
The Policy of the Functioning of States in the Conditions of the Eighth Technological Order

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Abstract: The subject of the article is the policy of functioning of states in the conditions of the eighth technological order; the object of the article is the state in the eighth technological order; the purpose of the work is to increase the efficiency of the processes of adaptation of the state in the eighth technological order; to achieve this goal, the following tasks are solved: the geopolitical and socio-economic roles and the results of the influence of the eighth technological order (mode) on the geopolitical status and processes of functioning of the state are studied; a systematic analysis of the sequence of technological orders is carried out; the image of the future of the eighth technological order is described; the tasks of the state functioning policy in the eighth technological order are considered; criteria for evaluating the effectiveness of the state functioning policy in the eighth technological order are proposed; the scientific methods of this article are: the theory of hierarchical systems; historical, systemic, comparative and logical analysis; political science, heuristic synthesis, system approach, heuristic design, expert assessments, the theory of efficiency; The scientific novelty of the work is determined by the formation of the image of the future of the eighth technological order, the development of a policy for the transition of the state to the eighth technological order, the formation of a system, indicators of the effectiveness of the state's entry into the eighth technological order.

Keywords: State, Technological Order, Policy, Analysis, System Approach, Indicator, Structure, Model

1. Introduction

The relevance of this work is related to the need to reduce risks and increase the effectiveness of the policy of the functioning of states in the conditions of the eighth technological order in the global economy. At the same time, we will take into account that the task of adapting to the eighth technological order is also facing other types of organizations (regions, corporations, technology platforms, clusters and firms). The process of adaptation to the eighth technological order of any types of organizations (states, clusters, corporations and others) is affected by the global financial crisis. This systemic crisis is closely related to the process of development of the eighth technological order.

Modernization of all types of organizations for their functioning in a new technological order can be called the most important problem of the policy of the management of these organizations. The policy of entering organizations into the eighth technological order should be developed for the

period up to 2040. Therefore, we are talking about the need to develop a long-term policy of modernization of the state.

The subjects of the process of adaptation of organizations to the eighth technological order are: global governance bodies (the UN, the World Monetary Fund, the World Bank, etc.); national governments; political parties; heads of corporations and firms, etc.

The hypothesis of the article is the statement that the synthesis of the organization's adaptation policy to the eighth technological order will reduce risks and increase the efficiency of the development processes of the eighth technological order in society and the world economy.

The purpose of the article is to reduce risks and increase the efficiency of the processes of transition of the state to the eighth technological order.

To achieve this goal, the following tasks are solved:

1. the geopolitical and socio-economic roles of the state's transition to the eighth technological order are determined;

2. a system analysis of the sequence of technological orders is performed;
3. the image of the future (structural model) of the eighth technological order is synthesized;
4. the sectoral tasks of the state policy of adaptation to the eighth technological order are described;
5. the criteria for evaluating the effectiveness of the state policy for the development of the eighth technological order in the economy and society are proposed.

The object of the article is the state in the conditions of the eighth technological order.

The subject of the article is the policy of adaptation of the state to the conditions of the eighth technological order.

The analysis of literary sources on the topic of this article shows the following. Since the beginning of the global financial crisis in 2008, scientists have been developing a policy of modernization of states [1, 2]. In the conditions of crisis and globalization, the authorities of China and the Republic of Kazakhstan are modernizing social policy and the national economy [3, 4]. Researchers study the industrial policy of Russia and its significance in the process of modernization of the country [5].

The formation of regional clusters has led to the fact that scientists call cluster policy a new element of the country's economic policy [6]. Regional innovation policy is practically used as a tool of modernization in France [7]. An important element of the modernization policy of organizations is the process of coordinating the interests of all participants in this process [8]. Innovation policy is part of the modernization policy. It is used to justify the strategy of modernization of organizations (clusters, firms, etc.) [9]. Since the 20th century, politics has been an effective tool for managing complex processes. In this regard, specialists form the methodology of system and management approaches in political science [10]. Scientists consider the process of capitalist development as a sequence of six technological orders (structures) within the framework of the capitalist formation [11, 12]. However, this view of technological progress does not take into account the fact that there was a pre-capitalist period of technological development of the economy and society. Therefore, the well-known models of the process of technological development need to be adjusted. In the 21st century, scientists create a predictive model of a new technological order [13]. Researchers form a methodology for strategic planning of organizations' adaptation to the eighth technological order [14, 15]. The methodological basis of such strategic planning is the theory of large systems and the theory of technological orders [16, 17]. The methodology of system analysis can be productive in the process of studying technological orders [18]. The conducted system analysis allows us to conclude that the technological order is a large, complex and multi-level system. The theory of multilevel (hierarchical) systems was developed for the study and analysis of large systems [19]. Experts believe that the development of a new technological order can affect the geopolitical power and status of the state. Zbigniew Brzezinski expressed his opinion that the "

economic dynamism " of the United States is a necessary condition for ensuring their dominant role in the global world [20]. Therefore, the development of the process of formation of a new technological order can affect the geopolitical status and geopolitical risks of various states. In this regard, experts are investigating the impact of geopolitical risk on economic development [21, 22].

2. Method

The policy of modernization of organizations during their transition to functioning in the conditions of the eighth technological order can be called a set of coordinated measures. These measures are aimed at ensuring the competitiveness of the state in the new technological order. This policy should be based on a certain paradigm. The paradigm of adaptation of an organization (state, region, corporations, clusters, technological platforms, etc.) to the conditions of the eighth technological order will be called the systematic unification of such parts in the activities of organizations: the philosophy of the organization's work; the ideology of its functioning; the policy of the organization's activities. The concept of "paradigm" has been used since the 1950s. This concept is considered to be very close to the concepts of "concept", "model", "method".

The concept of the organization's work can be interpreted as a systematic view of the process and results of the formation of the eighth technological order in these organizations. The paradigm should harmoniously combine its structural elements: philosophy; organizational culture; ideology; policy; strategy and tactics of the organization's transition to the eighth technological order.

The philosophy of adapting an organization to the specifics of the eighth technological order can be considered the most wise and general view of this process and its results. The society may be dominated by the philosophy of self-development of the eighth technological order. This philosophy is based on the hypothesis of the random nature of technological progress. This philosophy can declare the self-development of the eighth technological order. Such a philosophy excludes: the management of this process; the use of politics as a tool for scientific and technological progress. Such a philosophy is associated with the formation of the eighth technological order by trial and error. This philosophy corresponds to the methodology of "walking at random". In such a process, the risks can be great.

