Problems of Sustainable Development and Ensuring Russia's Economic Security in the Context of Modern Challenges

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Abstract: The purpose of this article is to identify priority areas for ensuring Russia's economic security on the path of sustainable development in the context of modern global transformations. Considering the modern world-system from the standpoint of system analysis and synergetic approach, the authors come to the conclusion that at present the world economy, which is a complex dynamic socio-economic system, is at the point of bifurcation and qualitative transition. In these conditions, it is necessary for Russia to preserve the possibilities of sustainable development, which actually means ensuring economic security for it. In the conditions of increasing global uncertainty, sanctions pressure and a certain technological lag between Russia and the leading countries of the world, the solution of these tasks is seen in the ways of an early transition of the country's economy to the sixth technological stage interspersed with the seventh, which is currently possible to implement through mutually beneficial cooperation with the BRICS countries. This will allow Russia to take a favorable competitive position in the world system after it passes the bifurcation point and acquires a new state of dynamic equilibrium.

1 INTRODUCTION

At the beginning of this decade of the XXI century, humanity faced new challenges caused by the strengthening of the dynamic imbalance of the global economic system and its reaching the point of bifurcation, suggesting an unpredictable or difficult-to-predict development of events. A global transformation has begun, associated with the transition from a unipolar model of the world to multipolarity, accompanied by serious changes of a geopolitical nature. Modern realities pose new challenges for Russia to ensure national and economic security and sustainable development of the country and its regions.(Afanasyeva, Tkacheva, 2021)

After the start of a special military operation to protect Donbass, Russia is under the influence of an unprecedented number of sanctions, for the tightening and scale of which the economy of the country and regions has largely been prepared. However, the continuation of the policy of the leading Western countries aimed at the economic isolation of Russia requires the development of a system of adequate measures at the federal and regional levels aimed at countering sanctions in the future.

Obviously, the purpose of the sanctions applied against Russia is to reduce economic growth due to the disruption of the former logistics chains, weakening the economy due to the impossibility of rapid import substitution of Western goods, on the receipt of which depends, first of all, production consumption. Further, it is assumed that along the chain this will cause a shortage in the domestic

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market of both imported and domestic consumer goods. The consequence is socio-economic upheavals and, ultimately, political destabilization in the country. Therefore, the most important task for the leadership of the country and its regions is to ensure economic security at all levels, which in these conditions can be considered as the ability to maintain stability and development opportunities both under the conditions of sanctions pressure and the increase caused by the entry of the world system into a state of bifurcation of geopolitical unpredictability.

2 RESEARCH METHODOLOGY

Modern global transformations can be described and explained using the theory of systems and a synergetic approach that allows us to consider the modern world as a complex dynamic socio-economic system in a state of disequilibrium, and currently at the point of bifurcation.

The transition of the system to this state was due to the accumulation of contradictions caused by its development and complication in the conditions, on the one hand, of the functioning of the unipolar world model based on the institutional framework of Bretton Woods, on the other hand, the emergence and strengthening of new global players in their readiness to enter the world arena, whose geopolitical and geo-economic interests and the needs cannot be met within the framework of the current model. In accordance with the objective laws of development, in this state, the system begins to move to the point of bifurcation, followed by its abrupt qualitative transformation.

As the system approaches the bifurcation point, the change in its parameters increases, which can lead to a violation of the order of the system and its transition to a state of determined chaos. At the moment when the system passes the bifurcation point, the development of events may imply the implementation of any scenario, and the very output of the system at this point implies the inevitability of changes not only in its fundamental quantitative and qualitative characteristics, but often in its very essence. At the same time, the system can no longer return to the initial state preceding the bifurcation (Mironova, 2022).

The new and recent history of the development of the world economy and modern concepts of the world order actually confirms the correctness of using the synergetic method to describe the ongoing transformations. In the process of forming a unipolar world order in the process of neoliberal globalization, the SPOD-world model (a steady, predictable, ordinary, and definite world) collapses and is replaced by the VUCA model, i.e. a volatile uncertain complex and ambiguous world. As contradictions accumulate, causing quantitative changes to approach a qualitative leap, the VUCA world is reborn into a BANI world, which is usually characterized as a brittle, anxious, non-linear, incomprehensible world or a world of chaos.

