is known that a modern automobile engine is about 30 times more expensive than the aluminum from which it is made. Timely modernization of this engine through the use of technologies of the NTO will increase its quality. The possibility of such modernization is confirmed in [15 p. 22].

At the same time, the innovative money multiplier will increase. For example, this multiplier will become equal to 37. This means that a particular company will receive more profit. This means an increase in revenues to the country's budget. This means an increase in the hardness of the national currency. This means increasing the stability of the national monetary system. At the same time, the increase in the stability of the national monetary system will be the result of the fact that the innovative money multiplier will be significantly larger than the bank money multiplier. As is known, the bank multiplier characterizes the effect of increasing (multiplying) money on deposit accounts of commercial banks as a result of their movement from one economic entity to another. In this case, the total value of goods is greater than the money supply in the economy. Therefore, in this case: there is no development of inflation; the national currency is solid.

At the same time, the gross domestic product increases; the volume of budget funds increases; the country's development opportunities grow.

If the modernization of the economy is not carried out, then there is a drop in the competitiveness of products. In this case: the gross domestic product is falling; the amount of budget funds is decreasing; the socio-economic crisis is developing; the geopolitical situation of the state is deteriorating.

The paradigm of an organization's entry into the NTO can be formed on the basis of consensus or on a confrontational basis. The paradigm of the development of the NTO in the organization is consensual, if all subjects agree with its provisions. This paradigm has a confrontational character if its implementation is accompanied by a conflict.

The analysis shows that there is a relationship between the specifics of technologies and the characteristics of public institutions. If the nature of institutions does not correspond to the specifics of the technological basis of organizations (world order, state, firm, etc.), a systemic crisis arises. This kind of crisis reflects the process of transition of the economy and society from one technological way to a new technological way. At the same time, the crisis will continue until the nature of State institutions comes into line with the requirements of technological progress.

Therefore, the formation of an effective paradigm and policy for the transition of organizations to the NTO is very important for organizations in the 21st century.

Therefore, the paradigm of transition to a new technological order should include measures aimed at detecting mental conflicts. Great attention should be paid to the rule of law and respect for human rights [29, pp. 303-339].

If we talk about the composition of technological directions in which, as predicted, the development of the NTO will take place, then we can say the following.

The method of system analysis of the technological order is described in [18, p. 22-34]. The paradigm and policy of transition to a new technological order should include measures: firstly, for the development of new technologies; secondly, measures for the development of social institutions.

It should be remembered that it is the disharmony between the essence of technologies and the content of production institutions that is the source of the crisis [30, p.2].

Some researchers believe that the NTO will be based on nanotechnologies [31 p.2]. However, a more advanced system analysis has shown that the technological basis of this technological order will be: neurotechnologies; nanotechnologies; information technologies; resource-saving technologies; digitalization technologies; environmentally friendly technologies [16, p.65-82]. The sources of new scientific achievements will be: a deeper penetration into the structure of the material world (nanotechnology); a more adequate knowledge of the work of the human brain (neutrotechnology); more rational use of raw materials; minimizing damage to nature and more.

The following areas of work can be included in the structure of the paradigm of the organization's transition to a new technological order:

- development of proposals for the further development of methodological provisions of the general theory of technological orders;
- development of research on practical problems of the general theory of technological orders in specific sectors of the national economy and society;
- formation of a set of measures to improve the effectiveness of social development programs of society and individual social groups;
- development of legal norms and a set of measures aimed at the formation of technological platforms and clusters that carry out the development of new technologies of the NTO (nanotechnologies; neurotechnologies; information technologies; digitalization technologies; resource-saving technologies; environmentally friendly technologies);
- formation of a system of measures aimed at the development of social and industrial institutions of the NTO;
- creation of a multi-contour management system for the development of industries of a new technological order;
- development of a set of measures for the formation of a set of indicators to assess the effectiveness of the development processes of the NTO, and much more. At the same time, all these directions of this paradigm should be coordinated with each other.