But there may be another philosophy. This is the philosophy of managing the process of becoming the eighth technological order. This is the philosophy of purposeful influence of the leaders of these organizations on the process of entering these organizations into a new technological order. Such a philosophy implies the development of a policy for the formation of the eighth technological order. The practical significance of the philosophy of managing the process of an organization's entry into the eighth technological order is expressed in the justification of the principles of the management policy of this process. It is possible to formulate

the following principles of adaptation of organizations to the eighth technological order:

1. the principle of ensuring a high level of security of the population; - the principle of achieving a higher level of comfort of the population;
2. the principle of scientific justification of the processes of ensuring the competitiveness of the organization in the eighth technological order;
3. the principle of maximizing the economic efficiency of using new technologies through their multiple integration (multiplication) with the technologies of previous technological orders;
4. the principle of minimizing losses when using the available resources of society and the economy;
5. the principle of synchronizing the development of technologies and socio-economic relations (institutions);
6. the principle of minimizing conflicts during the development of the eighth technological order;
7. the principle of maximum efficiency of using available resources in the process of transition to the eighth technological order;
8. the principle of minimizing the risks of developing a new technological order and others.

These and other principles can become the values of the organizational culture of the policy and the management system of the organization's entry into the eighth technological order.

The organizational culture of the organization's adaptation in the eighth technological order includes the following elements: beliefs; values of the organization; norms of employee behavior; ways of responding to external opportunities by the organization's personnel; reactions to problems in the internal environment of the organization in this process.

The ideology of the transition of organizations to the eighth technological order can be considered: firstly, the way of distributing administrative and managerial powers in this process; secondly, the main idea of the development of the eighth technological order (increasing security and increasing the comfort of people's lives).

The policy of adaptation of organizations (state, region, corporations, clusters, technology platforms, etc.) to the eighth technological order includes a set of coordinated measures. The structure of the policy may include a set of measures: of a macroeconomic nature; of a meso-economic nature; of a micro-economic orientation. Microeconomic measures are aimed at: modernization of the production capacities of organizations; modernization of the products of these organizations; improvement of the organization's management systems; development of new types of technologies. Within the framework of the eighth technological order, new types of technologies include: neurotechnologies, nanotechnologies, digitalization technologies, resource-saving technologies, information technologies, environmentally friendly technologies. A separate type of technology is the process of introducing these new technologies into the products of previous

technological orders. The development of new economic and social production institutions is also important [23], etc. As already noted, the activities included in such a policy should be coordinated with each other.

The policy of adapting the economy and society to the eighth technological order covers the strategy and tactics of this process. The strategy ensures the adaptation of the organization in the long term [16]. Tactics is responsible for: ensuring the current solvency of the organization; implementation of short-term plans.

The subjects of the development of the organization's adaptation policy to the eighth technological order (way) should take into account that the "technological order (path)" is a complex multi-level (hierarchical) system. Therefore, the main research methods should be: the theory of hierarchical systems [19]; historical and system analysis; system approach; search heuristic forecasting and others. The subjects of the development of such a policy should take into account that the authors of the theory of hierarchical express such an opinion. First, the concept and levels of complexity of the system depends on the point of view. For example, what seems to an engineer to be a complex technological system may turn out to be just an elementary object in the eyes of an economist. Secondly, the importance and widespread use of multi-level systems in the economy and society have not yet been well studied [19].

This opinion of the authors of the theory of large systems (Mesarovich M., Mako D., Takahara I.) was fully confirmed by the practice of studying the problems of formation of technological order by economists. Representatives of economic science (economists) they do not consider the technological order as a large system. Economists consider the technological order as a complex of macroeconomic institutions. In their opinion, the task of these institutions is exclusively the reproduction of capital [12]. With this approach, there is no room for the production technologies and processes themselves in the technological order.

The system analysis of the sequence of technological orders carried out in this article shows the following. The structure of the technological order (as a hierarchical system) combines the following elements: technologies of the organization's activities; a system of specific industrial and social relations of employees (institutions); methods of managing resources and personnel in the organization; forms of doing business and business processes; international relations (world order) and much more. At the same time, the set of technologies of the organization's activity (its technological basis) is objective and primary. For this reason, all social and economic components of the technological order should correspond to the peculiarities of the technological base of organizations.

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 influence and interrelation.

The system analysis of the eighth technological order covers the solution of such tasks: the study of the structural

elements of this order (way); the description of the properties of the elements of the way; the determination of the specifics of the relationships of the structural elements of the order; the analysis of trends in the development of the elements of the technological order; the prediction of the properties of the eighth technological order as a whole.

The system analysis described in this article shows the existence of systemic links between the technologies of organizations' activities and the content of the world order [24]. In addition, the system analysis allows us to determine the influence of the technological base of organizations on the following elements of the technological order:

1. state structure and types of state;
2. the system of international geopolitical and trade-economic relations (world order);
3. types of money (goods-equivalents, gold, credit money; mottos; electronic money, cryptocurrencies [25]) and the international monetary system;
4. the level of human rights development;
5. management methods in organizations;

Organizational and legal forms and forms of doing business in the economy.

These relationships have their own specifics, in certain time (historical) and, at the same time, technological periods of the development of society and the economy.

All this gives the basis for the concept of "technological order" to understand the aggregation (system integration) into a single whole of such elements: a set of technologies of social production in the economy and the activities of society; a complex of social production relations (production institutions); the specifics of the system of global institutions (world order); organizational forms of business; types of business processes in the economy; methods, methods and management tools; concepts of personnel management of organizations; human rights in the economy and society. The technological order combines the totality of these elements at a certain stage of the technological, social, economic, historical, and cultural process of the development of society.

The main scientific provisions of the general theory of technological structures were formulated in the works [16, 17]. Further development of the scientific theory of technological orders should become an effective methodological tool for developing a policy of adaptation of the state (other types of organizations) to the eighth technological order (structure).

An example of a system analysis of the complete sequence of technological orders is reflected in Tables 1, 2. In Table 1, a system analysis of the structure of technological orders and the content of elements of technological orders is performed.