In these conditions, even in the process of the birth of the VUCA world, concepts of sustainable development are emerging, aimed at giving socio-economic and ecological systems a state that would allow them to maintain a certain equilibrium state in conditions of increasing chaos and, moreover, give them the ability to develop and preserve all the necessary resources for future generations. Currently, the concept of sustainable development is often associated with the international principles of ESG (Environmental, Social, Governance), but the latter are more important at the micro level.

Currently, the preservation of the ability of the socio-economic system of Russia and its regions to sustainable development is one of the most important conditions not only for ensuring economic security at all levels, but also for the possibility of exiting the global transformation after the world system passes the bifurcation point with the least losses.

All of the above has necessitated the use in this study of methods of system analysis, a synergetic approach, a dialectical method of studying socio-economic processes, a method of unity of logical and historical, analytical and abstract-logical methods.

3 RESEARCH RESULTS

In conditions of increasing global instability, the problems of ensuring national and economic security are becoming more complicated for any state, including Russia, which needs to solve a number of priority tasks not only of a military, but also of an economic nature. One of such tasks is to achieve sustainable development, by which in this case we will understand the preservation of the dynamic balance of both the economic system of the country as a whole and its constituent subsystems – regions, as well as inter-element connections within the system. This means the need to neutralize and prevent the emergence and spread of crisis trends at all levels of the system hierarchy and, moreover, to preserve the opportunities for economic growth and social development of the Russian Federation and its subjects.

The exit of the world-system to the bifurcation point, as already noted, is described by the concept of the BANI–world, which very accurately notes that the development of complex dynamic socio-economic systems ceases to move along a linear trajectory, and the further development of globalization processes does not necessarily mean irreversible movement of progress. For the modern world, convergence and divergence, integration and disintegration, the desire of global actors for openness, trends in regionalization and even individual elements of autarky, the collapse of previous stable alliances, and the formation of new unexpected partnerships are equally "normal". In these conditions, for Russia and its regions, the tasks of ensuring sustainable development and economic development can no longer be considered in the planes of an open economy, since the openness of the national economic system in itself in conditions of global instability is already a danger.

In the context of economic sanctions that have been in force against Russia since 2014, ensuring sustainable development and, accordingly, economic security at the macro and meso levels means solving the problems of import substitution and modernization of Russian industry, transition to higher-level technological structures. At the same time, it is fundamentally important for the Russian economy to overcome the technological gap from developed countries while reducing dependence on imports of high-tech products of foreign production.

The urgency of this problem today is connected not only with ensuring a high level of industrial self-sufficiency of the country in the conditions of economic sanctions and with ensuring the necessary degree of competitiveness of Russian products in the markets of friendly countries. Despite the fact that the country has been living in the import substitution regime for 9 years, the use of outdated technologies remains in the country and the degree of depreciation of fixed assets is still high.

According to Rosstat, in the early 2020s, the average national level of depreciation of fixed assets is estimated at about 50%, while the threshold value, upon reaching which the problem of equipment wear turns into a threat to economic security, is 42%. According to this indicator, Russia is at the level of the 80s of the twentieth century. According to alternative sources, the level of wear of industrial equipment is even higher and varies in different regions of the country from 65% to 90% in certain industries. This suggests that the country will not be able to solve the problem of import substitution in the production of equipment only on its own, and for at least a medium-term perspective it will be dependent on its imports.

Currently, this dependence is very high and accounts for 50-90% of imports for various types of agricultural machinery, 50% for products of heavy machinery industries, 60% for the production of equipment for the oil and gas sector, about 80% in civil aircraft. At the same time, we are talking not only and not so much about the production of finished products, but about semi-finished products, which is precisely the result of the policy of openness of the national economy of Russia and the active integration of its productions into global technological chains. Another reason for this problem was the mistakes made by the country's leadership in the early years of market transformation, which led to the priority development of the financial sector to the detriment of national production, primarily knowledge-intensive industries. At the same time, until recently, not advanced foreign technologies were supplied to Russia, allowing production to be brought to a modern high-tech level, but machines and equipment belonging at best to the fifth technological stage.