Let's consider these areas of the paradigm of the organization's transition to a new technological order in more detail. Proposals for the further development of the theoretical provisions of the general theory of technological orders may include the development of methodology as part of all the functions of this theory. These are the following functions of the scientific theory of technological orders: integrative function; methodological function; prognostic function; preventive function; function of knowledge socialization; instrumental function. The content of the function of the general theory of technological orders is reflected in more detail in the work [16, p.65-82].

The category of events for the development of applied problems of the theory of technological orders by branches of the national economy can include the formation of branch directions of the theory of technological orders.

The practical geopolitical direction of the general theory of technological structures can solve the following tasks: forecasting geopolitical changes; assessing the geopolitical consequences of the development of a new technological order; developing adequate geopolitical measures, and others. The significance of this direction of the theory of technological orders is evidenced by the fact that the First and Second World Wars arose during the 5th and 6th technological orders. These wars were the result of changes in the economic power of States. In the middle of the 7th technological order, the collapse of the USSR occurred. This collapse was largely due to the technological lag of the USSR from the leading countries. As a result of the collapse of the USSR, the bipolar world was transformed into a unipolar world. It can be predicted that in the NTO, the technological and economic differentiation of countries will increase. Therefore, the geopolitical results of the development of the NTO will be even more ambitious.

The political science branch of the theory of technological orders can solve the following tasks: justification of rational changes in the system of state law; formation of an adequate scientific and technical policy; justification of changes in social and industrial policy during the NTO.

The applied sociological direction of the general theory of technological orders can deal with the issues of forecasting: trends in demographic development; forecasting the social structure of society; estimating human life expectancy; forecasting changes in the sphere of family relations, and others.

The culturological branch component of the general theory of technological order can carry out studies of cause-and-effect relationships between the features of the technological order and cultural trends. This kind of interrelationships can be studied in the following areas: fiction; painting; theater and cinema; pop music and others.

The medical branch theory of technological orders will be of a practical nature. The medical branch theory of technological orders should investigate such problems: technical progress in the field of medical equipment; cause-and-effect relationships between the frequency of occurrence of various diseases and the characteristics of the technological order. For example, it should be recommended to study the dependence of the number of diseases of the heart and other organs on the characteristics of the technological order. Such studies allow you to carry out:

- prognosis of the development of various types of diseases during the NTO;
- design new medical equipment based on new technologies;
- modernization of existing medical equipment by introducing technologies of the NTO.

In the process of industry research, a systematic analysis of the development of certain industries can be carried out. For example, in the field of medicine, two tables can be developed. In one table, it can be recommended to display the change in the structure of the frequency of various diseases of the population, depending on the technological order. The second table can describe the process of development of medical equipment in the time periods of specific technological orders.

Within the framework of the paradigm of the state's entry into the NTO, there should be a program for the development of individual technological platforms. These technology platforms should be engaged in the development and implementation of new technologies in practice. As already noted, new technologies include: nanotechnologies; neurotechnologies; information technologies; digitalization technologies; environmentally friendly technologies; resource-saving technologies. The tools for the development of such platforms are described in [32, pp. 44-63].

Within the framework of the paradigm of the state's entry into the NTO, there should be a program for the development of new technological platforms. These technology platforms should be engaged in the development and implementation of new technologies in practice. As already noted, new technologies include: nanotechnologies; neurotechnologies; information technologies; digitalization technologies; environmentally friendly technologies; resource-saving technologies. The tools for the development of such platforms are described in [32, pp. 44-63].

However, new technologies will develop successfully only if new production institutions contribute to their development.

The mechanism of development of new industrial and social institutions of the NTO is described in [23, pp. 554-563]. The process of forming a management system for the formation of the NTO is presented in [33, p. 14-24].

Measures for the formation of a set of indicators for analyzing the effectiveness of the development processes of the NTO will be described in the part called "Discussion" of this article.