Table 1. System analysis of the structure and the content of the elements of technological orders.

| № n/n | Properties of technological orders (structures)/number, names technological orders, time period | Types of production enterprises | New types of products |
|-------|--|---|--|
| (1) | (2) | (3) | (4) |
| 1. | "1st" technological order; horse traction; time period 2000 BC – 9th century AD, | Family, community | Natural raw materials, agricultural products, transport services |
| 2. | "2nd" technological order; Windmill, a water mill; Time period 9th century-1770, | Family, clan, craftsman, miller | Flour, sunflower oil; products of mechanical processing of agricultural products |
| 3. | "3rd" technological order; Textile machines; Time period 1770-1830, | Textile manufactories, Enterprises; | Machine-made fabrics, manufactory products |
| 4. | "4th" technological order; steam engine; Time period 1830-1880, | International monopolies | Steam engines; mechanisms; locomotives, rails; sleepers; |
| 5. | "5th" technological order; electric motor and internal combustion engine; Time period 1880-1930, | Multinational corporations | Cars, diesel locomotives, airplanes, washing machines, refrigerators; radio, telegraph |
| 6. | "6th" technological order; electronic computers; Time period 1930-1970, | Multinational corporations, | Electronic computers, televisions; automation tools; flexible automated production complexes |
| 7. | The "7th " technological order; microelectronics and microprocessors; Time period 1970-2010; | Multinational corporations, virtual corporations; strategic alliances of corporations | personal computers; ATMs; plastic bank cards; mobile phones; |
| 8. | The "8th " technological order; nanotechnologies and neurotechnologies; Time period 2010-2040, | global information systems; clusters; technology platforms | 3-D printing products, information products, transformation of human thinking (clip thinking); |

Source: developed by the author

Table 1. Continued.

| № n/n | Properties of technological orders (structures) / number, names technological orders, time period | World order, socio-economic formation | Type of money; international monetary system |
|-------|---|---|---|
| (1) | (2) | (5) | (6) |
| 1 | "1st" technological order; horse traction; time period 2000 BC – 9th century AD, | communal and tribal system; slavery; feudalism; communities; principalities; kingdoms | Individual goods (grain, cattle, furs) are equivalent; money changers and usurers |
| 2 | "2nd" technological order; Windmill, a water mill; Time period 9th century-1770, | feudalism; principalities; kingdoms; land empires | Gold as a universal equivalent; money changers and usurers; receipts and bills of exchange; monasteries as repositories of gold |
| 3 | "3rd" technological order; Textile | monarchies; maritime empires; capitalism; | National gold currencies; paper money; central and |

| № п/п | Properties of technological orders (structures) / number, names technological orders, time period | World order, socio-economic formation | Type of money; international monetary system |
|-------|---|---|---|
| (1) | (2) | (5) | (6) |
| 4 | machines; Time period 1770-1830, "4th" technological order; steam engine; Time period 1830-1880, "5th" technological order; electric motor and internal combustion engine; Time period 1880-1930, "6th" technological order; electronic computers; Time period 1930-1970, | land and sea empires; monarchies; capitalism; | commercial banks; stock exchanges; securities Paris international monetary System, full-fledged (gold) money; paper money |
| 5. | | Capitalism; imperialism; nation-states; republics | Genoese gold-motto system; three international currency blocks; credit money |
| 6. | | States, military-political blocs of States, a bipolar world; the United Nations (UN) | gold and mottos, the international Breton-Wood currency system, credit money; |
| 7 | The "7th " technological order; microelectronics and microprocessors; Time period 1970-2010; | Globalization; States; trade and economic blocks of states; military and political blocks of states; | demonetization of gold; the Jamaican International Monetary System; electronic and digital money; Special Drawing Rights (SDR, SDRs); Society for Worldwide Interbank Financial Telecommunications (SWIFT); trading systems |
| 8 | The "8th " technological order; nanotechnologies and neurotechnologies; Time period 2010-2040, | Global unipolar world, Post-industrial society; | |
| | | States; trade and economic blocks of states; The process of decentralization of the global unipolar world; Post-industrial society; | Cryptocurrencies (virtual, technological money); international cryptocurrency system; global trading systems |

Source: developed by the author

The system analysis of the entire sequence of eight technological structures performed in this article allows: to create descriptive models of all eight technological structures; to form a forecast and a descriptive model of the eighth technological structure. The descriptive model of the eighth technological order has the character of a forecast. In this article, the model of the eighth technological mode will be obtained by combining descriptions of elements of this technological mode. Therefore, to obtain a model of the eighth technological order, it is necessary to combine the contents of rows No. 8 of all the tables of system analysis.

This integral descriptive model of the eighth technological order acts as: first, a predictive model of this order; an image of the future for the current period of historical and technological development of the economy and society.

This image of the future (model) of the eighth technological order may include such structural elements.

1. The projected period of existence: from 2010 to 2040.
2. Types of new technologies in the activities of organizations: nanotechnologies; information technologies; neurotechnologies; digitalization technologies; environmentally friendly technologies; resource-saving technologies [17].
3. The nature of economic development: the advanced development of the service sector, including the advanced development of science and education.
4. The main direction of the development of the monetary system: cryptocurrencies, electronic money; settlements on the Internet.
5. Trends in the development of management systems: distributed management systems of organizations; using methods of neuromanagement and neuromarketing.
6. Relations between the organization and its personnel: management of social development of personnel.
7. The nature of competition between organizations: at the level of organizational design, values and

organizational culture of the company.

8. The most important types of resources: intellectual and financial resources.
9. Trends in the development of science and education: customization of activities and the development of a project approach.
10. the trend of production development: minimizing losses based on the methodology of lean production and others.

Such a model is an image of the future, it becomes the basis for the formation of a policy for the development of a new technological order. At the same time, the concept of the development of a new technological order is the philosophical and ideological basis for the development of a policy for the transition of organizations to the eighth technological order.

The role of the development policy of the eighth technological order is related to the following. The synthesis of an adequate policy for the development of the eighth technological order will allow the state (organization) to get the maximum effect in the process of technological development.