Given the prolongation of the terms of the special military operation conducted by Russia, the number of Western sanctions, which has already reached an unprecedented magnitude, will only increase, and this suggests that traditional suppliers of equipment from countries imposing sanctions regimes for domestic manufacturers are lost indefinitely. The use of outdated equipment and technologies threatens to increase socio-economic and environmental problems, and therefore is a serious challenge to solving the problems of sustainable development of Russia and its regions. Moreover, this calls into question the possibility of ensuring the economic security of the country, since at the specified level of wear of industrial equipment, we can only talk about simple reproduction.

In this regard, it should be emphasized once again that achieving the goals of sustainable development of the socio-economic system of Russia and ensuring its economic security today will largely depend on how quickly the country will be able to ensure economic growth and the development of national industry on the basis of advanced equipment mainly of domestic production.

Despite the fact that at present, as already mentioned above, the expansion of the openness of the national economy of Russia is equivalent to minimizing its ability to ensure its economic security, in the conditions of the designated import dependence of the industrial sector of the country, we can certainly not talk about complete autarky and selfisolation of Russian manufacturers. At the moment, the solution to the problem can only be the reorientation of trade contracts for the acquisition of foreign equipment and technologies to friendly countries, among which, in our opinion, the most important role will be played by China, India and Iran. With the help of scientific, technical, industrial and trade cooperation with these countries, which demonstrate significant successes in economic and technological development, including in the conditions of prolonged sanctions pressure (Iran), it is important for Russia to rely on the introduction and development of technologies not only of the sixth, but also of the seventh technological stage, which is currently only emerging, and to achieve a monopoly competitive advantage in this area. The latter is due to the fact that the passage of the bifurcation point by the world system, although it does not have defined time boundaries, will sooner or later end with the formation of a new system with a new relatively equilibrium state, and in this newly formed global economic system Russia needs to be a leader, not catch up.

4 DISCUSSION OF RESULTS

The concept of technological stage was revealed in the works of Russian scientists D.S. Lvov (Lvov, 1982), M.A. Parshin, D.A. Kruglov (Parshin, Kruglov 2014), S.Yu. Glazyev (Glazyev, 2018), et al. authors. Summarizing numerous definitions, one can consider the technological stage as a set of technologies used at a certain level of development of production, science and technology. The development of technological stages demonstrates progressive dynamics even in the conditions of the VUCA- and BANI- world and moves from simple to increasingly complex forms, demonstrating a certain continuity. The change of technological stages occurs as the development possibilities of the technologies preceding the new way of life are exhausted, however, inclusions of new patterns may exist in the "bowels" of the existing ones, although they remain in the shadow of the latter.

The definition of the boundaries of the technological stage is very conditional, sometimes it can be determined for centuries, sometimes it includes several decades. (Zinovieva, Inozemtseva et al., 2017)

The characteristics of the six technological stages that have historically replaced each other are presented in Table 1 (Schwab, 2016).

Table 1:Evolution of technological stages.

Technological stage	Period of existence	Specification
The first stage	1785-1835	The use of water and steam energy, the beginning of the use of steam engines mainly in the production of textiles.
The second stage	1830-1890	The use of a steam engine in industrial production and transport.
The third stage	1880-1940	The use of electrical energy in industrial production. Development of electric power industry, heavy industry, mechanical engineering, including automotive, chemical industry.
The fourth stage	1950-1990	Development of electric power industry based on the energy of oil, gas, petroleum products. Production of polymers, artificial materials. The era of the development of nuclear energy. The emergence of computers, computer technologies and software products. Widespread mass production based on conveyor technologies.
The fifth stage	1985-2025	Development of microelectronics, computer science, biotechnology, genetic engineering. Application of network technologies in production, marketing, management. Widespread use of Internet technologies that provide a symbiosis of production, quality control of products and services, planning and implementation of innovations.
The sixth stage	2015-…	The development of digital technologies, robotics, nanotechnology, artificial intelligence

		and neural networks, the widespread use of advances in molecular biology and genetic engineering, the individualization of production of products and services in accordance with the requests of a particular client, the production of structural materials with predetermined properties, flexible automation of production, the widespread use of space and satellite technologies, global information networks. It is planned to expand the use of hydrogen energy along with traditional energy, transition to the predominant use of renewable energy sources (however, currently mainly traditional energy carriers are used).