It is recommended to include the commercialization of new technologies and innovations among the most important tasks. The process of obtaining economic benefits from the repeated use of new technologies should be organized in the national economy. Multiple introduction of new technologies can be called "technology multiplication". Such "technology multiplication" should be carried out by purposefully introducing these new technologies into existing products. The method of modernization of products or production capacities of firms when they enter the NTO is as follows.

i. It is recommended to study the composition of each of the types of technologies of the NTO (nanotechnologies, neurotechnologies, and others).
ii. It is necessary to study the principle of operation of the structural elements of the modernization object.
iii. Next, it is necessary to synthesize specific proposals to improve the comfort and safety of the practical use of the modernization object.
iv. After that, it is necessary to analyze the possibility of introducing new technologies into an existing modernization object (products and production facilities of the company).
v. It is necessary to create a project for the introduction of a new technology into the object of modernization.
vi. It is necessary to analyze and evaluate the real impact of the new technology on the comfort and safety of the modernization object.
vii. It is recommended to obtain an assessment of the economic effect of the work on the modernization of this object.

The economic efficiency of the introduction of new technologies in the economy is determined by the number of such implementations. When a new technology is introduced, it is systematically combined with the technologies of previous technological orders. To characterize the intensity of the process of introducing new technologies in the economy, we will introduce the concept of "technology multiplication". The concept of "multiplication of technologies" in this paper will act as an integral characteristic of the number and depth of integration of new and old technologies in the economy during the transition to a new technological order. The concept of "multiplication of technologies" allows us to assess the economic efficiency of using new technologies in the national economy of the country. The greater the number of integrations of new technologies with technologies of previous technological orders, the higher the economic efficiency of new technologies.

Discussion

The subjects of the development of the paradigm for the entry of organizations into the NTO can be: international organizations; national academies of sciences; national governments; political parties; top managers of corporations; heads of clusters and technology platforms; ecosystem developers, developers of new technologies themselves, and others.

As subjects of the development of the paradigm of the organization's entry into the NTO, they can develop their ideas. For example, political parties can present their ideas on such issues: strengthening the geopolitical position of the state; optimal distribution of productive forces in the economy; increasing the efficiency of the process of socio-economic development; harmonization of social and industrial relations; development of culture; improvement of medical services for citizens and other issues. In the Parliament, political parties can take legislative initiatives. These draft laws can be focused on the synthesis of legal norms that contribute to the acceleration of the development of the NTO.

At the same time, political parties should provide support and mentoring to those entities whose activities contribute to the formation of the NTO in the economy and society. Such social and economic assistance (mentoring) in relation to the developers of new scientific and technical ideas is very important. Such assistance to developers is especially important in the initial period of development of the NTO.

Public business associations should also provide support to developers of new technologies.

An important element of the support system for new technologies is the work of business angels and venture funds. Developed countries have their own systems of support and mentoring of innovations. In countries where such a mentoring system does not exist, there is a "brain drain". This reduces the pace of development of such states.

Therefore, the paradigm of organizations entering the NTO should contain measures to support developers of new technologies.

A necessary element of effective management of the entry of organizations into the NTO is the formation of a system of indicators of the effectiveness of this process. It is proposed to include the following characteristics in such a system of indicators:

- the share of products (goods and services) belonging to the NTO in the total output of the national economy;
- the share of production technologies related to the NTO in the technological basis of the national economy;
- the share of employees engaged in the production processes of the NTO;
- the amount of revenue per employee at enterprises of the NTO;
- the cost of fixed assets of enterprises belonging to the NTO;
- the contribution of enterprises of the NTO to the gross domestic product of the country;

- the rate of annual increase in the share of firms of the NTO in the gross domestic product of the state;
- the share of fixed assets of the national economy that are used in the activities of organizations belonging to the NTO;
- the volume of "brain drain" or the influx of high-tech personnel into the economy.

In order to determine these indicators, it is necessary to propose criteria on the basis of which an organization or a product can be attributed to the NTO.

In this article, it is proposed to create a rating of states that best solve the problem of entering the NTO. In this case, the indicators described above can be used.

In the process of developing a paradigm for the entry of organizations into the NTO, it is necessary to take into account the situation of a qualitative leap in the development of scientific and technological progress. Such a leap is associated with the formation of the NTO. At the same time, the fact of the existence of a qualitative leap in scientific and technological progress makes it impossible to use such research methods: the continuation of existing trends; the use of statistical methods; the use of analytical models. In the conditions of a qualitative leap in the development of the forecasting object, heuristic methods gain an advantage.