Let us explain the importance of the effective development of the eighth technological order by the example of such an organization as the state. The development of the eighth technological order means the transition of the technological base of advanced organizations to this eighth technological level. The products of enterprises of the eighth technological order will also have a higher (eighth) technological level. For this reason, the products of the new technological structure will be characterized by a higher innovative money multiplier. This innovative money multiplier shows how many times the cost of the final product exceeds the cost of raw materials [26]. For example, it is known that at the beginning of the 21st century, an automobile internal combustion engine is approximately 30 times more expensive than the aluminum from which it is made. Timely modernization of this engine through the use of

technologies of the eighth technological order will improve its quality. The analysis showed the possibility of improving the quality of the engine due to such innovations: the use of nanotechnologies to increase the wear resistance of parts; the use of voice assistants in critical operating modes; the use of methods for optimizing engine operating modes. The possibility of such an engine upgrade is confirmed in [26]. The upgraded engine will have a higher price. Therefore, its innovative money multiplier will increase. For example, this multiplier will become equal to 38. Such an increase in the innovative money multiplier will mean that: a particular manufacturing company will receive more profit; this will increase the income tax; this means an increase in revenues to the country's budget, and more. If the innovative money multiplier is larger than the bank multiplier, this means an increase in the hardness and growth of the national currency rate. This means increasing the stability of the national monetary system. As already noted, the growth of 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.

The bank multiplier describes the process of increasing (multiplying) funds on deposit accounts of commercial banks. This increase in funds is observed as a result of the movement of money from one economic entity to another. The bank multiplier is similar to the growth of the money supply in the economy. The prices of goods should cover the money supply. An increase in the innovative money multiplier leads to the fact that the total cost of goods exceeds the money supply in the economy. In the case of an increase in the innovative money multiplier, the total value of goods becomes greater than the money supply in the economy. Therefore, active innovations in the economy restrain the development of inflation. There is no inflation, so the national currency is stable.

At the same time, the gross domestic product increases, the volume of state budget funds increases. With the increase in budget revenues, the opportunities for the country's development are growing; the increase in social spending and defense spending is growing. Therefore, the size of the country's budget can be considered one of the key factors in the formation of the geopolitical status and geopolitical capabilities of the state.

If the modernization of the economy is not observed, then there is a drop in the competitiveness of the products of the national economy. The demand for these products is decreasing. As a result, the following consequences may arise: the gross domestic product of the country decreases; the volume of budget revenues of the country decreases; there is a socio-economic crisis; the geopolitical and socio-economic risks of the state grow; the geopolitical status decreases and the geopolitical position of the state worsens.

The policy of adaptation of the state to the conditions of the new technological order can be formed on the basis of consensus or on the basis of confrontation of its subjects. The development policy of the eighth technological order in the organization is formed on a consensus basis, if all the subjects of this policy agree with its content. The policy of transition to a

new technological order has a confrontational character if its development and implementation is accompanied by a conflict of its subjects. Such conflicts are mental in nature. The mentality can be characterized as a systematic combination of such characteristics of a person: the way of thinking; the level of abstraction of thinking; perception of the world and others. Any innovation has a mental basis. The development of a new technological order is characterized by increased risks of innovators and alarmists. The conflict can influence the policy of transition to a new technological order.

The algorithm of the course and the geopolitical consequences of mental conflicts in the formation of a new technological order confirm such historical examples.

Example # 1.1. It is known from history that Nikolai Dmitrievich Kondratyev was arrested in 1930. He was shot on September 17, 1938 at the Kommunarka training ground, in the Moscow region. This is a well-known economist. He is the developer of a new economic policy and the founder of the theory of economic cycles of development. These cycles are known all over the world as "Kondratiev Cycles". N. D. Kondratiev was rehabilitated twice (in 1963 and 1987). His works were aimed at studying economic development and the periodic onset of economic crises. His work could reduce the risk and damage from crises.

Example # 1.2. In 1940, there was a sixth technological order. This technological order was characterized by the development of computer technology, genetics. During this period of time, a mental conflict arose between the employees of the USSR Academy of Sciences. This conflict is described in [28]. The main blow was dealt to scientists who were engaged in advanced technologies. As a result of this conflict, genetics and cybernetics were actually banned. These sciences were called false sciences. The prominent scientist academician N. I. Vavilov and other developers of these scientific directions were repressed. Vavilov died in prison. Subsequently, in the 1950s, N. I. Vavilov was posthumously rehabilitated. This directly affected the level of technological development of the country. The country has lagged behind the world level in this area by about 10-15 years. The result of this conflict was the lag of the USSR in the field of computer technologies. This lag has reduced the competitiveness of the products of the national economy. This technological gap could not be overcome. This probably had disastrous consequences for the country.

Example # 1.3. Andrei Dmitrievich Sakharov is a Soviet theoretical physicist, three times Hero of Socialist Labor, academician of the USSR Academy of Sciences, one of the creators of the first Soviet hydrogen bomb. Public figure, dissident and human rights activist; People's Deputy of the USSR, author of the draft constitution of the Union of Soviet Republics of Europe and Asia. He is the winner of the 1975 Nobel Peace Prize for the preservation of peace. In 1955, A.D. Sakharov signed the "Letter of Three Hundred" against the activities of academician T. D. Lysenko. In 1968, A. L. Sakharov wrote a monograph "Reflections on Progress, Peaceful Coexistence and Intellectual Freedom". In 1971, A.D. Sakharov addressed the country's leadership with a study entitled "Memorandum". He was stripped of all awards and titles and sent into exile in Nizhny Novgorod.

These examples show that it is very dangerous for scientists to engage in research on technological progress.

Therefore, during the formation of a new technological order, it is important to include measures to minimize such conflicts in the policy. In addition to the mental causes of conflict, the sources of conflicts can be: the allocation of financial resources for research; the choice of the main directions of development and other issues of the eighth technological order. In this regard, the very fact of the existence of a policy of adaptation of organizations to the eighth technological order is important. At the same time, the formation of an effective concept and policy for the transition of organizations to the eighth technological way can: reduce risks and increase the efficiency of the processes of development of a new technological order in the 21st century.

Conflicts are an important source of risks. Therefore, the policy of adaptation to the new technological order should include measures aimed at identifying various types of conflicts. In the process of conflict resolution, the rule of law and respect for fundamental human rights can be of great importance [29].

When developing a policy of transition to a new technological order, it should be remembered that it is the disharmony between the essence of technologies and the nature of industrial social relations (institutions) that can cause an organization's crisis [30].