Another characteristic feature of the process of synthesis of the paradigm of the organization's entry into a new technological order can be considered the following. Such a paradigm should be systemic in nature. This means that in such a paradigm, elements that have a technical, economic, and organizational nature should be systematically combined.

At the same time, the very process of forming such a paradigm can be recognized as a research strategic project. This project of developing such a concept is based on the application of methods of a number of sciences: geopolitics, economics, sociology, technical sciences, theory of technological order and others.

Therefore, the third feature of the process of synthesis of the paradigm of the organization's entry into the NTO is as follows. All proposals included in the paradigm of entering the NTO must be scientifically justified. The lack of scientific justification for the activities included in this paradigm can lead to errors. Let's pay attention to a possible example of such an alleged error in the process of global anti-crisis management.

Example № 1. As you know, on November 7, 2010, a well-known article was published in the Financial Times newspaper. This article was widely covered in the business press [34]. In this article, a proposal was made to partially return to the "gold standard". This proposal contradicted the decisions of the Jamaican International Monetary Conference on the demonetization of gold. However, this proposal was supported by global and national banking and financial circles. Central and commercial banks began to implement this recommendation of the global monetary authorities. Therefore, an intensive purchase of gold by central and commercial banks began. The growing demand for gold has led to an increase in its value. Therefore, by July 2011, the price of a troy ounce of gold (weighing 31.4 grams) on the global market was already about $1920 per ounce. In this situation, analysts made forecasts that by the end of 2011, the price of gold will exceed $2000 per troy ounce. This development of events was considered as a negative trend in the financial market. Moreover, the crisis in the gold market through the inclusion of the" domino effect " could lead to global economic, social and political destabilization.

Therefore, in July 2011, the current situation on the gold market was subjected to a systematic analysis in the book [35, p. 62-63].

As a result of such a systematic analysis, an expert evaluation opinion was expressed that the reason for such a negative situation could be a proposal for a partial return to the gold standard.

As a result of the system analysis, it was proved that this proposal does not take into account system connections in the economy. Therefore, such a proposal can: probably lead to an increased demand for gold; it is possible to stimulate the outflow of money from the real sector of the economy to the financial sector, and others. An analysis of the legal basis of such a proposal showed that it may not meet the decisions of the Jamaica Conference.

When analyzing the methodological basis of such a proposal, it was noted that, presumably, the proposal to partially return to the gold standard may not meet a well-known theoretical requirement. This requirement is that there should be a single methodology for building a monetary system. Therefore, the proposal for a partial return to the gold standard violates the requirement of unity of the methodology for building the monetary system.

In the future, a more detailed analysis of the proposal for a partial return to the gold standard was also carried out in the book [36, p. 14]. This second book was published by the author at the end of 2011.

The authorities of the United States and Russia, the banking community of Russia were informed about the results of these studies [35, p. 62-63; 36, p. 14].

Presumably, the analysis of statistics shows that since the publication of the book [35, p. 62-63] in mid-July 2011, the price of gold began to decline on the world market. This trend did not correspond to the forecasts of bank analysts, which were published before the publication of the book [35, pp. 62-63].

By the beginning of 2012, the price of a troy ounce of gold was already about $1,600 per ounce. In 2014, the cost of one ounce of gold was about $1400 [37, p. 250-255]. Subsequently, the price of gold decreased to about $1,260 per troy ounce in 2017. The growth of gold prices resumed only in 2020.

Presumably, the results of scientific research [25, p. 85–111; 35, p. 62-63; 36, p. 14; 37, p. 250-255;] could affect the monetary policy and banking practice of buying gold. Probably, as a result of such changes, the price of one ounce of gold may decrease by about $500-650 per ounce.

Such a horizontal (historical) analysis of gold price statistics shows that presumably the reason for the surge in gold prices in 2011 could be the proposal to partially return to the gold standard?

An expert assessment of the estimated economic effect of such a systematic analysis of the proposal to partially return to the gold standard may look like this.

Let's assume that the amount of bank (thesaurus) gold alone in the world is about 60,000 tons.

Let's perform the following actions.

i. Divide 60,000 tons of gold by the weight of one troy ounce (31.4 grams) of gold.
ii. The resulting number of troy ounces (910,828,025) is multiplied by the value of the price reduction per ounce ($ 650).
iii. This calculation suggests that the probable economic effect of the described system analysis [25, p. 85–111; 35, pp. 62-63; 36, p. 14; 37, pp. 250-255] could be around $ 1 000 000 000 000 (one trillion dollars)?

In 2014, that amount was two and a half times more than the initial cost of the stabilization Fund of the European Union; approximately three times the budget of Russia?

At the same time, the cessation of the "inflating of the golden bubble" had not only an economic effect. The stabilization of the gold market had several positive consequences. Consider these effects.

The stabilization of the global gold market has apparently led to such positive effects.

1) The decline in gold prices made it possible to avoid an aggravation of the financial crisis. The probability of such a crisis is determined by the fact that the gold market is closely linked to: the securities market, the credit market and the money market.
2) The decline in gold prices made it possible to avoid the development of inflation. Such inflation could lead to a socio-economic crisis in a number of countries.
3) In turn, the socio-economic crisis could lead to political destabilization of some governments, in particular in the United States. The possibility of such destabilization is determined by the fact that the gross domestic product of the United States depends on financial transactions by almost 50%.
4) Presumably, the stabilization of the gold market has increased political stability. At the same time, the likelihood has increased that the leaders of a number of countries (including US President Barack Obama) will be re-elected for a second or another term. In addition, it was positive that it was possible to prevent a crisis in the sphere of international monetary and credit relations. At the same time, the international community managed to avoid further escalation of the geopolitical crisis.
5) The cessation of the "inflating of the gold bubble" (unjustified increase in gold prices) led to the stabilization of both world and national currency markets. This has had a positive impact on the financial, socio-economic sphere, the political system and the stability of the governments of most states, including in Russia.

This example can allow us to draw the following conclusions: the high price of possible mistakes; the creation of a paradigm for the formation of a new technological way reduces the likelihood of erroneous management decisions; there is a need to move to participatory crisis management, taking into account the preliminary discussion of the proposed solutions by the scientific community; there is a need to form a unified methodological approach in the process of developing a monetary subsystem of a new technological way (structure)?

It should be noted that additional opportunities for analysis, in particular, proposals for a partial return to the gold standard, are provided by the methodology of system analysis within the framework of the theory of technological orders. Table 1 of this article describes the historical dynamics of changes in the international monetary system over the entire period of technological development. This table will provide a systematic analysis of the development of the international monetary system. This system analysis shows the following.

1) It is known that throughout the entire historical period of the development of money, Gresham's Law is in effect. This law says: "The worst money displaces the best from circulation." Does the proposal for a partial return to the gold standard contradict Gresham's law? At the same time, the proposal to return to the gold standard contradicts the historical trend.
2) To justify anti-crisis measures in the field of the monetary system, a scientific theory of post-industrial money is needed. The main postulate of the technological theory of money can be considered the statement (law): "Cheaper and more convenient money displaces expensive and inconvenient money." It can be assumed that innovations in the field of monetary systems that contradict this law cannot be successful. Innovations that contradict this law are doomed to failure and exacerbate the crisis.
3) The technological theory of money can be considered as a scientific theory of the global post-industrial monetary system [25, pp. 85-111; 36, p. 14]. At the same time, it should be noted that the intensive development of cryptocurrency money systems occurred after the publication of scientific papers on the technological theory of money in 2009.

The third methodological feature of the paradigm of transition to a new technological way is that such a paradigm is formulated for the entire period of existence of this technological way. Therefore, the paradigm under consideration should be formed throughout the entire life cycle of a new technological order in the global and national economy. Therefore, such a paradigm of transition to NTO should be developed for the period up to 2030-2040. The fourth feature of such a paradigm may be that this paradigm should also cover risk analysis. Based on the results of such an analysis, it is necessary to compile a list of measures aimed at reducing the level of risks of the entry of organizations, the national economy into the NTO. The fifth characteristic feature of such a paradigm is that it is necessary to use the methodology of predictive analysis. Such a predictive analysis is focused on analyzing not the current, but the future situation. This predictive situation is formed in the process of entering the 9th technological order.