Economists believe that the main content of the eighth technological order is the development of nanotechnologies [31]. This approach may be unnecessarily narrow and simplified. The system analysis gives reason to believe that the technological basis of the eighth technological order will include: nanotechnologies; information technologies;

neurotechnologies; digitalization technologies; resource-saving technologies; environmentally friendly technologies [17]. At the same time, the main directions of scientific research can be: 1) nanotechnologies that are based on methods of deeper penetration into the structure of matter (the material world); 2) neurotechnologies that use knowledge about the work of the human brain and the human nervous system; 3) information technologies that allow optimizing management processes; 4) technologies for more rational use of natural raw materials (resource-saving technologies); 5) "green" technologies that reduce environmental damage and much more.

At the same time, as already mentioned, the subject of the eighth technological order will be an increase in the level of security and the degree of comfort of people's lives. In the process of solving these problems of the eighth technological order, the "technological gap" between advanced and lagging countries may increase. This can lead to an increase in contradictions. At the international level, these may be contradictions between technologically advanced States and lagging States. Within countries, these may be contradictions between technologically leading social groups and the technologically lagging part of the country's population. Therefore, in order to prevent international and internal conflicts, it may be necessary to study the peculiarities of development: of each of the countries; of individual social groups of the population. For this kind of research, an additional system analysis of the properties of the technological order may be required. Table 2 describes the results of a systematic analysis of the properties of all technological orders that have historically taken place in the process of technological development of mankind.

Table 2. System analysis of the properties of technological orders.

| № n/n | Properties of technological orders (structures) /number, names technological orders, time period | Technologies, methods and scales of production; structure and characteristics of labor | New types of production |
|------------------|---|---|--|
| (1) | (2) | (3) | (4) |
| 1. | "1st" technological order; horse traction; time period 2000 BC – 9th century AD, | Technologies of manual, single and small-scale production; simple abstract work | Mechanized processing of materials based on horse-drawn traction; transport services based on horse-drawn traction |
| 2. | "2nd" technological order; Windmill, a water mill; Time period 9th century-1770, | Technologies of manual, single and small-scale production; simple abstract work | mechanized production of flour, oils based on the use of vert energy and water |
| 3. | "3rd" technological order; Textile machines; Time period 1770-1830, | Mechanized technologies of mass production; professional labor skills | Mechanized textile production of fabrics |
| 4. | "4th" technological order; steam engine; Time period 1830-1880, | Mechanized technologies of mass production of machine-building products, knowledge and professional training of employees | Mechanized mechanical processing and transport services based on a steam engine |
| 5. | "5th" technological order; electric motor and internal combustion engine; Time period 1880-1930, | Technologies of large-scale conveyor production; special management and labor competencies | Mechanized mechanical processing; transport services based on an electric motor and an internal combustion engine |
| 6. | "6th" technological order; electronic computers; Time period 1930-1970, | Technologies of automated large-scale production; qualification requirements and job descriptions for employees | Production of electronic computers and automated production complexes |
| 7. | The " 7th " technological order; microelectronics and microprocessors; Time period 1970-2010; | Flexible automated production; competence cards and qualification cards for employees | Automated production of trace elements and printed circuit boards, microprocessor devices |
| 8. | The " 8th " technological order; nanotechnologies and neurotechnologies; Time period 2010-2040, | Nanotechnologies, neurotechnologies, information technologies; development of mentality and social development of employees | Production of materials with specified properties, nanotechnology production, environmentally friendly production |

Source: developed by the author

Table 2. Continued.

| № п/п | Properties of technological orders (structures) /number, names technological orders, time period | Economic policy, Types of organizational structures in the economy | The concept of organization management; the concept of working with personnel |
|----------|--|---|--|
| (1) | (2) | (5) | (6) |
| 1. | "1st" technological order; horse traction; time period 2000 BC – 9th century AD, | Centralization, organization, control, labor stimulation, management as an art, unity of command, human relations | Informal economic policy, traditional organizational structures |
| 2. | "2nd" technological order; Windmill, a water mill; Time period 9th century-1770, | The formation of requirements for the manager, the theory of power, the study of the impact of automation | Informal economic policy, traditional organizational structures |
| 3. | "3rd" technological order; Textile machines; Time period 1770-1830, | Economic theory, financial theory, the principle of specialization of industrial workers | Informal economic policy, traditional organizational structures |
| 4. | "4th" technological order; steam engine; Time period 1830-1880, | Theory of public services, analysis of employee motivation | Informal economic policy, traditional organizational structures |
| 5. | "5th" technological order; electric motor and internal combustion engine; Time period 1880-1930, | Scientific management, methods of statistics in management, personnel work | Approved economic and industrial policy, Functional organizational structures |
| 6. | "6th" technological order; electronic computers; Time period 1930-1970, | Operational research, system analysis, marketing, program-target approach, personnel management, personnel motivation systems | Approved economic and industrial policy; strategic management; product-oriented organizational structures of the company |
| 7. | The " 7th " technological order; microelectronics and microprocessors; Time period 1970-2010; | Project approach; post-industrial marketing; participatory management, human resource management | Approved innovation policy; matrix organizational structures; clusters; technology platforms |
| 8. | The " 8th " technological order; nanotechnologies and neurotechnologies; Time period 2010-2040, | Theory of technological orders; neuromanagement, neuromarketing; management of social development of personnel; higher project education | Approved innovation policy; clusters, technology platforms; Organizational architecture; organizational design and culture |

Source: developed by the author

The structure of the organization's adaptation policy to the eighth technological order may include the following groups of activities:

1. measures for the further development of the methodological provisions of the scientific theory of technological structures;
2. measures for the development of practical branch directions of the scientific theory of technological structures;
3. a set of measures for the use of new technologies in the life of society and individual social groups;
4. development of draft laws, legal norms for the development of clusters and technological platforms engaged in the development of new technologies of the eighth technological order (neurotechnologies; nanotechnologies; digitalization technologies; information technologies; environmentally friendly technologies; resource-saving technologies);
5. groups of events focused on the development of social and industrial institutions of the eighth technological order;
6. measures for the formation of a multi-circuit management system for the development of key technologies of the eighth technological order;
7. creation of a system of measures aimed at forming a set of indicators applicable for evaluating the effectiveness of the development processes of the eighth technological order and much more. At the same time, all these areas of the policy of adaptation of organizations to the new technological order should be coordinated with each other.