The sixth feature of the studied paradigm is as follows. The content of this paradigm should be critically reviewed periodically. When significant changes observed in the external and internal environment of the national economy and society are detected, adjustments should be made to this paradigm.

The seventh feature of this paradigm is the following. This paradigm should initially be formed as a flexible document. This means that this paradigm should initially include the possibility of making changes to goals and tools in the event of a change in the situation.

We will keep in mind that the process of practical implementation of the approved paradigm of transition to the 9th technological order is closely related to the following processes: the development of new technologies and products; the introduction of these new technologies and products; the restructuring of the entire old economy. These changes in the sphere of production lead to changes in the sphere of professional relations and social institutions of society.

The introduction of new technologies changes the positioning of these organizations. Therefore, in the process of restructuring the economy and society, there is a need to rebrand the subjects of this process (government agencies, clusters, clusters, ecosystems, technology platforms).

Such a rebranding can be used by an organization (state, corporation and others) to strengthen its position in the international arena and markets. At the same time, it should be taken into account that the rebranding procedure allows you to change the philosophy of activity and carry out internal coordination of activities in the organization.

The term "brand" is described in the book on marketing [38, p. 206]. Let's agree to understand the brand as a corporate symbol (sign) that reflects the style and effectiveness of the management system in the organization. Such a brand forms and reflects the competitive position of the organization in the international and national economy, the system of geopolitical management.

Positioning and using such a brand can affect the effectiveness of various types of management (geopolitical, social, corporate, etc.).

The situation of the global crisis [37, pp. 250-255; 39, pp. 333-354] leads to the need for changes in the functioning of management systems of organizations. The changes proposed during the rebranding should increase the efficiency and improve the perception of management processes in all areas: production processes; education and science; social environment; in the international community; contribute to improving the situation in the markets; increase loyalty and efficiency in the work of personnel.

To solve this set of tasks, one of the most effective tools can be rebranding. When rebranding government agencies, you can apply the methods used in marketing. This is due to the fact that the state (to a certain extent) can be considered as a geopolitical non-profit corporation in the post-industrial global world.

Under the rebranding of the management system in this article, it is proposed to understand the purposeful change of the image and brand of such a system. Rebranding is carried out in order to improve the perception of the management system in the external and internal environment of the organization.

The decision on rebranding should be scientifically justified. To this end, it is necessary to form the methodological foundations of such a rebranding.

The philosophy of rebranding an organization is understood as the most general wise idea of the need, conditions, concept, process and expected results of such a rebranding.

Therefore, there should be an element in the paradigm that describes the rebranding options. Such rebranding should be accompanied by the development of a private rebranding program for a specific subject of the NTO.

When forming the general concept of the organization's transition to a new technological order, it may be proposed to rebrand the organization. The need for rebranding may be related to a number of factors: a change in the positioning of the organization; a change in external conditions; a change in the internal environment of the organization; a change in organizational culture and others. With a deeper analysis, it is possible to show exactly what such a rebranding may consist of.

A variant of the rebranding policy of organizations was published in [41, p. 6-8]. The idea of such a rebranding could well find interested readers.

It is likely that these theses on the problem of rebranding organizations during the crisis were carefully studied. In the future, these theses could receive their own creative development.

Therefore, it cannot be excluded that these theses could become the starting point for the formation of the rebranding process and significant changes in the functioning of the national public administration system? It is known that in the future such changes were formulated in the form of a reform of the management system and approved by holding a referendum in 2020.

Further development of the methodology of rebranding organizations led to the formation of a detailed theory of rebranding, reflected in a number of publications [42, p. 6-8 ; 43, p. 326-345]. Such a scientific theory of branding and rebranding of organizations can be useful. This is due to the fact that it contains a methodology that can be practically used by various economic entities in the process of their entry into the NTO.

At the same time, the development of the paradigm of the development of the 9th technological way and the theory of technological ways as the core of scientific support for the development of a new technological way opens up new opportunities. These opportunities exist both for the development of

science itself and for the practice of developing a new technological order in economic sectors and various geographical regions.

The technological theory of post-industrial money can be considered a structural element of the theory of technological orders [25, p. 85-111].

These new, unprecedented opportunities for science and practice are connected with the fact that the obtained scientific results allow us to logically justify the creation of programs for the modernization of products and production capacities of enterprises of the real economy.

However, when developing such programs, it should be understood that any knowledge about an object contains explicit and implicit knowledge about this object. Implicit knowledge arises at the junctions of subject areas. In addition, implicit knowledge can arise in the process of combining individual elements into a single system. Implicit knowledge is knowledge that cannot be expressed verbally (for example, the text in a scientific article or the text of the methodology of the program).

Implicit knowledge can be transferred only in the process of direct communication with the author of the methodology, an expert. The author of this article in the practice of teaching students was convinced that this is exactly the case: students did not understand what was being said when they read only the text. At the same time, students understood well what they needed to do and could complete a practical task after communicating with the author of this article as the head of their educational project.

The materials of the theory of technological orders were practically tested in educational projects, which consisted in the modernization of products and production facilities through the use of technologies of a new technological order.

You can increase the level of your own training for the correct perception of the theory of technological orders by reading materials on the theory of hierarchical systems [19, pp. 12-17]. This is due to the fact that the technological order, as the object of research, belongs precisely to the category of complex hierarchical systems.

At the same time, the theory of technological orders itself is based on the theory of hierarchical systems (and not on economic theory).

Therefore, mastering the basics of the theory of complex hierarchical systems creates a kind of "multidimensional" scientific thinking, which differs from a purely economic approach.

The methodological basis of the theory of technological s orders can be considered system engineering (but not economic theory).

At the same time, researchers' knowledge of the theory of technological orders can become a mental basis for ensuring the competitiveness of organizations on a new technological order.

The formation of an organization's modernization program in the process of mastering a new technological order (way) can strengthen the competitive position of this organization in the market.

And, conversely, the absence (due to a lack of understanding of such a need) of an enterprise modernization program can lead to a loss of competitiveness of this organization in the conditions of the formation of a new technological order.

For the first time in history, the theory of technological orders creates an opportunity for a purposeful and controlled (and not random, chaotic, as it was before) transition of your organization into the mode of competitive functioning of the organization with the onset of a new technological order. Therefore, the development of such a modernization program can become a competitive advantage of the organization that will develop such a modernization program. This is the anti-crisis significance of the theory of technological orders.

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Conclusion

The article describes the content and scientific and practical significance of the paradigm of the development of scientific support of the 9th technological order in the world economy.

In this article, it is proved that the synthesis of the paradigm of transition to a new technological order makes it possible to optimize the process of forming new scientific knowledge in this period of time. In addition, the creation of a paradigm of transition to a new technological order reduces the likelihood of paradoxical, inefficient management decisions.

The article develops a methodology for the formation of a paradigm for the entry of various types of organizations (world order, states, corporations and other types of organizations) into the NTO in the economy and society. The paradigm is understood as a systematic combination of such elements: philosophy; ideology; organizational culture; policy of the organization's entry into the NTO.

The article examines and substantiates the concept of "technological order". The technological order is understood as the system integration into a single whole of such elements: the technological basis of the organization; production institutions; forms of doing business; methods and management structures in organizations.

The paper proves that the technological order is a large multi-level system. Therefore, the study of technological orders should be carried out within the framework of the theory of large systems, system analysis and synthesis.

The article describes the content of these elements of the paradigm of the organization's entry into a new technological order. The article proves that the beginning of the development of such a paradigm should be a system analysis of the technological order. Based on this system analysis, an image of the future of this technological order can be synthesized.

The article provides examples confirming: the thesis about the need for coordination of technologies and production institutions; the importance of scientific justification of measures, in particular, in the field of global monetary policy; the need for rebranding organizations in the process of changing their external and internal environment, and much more.

The article describes the practical tasks of a number of branch theories of technological orders (geopolitics, politics, sociology, culture, medicine).

The paper proves that an important part of the process of an organization's entry into the NTO can be the rebranding of organizations.

Application for funding of the work: the work was carried out at the expense of the author's own personal funds; there are no external sources of funding for the work.

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