Let's study these areas of the organization's adaptation policy to the new technological order in more detail. Further development of the scientific theory of technological orders can occur by improving the methodology within the framework of the main functions of this theory. These are the following functions of the general theory of technological orders: methodological function; integrative function; prognostic function; function of knowledge socialization; preventive function; instrumental function. The essence of these functions of the scientific theory of technological orders is described in more detail in [16].

It is recommended to include the development of branch directions of the scientific theory of technological orders in the category of measures for the study of applied problems of the theory of technological orders by branches of the national economy.

The geopolitical branch of the scientific theory of technological orders can provide the solution of such practical tasks: forecasting changes in the geopolitical situation; analysis of the geopolitical consequences of the development of the eighth technological order; development of the state's foreign policy; formation of adequate measures to reduce geopolitical risks, and others. The great importance of the geopolitical direction of the scientific theory of technological orders is indicated by the fact that the First and Second World Wars arose during the 5th and 6th technological orders. It is believed that the emergence of these wars is associated with a change in the economic power of states. In addition, in the middle of the 7th technological order, the collapse of the USSR took place. This collapse of the USSR is largely due to the lag in technological

development. At the same time, there was a change in the geopolitical structure of the world and the world order. Due to the termination of the existence of the USSR, the bipolar world was transformed into a unipolar world. It can be predicted that the geopolitical consequences of the eighth technological order will be even more significant. At the same time, the geopolitical, technological and economic differentiation of countries will increase. The geopolitical results of the development of the eighth technological order can be predicted. This will reduce the geopolitical risks of global development. These risks should be taken into account in international policy.

The section of the scientific theory of technological orders in the field of political science can solve the following tasks: justification of the necessary changes in the national system of positive law; formation of an effective scientific and technical policy of organizations; justification of the policy of forming new industrial and social institutions during the eighth technological order.

All branch directions of the scientific theory of technological orders and this theory itself should be attributed to such a new scientific direction as system engineering. Applied sociology of the scientific theory of technological orders can study the problems of forecasting: trends in demographic development; analysis and forecasting of the social structure of society; analysis of the human life cycle; assessment of human life expectancy; analysis and forecasting of changes in the field of family relations, etc.

The culturological branch component of the scientific theory of technological orders can study the cause-and-effect relationships between the specifics of the technological order and cultural innovations and trends emerging in society. It is recommended to study such trends in the following areas: poetry; fiction; architecture; painting; theater; cinema; music and others.

The medical branch theory of technological orders will have a practical character. The medical branch theory of technological orders can study the following problems: the development of medical technologies and equipment; changes in the structure and nature of diseases of the population. In particular, it is necessary to investigate the dependence of the number of diseases of the heart and other organs on the features of the technological order. Such medical studies allow you to perform:

1. forecast of the development of various types of diseases during the eighth technological order (mode);
2. project for the development of medical services for society during the eighth technological order;
3. strategic planning of the development of new medical equipment using technologies of the eighth technological order;
4. plan the modernization of existing medical equipment through the introduction of technologies of the eighth technological order and more.

In the process of sectoral scientific research, a systematic analysis of the development of individual sectors of the national economy and its industry can be carried out. With such a

systematic analysis in the field of medicine, two tables can be developed. In the first table, it is necessary to describe the change in the structure and frequency of various diseases of the population as a function of the technological order. The second table can characterize the process of scientific and technological progress in the field of medical equipment during the time periods of the corresponding technological orders.

The methodology for the formation of new technological platforms is described in [32]. Such platforms should develop and introduce all types of technologies of the eighth technological order into the national economy. Neurotechnologies, nanotechnologies; information technologies, resource-saving technologies; digitalization technologies; environmentally friendly technologies are subject to development.

The mechanism of development of industrial and social institutions of the eighth technological order is described in [23]. The formation of a mechanism for managing the development of a new technological order is reflected in the work [33].

The composition of indicators for evaluating the effectiveness of the development and functioning of the eighth technological order will be described in the "Discussion" section of this article.

The process of developing and introducing new technologies into the economy should be organized. It is recommended to pay special attention to the process and results of commercialization of new technologies. Such commercialization should be practically carried out by purposefully introducing new technologies into existing products. Modernization of products or production assets of enterprises during their transition to the eighth technological order includes the following actions.

1. System analysis of each of the types of technologies of the eighth technological order (neurotechnologies, nanotechnologies, and others).
2. Analysis of the design and characteristics of the modernization object.
3. Analysis of the possibility of upgrading the design of the product (or production) in order to increase safety and comfort during the operation of the modernization object.
4. Development of options for the modernization of a certain object (product, service or production) through the introduction of technologies of the eighth technological order.
5. Assessment of the technical and economic efficiency of each of the options for the modernization of a particular object.
6. Making a management decision on the choice of an option for the modernization of a specific object.
7. Carrying out the modernization of the facility.
8. Monitoring of the technical and economic results of the modernization of the facility.

The technical efficiency of using new technologies is determined by the depth of their integration with the technical objects of previous technological orders. The

effectiveness of the use of new technologies in the national economy is determined by the number of integration (multiplication) of new technologies with the technologies of previous technological orders. The term "multiplication of technologies" characterizes the scale of the use of new technology in economic activity. This is a generalized characteristic of the number and depth of integration of new and old technologies during the transition to the eighth technological order. The concept of "multiplication of technologies" characterizes the economic efficiency of the

strategy of introducing new technologies into the national economy of the country. The more often new technologies are integrated with the technologies of previous technological orders, the higher the economic efficiency of new technologies.

Based on the research of the essence of the eighth technological order, by combining the rows with the number 8 of all the tables of system analysis, a model of the eighth technological order can be proposed.

This model is reflected in table 3.

Table 3. Factor model of the eighth technological order.

| № n/n | Factors of the eighth technological order | Description of the factors of the eighth technological order |
|--------------|---|--|
| (1) | (2) | (3) |
| 1. | new types of technologies | neurotechnologies, nanotechnologies, information technologies; development of mentality and social development of employees |
| 2. | Time period | 2010-2040 |
| 3. | Types of production enterprises | clusters; technology platforms; global information systems; |
| 4. | marketing methods; | post-industrial marketing, neuromarketing; |
| 5. | World order, socio-economic formation | States; trade and economic blocks of states; |
| 6. | Society and culture; | The process of decentralization of the global unipolar world; Post-industrial society; |
| 7. | Type of money; | global post-industrial society and cult global post-industrial society and culture |
| 7. | international monetary system | Cryptocurrencies (virtual, technological money); international cryptocurrency system; |
| 8. | Forms of development of science and innovation | global trading systems |
| 9. | Economic policy, Types of organizational structures in the economy | Clusters, technology platforms, university research laboratories, laboratories of coporations |
| 10. | The main forms of higher education | Approved innovation policy; clusters, technology platforms; Organizational architecture; |
| 11. | The concept of organization management; the concept of working with personnel | organizational design and culture |
| 12. | The nature and features of the innovation and investment process | System-activity approach, distance education |
| 13. | New types of production | Theory of technological orders; neuromanagement, neuromarketing; management of social development of personnel; higher project education |
| 14. | The main trend in the development of human rights | The innovation process is constant and massive; the development of new forms of venture investment, the activities of business angels and venture investment funds |
| | | Production of materials with specified properties, nanotechnology production, environmentally friendly production; |
| | | 3-D printing products, information products, transformation of human thinking (clip thinking) |
| | | Ensuring compliance with the rights of minorities |

Source: developed by the author

3. Discussion

The category of subjects of the development and implementation of the policy of transition of organizations to a new technological order can include: international organizations; national governments; national academies of sciences; political parties; top management of corporations; inventors of new technologies and others.

If a political party acts as the subject of the country's transition policy to a new technological order, then it can present its ideas on such problems: increasing the geopolitical status of the state; reducing geopolitical risks; rational distribution of productive forces; scientific policy; improving the conditions for socio-economic development; higher education policy; harmonization of social development; improvement of social insurance; development of medical services for the population and other issues. Political parties may propose changes to the national legal system. Legislative initiatives of political parties can be aimed at developing legal norms that contribute to reducing risks and accelerating the development of the eighth

technological order.

At the same time, political parties should provide political support and assistance to the subjects of the development of a new technological order. They should support those whose activities are focused on the development of a new technological order. Such political, organizational and social support for the developers of new scientific and technical directions is especially important in the initial period of the development of a new technological order (structure).

An important factor in the effective management of the development of a new technological order can be considered the creation of a set of indicators of the effectiveness of this process. The following indicators can be included in the composition of such a set of indicators of the effectiveness of the process of developing a new technological order in the national economy:

1. the share of products in the national economy that can be attributed to the eighth technological order;
2. assessment of the share of production technologies that can be attributed to the eighth technological order;
3. the share of the cost of fixed assets of firms that can be

attributed to the new technological order;

4. the share of the products of firms of a new technological order in the gross domestic product of the country;
5. the rate of annual change in these indicators and more.

In the process of forming the policy of entering organizations into a new technological order, it is necessary to take into account the situation of a qualitative leap in scientific and technological progress during this period of time. This leap and its character are closely related to the formation of a new technological order. At the same time, the presence of a qualitative leap in scientific and technological progress makes it impossible: to apply the continuation of trends in forecasting; the practical use of statistical methods; the development and use of analytical models, and more. In this situation, the forecast horizon is reduced. At the same time, heuristic forecasting methods gain an advantage.

Another characteristic feature of the development of the policy of adaptation of organizations to the new technological order can be considered that such a policy should have a systematic character. It should include measures of a technical, economic, and organizational nature. At the same time, the very process of developing such a policy can be recognized as a research strategic project of a policy subject. This project of developing such a policy will be based on the systematic use of a number of sciences: technical sciences, economics, geopolitics, sociology, theory of technological order and others. Therefore, the methodology for developing a policy for the transition to the eighth technological order can be attributed to the methods of system engineering. System engineering is an interdisciplinary approach involving the use of various tools and means to create efficient large systems. System engineering is also an interdisciplinary approach that integrates all technical efforts for development and harmonization in the life cycle of a variety of system solutions. These decisions affect people, products, and processes that meet the needs of stakeholders. All measures that are included in the policy of transition of the state (or another organization) to a new technological order must be scientifically justified.

The need to comply with the principle of scientific validity of measures and/or the principle of coordination of measures is confirmed by such a practical example.

Example # 2. In 2008, the global financial crisis began. Therefore, there was a need to increase the financial stability of the monetary system. On September 15, 2008, Lehman Brothers filed for bankruptcy. After that, the United States allocated about \$ 700 billion for urgent support of its financial system. Therefore, on November 7, 2010, an article was published in the Financial Times newspaper containing a proposal to partially return to the gold standard [34]. Recall that the "gold standard" was adopted at the Paris Conference in 1867. However, the Jamaican Monetary Conference of 1976 announced the demonetization of gold. Despite this, the proposal to partially return to the gold standard in 2010 was supported by the banking and financial circles. According to

this recommendation of the world monetary authorities, intensive buying of gold by central and commercial banks has begun. By July 2011, the price of a troy ounce of gold (weighing 31.4 grams) on the world market was already about \$ 1920 per ounce. In this situation, analysts of the banking system predicted that by the end of 2011, the price of gold will exceed \$ 2,000 per troy ounce. At the same time, spending money on buying gold led to the withdrawal of money from the real sector of the economy. The lack of money in the real sector hindered the way out of the crisis. At the same time, the "inflating of the gold bubble", the crisis in the gold market could lead to the destabilization of the banking system. In turn, the crisis of the banking system through the influence of the "domino effect" could lead to social and political destabilization of the United States and other countries. Therefore, in July 2011, this situation on the gold market was subjected to a systematic analysis in the book [35]. In this study, an expert opinion was expressed that the proposal to partially return to the gold standard is likely to simultaneously lead to: an increase in demand and prices for gold (inflating the gold bubble); reduce the flow of money into the real sector of the economy, which will make it difficult to get out of the crisis; presumably, does not meet the requirement of the existence of a unified methodology for building the monetary system; contradicts the decisions of the Jamaica Monetary Conference and others. Later, an additional analysis of the proposal for a partial return to the gold standard was also carried out in the book [36], published at the end of 2011.

The authorities and the banking community were informed about the results of these studies [35, 36]. After the publication of these research results, the situation on the gold market began to change, and the trend of the situation development also changed. The forecasts of bank analysts about the increase in gold prices did not come true. There was a trend to reduce the price of gold.

By the end of 2011, 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 US dollars [37, pp. 250-255]. Probably, the results of these scientific studies [35, 36] could affect the monetary policy and practice of buying gold by banks to replenish their reserves. Presumably, as a result of changes in the purchase of gold by banks, the price of one ounce of gold may decrease by about \$ 500 per ounce.

It is possible to perform an expert assessment of the estimated economic effect of such a systematic analysis of the situation on the gold market [35-37]. We use the information that the weight of bank gold in the world is about 60,000 tons. Let's divide the weight of bank gold (60,000 tons) by the weight of one troy ounce (31.4 grams). Then this number of troy ounces (910,828,025) should be multiplied by the value of the change in the price of gold (500 US dollars per ounce). Let's perform these arithmetic operations. According to the results of this calculation, the estimated economic effect of the system analysis of the situation on the gold market described above can be [35-37] about one trillion US dollars? For a better understanding of the size of

this amount, we can say that in 2014 it was an amount: about three times more than the entire federal budget of Russia; two and a half times more than the original size of the stabilization fund of the European Union? The expert opinion proposed above may indicate the following: the high price of management decisions made; the need for a preliminary system analysis of the decisions taken; the need for a conceptual approach in the process of forming a new technological structure? The idea of a partial return to the gold standard was not further developed and was practically not implemented?

In the technological theory of money, money is considered as an instrument of asset exchange between economic entities. Within the framework of the technological theory of money, it can be argued that technological money is the universal equivalent of technological operations. It is known that in August 2021, the World Monetary Fund issued special drawing rights in the amount of 650 billion US dollars. These funds were distributed among the participants of this fund. In Russia, these funds simply became part of the Central Bank's foreign exchange reserves.

Within the framework of the technological theory of money, such an operation could look like this. The funds are issued for the issuance of targeted mortgage loans. These loans are directed to the development of new technologies. 1. Experts estimate the capitalization of the development of technologies of the eighth technological order. 2. For the development of each of the types of technologies of the eighth technological order (nanotechnology, neurotechnology, etc.), money is issued in an amount corresponding to the capitalization of these technologies. This excludes the issuance of unsecured funds. 3. The World Bank issues funds equal to the assessment of the capitalization of certain types of technologies in the future. 4. Monetary contracts have been issued for the placement of production using these technologies. they are distributed among countries where certain types of technologies are being developed and / or production using these technologies is planned. 5. The central banks of the countries receive appropriate loans from the World Bank for the development of technologies of the eighth technological order. 6. Central banks issue loans to commercial banks for the purchase of certain technologies and industries with their use. 7. Commercial banks issue targeted loans for the development of technologies of the appropriate technological structure to firms developing new technologies.

The third feature of the policy of adaptation of organizations to the new technological order can be considered that such a policy should be formed for the long term. Such a policy should operate throughout the entire life cycle of the new technological order in the national and global economy. Therefore, such a policy should be developed for the period up to 2040.

The fourth distinguishing feature of this policy may be that such a policy should also include a risk analysis. Based on the results of such a risk analysis, it is necessary to propose a list of measures aimed at reducing risks in the process of

transition to a new technological order (structure).

The fifth feature of the synthesized policy is that such a policy should be based on the results of predictive analysis. Predictive analysis is aimed at analyzing the future situation. This future situation should develop in the process of the organization's transition to the eighth technological order.

The sixth feature of the policy under consideration is that such a policy should be periodically reviewed. The reasons for the revision of this policy may be: the expiration of a certain period of time; changes observed in the external and internal environment of the national economy.

The final (seventh) feature of this policy should be recognized that such a policy should initially be formed as a flexible document. Such a policy should initially provide for the possibility of making changes to its sections, goals and tools when the current situation changes.

At the same time, it is important to understand that the implementation of the approved policy of the transition of the state (organization) to the eighth technological order will actually lead to the restructuring of the economy. There will be changes in the life of society. The geopolitical status of the state will change. All these factors will lead to a change in the positioning of the state (organization) among its peers. For this reason, it is logical to rebrand the state (organization). At the same time, it may be necessary to rebrand state authorities, corporations and other subjects of the transition to the eighth technological order. Such a rebranding of the state should be accompanied by the development of a private concept of rebranding a specific subject of the eighth technological order. When conducting such a rebranding, any ideas should be creatively used. Presumably, when forming the policy of rebranding the state during its transition to a new technological order, it may happen that a separate proposal, an event that was not initially approved, after creative modernization may become an essential element of the concept of such a rebranding of the state.

Example # 3. In 2019, the proposal to develop a philosophy for rebranding the public administration system was formulated during the preparation of an international scientific conference at the Faculty of Public Administration of Moscow State University. The theses of the report on this topic entitled "The philosophy of rebranding of domestic public administration" were posted on the Lomonosov portal on 23.03.2019. However, the organizing committee of this scientific conference did not approve these theses. At the same time, it is likely that the idea of these theses about the need for rebranding the state could be interesting. In this case, after the supposed creative development of the idea of rebranding the state, probably, it could get practical development? Presumably, the idea of rebranding the state could become the starting point of the process of changes in the functioning of the national system of public administration? As you know, the changes in the functioning of the public administration system were approved in a referendum in 2020.

The methodology of brand creation, brand management and rebranding of organizations is described in the general

theory of rebranding, reflected in a number of publications [38-40]. This general theory of branding and rebranding of organizations can be a methodology suitable for use by its subjects in the process of implementing their policy of transition to the eighth technological order.

4. Conclusion

The article forms a methodology for synthesizing the policy of transition of the state (or other organizations) to functioning in the conditions of the eighth technological order in the economy and society. The policy of the state's transition to a new technological order is understood as a set of measures aimed at increasing the competitiveness of the state in the conditions of a new technological order.

The article proves that the starting point for the formation of such a policy should be a systematic analysis of the new technological order. As a result of such a system analysis, a model of the future technological structure can be formed. This model gives an image of the future. The article presents the structure of the state transition policy to the eighth technological order.

The article describes the tasks of the branch directions of the theory of technological orders in such areas as: geopolitics; politics; sociology; medicine; culture.

The article proves that the basis of the methodology for developing such a policy should be: the theory of large systems; the system approach; the theory of technological order. This indicates the need to develop such a scientific and practical direction as system engineering of the eighth technological order.

The paper shows that the transition to the eighth technological order will lead to a change in the positioning of the state and other subjects of this process. Therefore, in the process of developing a new technological order, it may be necessary to rebrand the system of public administration, political parties, corporations and other subjects of the development of a new technological order.

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