The development of technological stages and their spread is uneven in different countries of the world. So, currently in the United States, the share of productive forces of the sixth technological stage is 6%, the fifth – more than 60%, the fourth –– 20%. (Shamakhov, 2018). As for Russia, according to E.N. Kabalov, in 2010 the share of fifth-generation technologies was about 10%, "and even then only in the most developed industries: in the military-industrial complex and in the aerospace industry. More than 50% of technologies belong to the fourth level, and almost a third belong to the third". (Kabalov, 2010). L. E. Mindeli, and S. I. Chernykh estimate Russia's technological lag behind Western countries at about 50 years (Mindeli, Chernykh et al. 2013), which is also reflected in the socio-economic lag, the wide spread of environmentally harmful industries, the effect of other factors that negatively affect the possibilities of achieving sustainable development.

This means that in the light of the modern challenges facing the Russian Federation, domestic science and technology must solve a very difficult task: in the face of sanctions pressure, significant costs for the production of weapons in the conditions of prolongation of its military confrontation with NATO, as well as the possible appearance of other "black swans" from the world that has entered a state of bifurcation-the systems will enter the number of countries with the sixth technological stage within the next 5-10 years and begin to develop the seventh, actually bypassing the fifth stage. Currently, the solution of this problem is possible through mutually beneficial cooperation in the economic, scientific, technical and military spheres with the BRICS countries, as well as in expanding the production of dual-use goods, the production of which uses advanced technologies of the defense industry.

The seventh technological stage is based on the use of NBIC technologies, which involve innovative renewal of production in compliance with the principles of sustainable development (Frolov, 2013).

NBIC technologies and, accordingly, the concept of NBIC convergence got their name from the first letters of four fields of knowledge: N – nano, B – bio, I – info, C – cogno. This concept represents the idea of the intersection in time of several waves of scientific and technical, information and communication, biological and nanotechnology revolutions, as well as the development of knowledge in the field of human cognitive abilities. At the junction of these fields of knowledge and innovative technologies, their convergence occurs, a certain new direction of scientific thought is born, which has both theoretical and applied significance. Research in this direction has been conducted by foreign scientists since 2002, but for Russia, the issues of NBIC convergence are new and have innovative significance.

According to T.V. Pavelieva, the leading importance among NBIC technologies is the information and communication sphere, which has received the greatest development at the moment. It actually represents the basis for the development of research tools in all other fields. In turn, inventions and discoveries in the field of biotechnology contribute to the development of the cognitive component and nano-technologies, as well as artificial intelligence in the IT sphere (Pavelieva, 2018).

According to D.S. Khomich, the fundamental difference between the seventh technological stage and all the previous ones will be their cognitive nature, which presupposes the inclusion of human consciousness in the production, which turns into the main productive force of society together with science. (Khomich, 2017). Until now, the production of any product does not require the direct participation of human consciousness: in order to press a button on the machine and start the tool, a muscular effort is required, and even then only at the very initial stage, and then the employee can only observe the work of the tool without interfering with its work. But in order to carry out this process, you first need to make a machine and spend a huge amount of material, fuel, labor and time on it. However, when our consciousness itself becomes a productive force, we gain the opportunity to produce the product we need right out of the void, without resorting to the preliminary manufacture of a machine or other equipment. No matter how fantastic it may sound, the latest achievements of scientific thought do not reject such a possibility.

Taking into account the systemic interrelations between the above four scientific areas, as well as current trends in the development of science and technology, it should be assumed that the development of NBIC areas will be of strategic importance for Russia in the very near future.

In all likelihood, in today's dynamically changing world and in the emerging model of the world of the future, sustainable development can be achieved precisely due to the latest achievements of science, the subject of study of which covers almost all levels of the organization of matter. Knowledge of the molecular nature of a substance at the nano-level will determine the production and, consequently, economic processes carried out in inextricable connection with the environmental component (the biological component of scientific knowledge), as well as the development of healthcare, an increase in human life expectancy, and an improvement in its quality. The widespread use of nano-technologies will allow a more rational approach to the use of natural resources, solve resource conservation issues for the preservation of all types of natural resources for both living and future generations.

In all likelihood, solving economic and environmental problems will make social processes more understandable and predictable, and the cognitive component can also play an important role in this. The process of mutual exchange of information between the three structural elements of sustainable development and their close interaction will determine the development of ICT.

4 CONCLUSION

Thus, the modernization of the Russian economy can simultaneously be considered both as a factor in ensuring the sustainable development of the country and as an existential task of ensuring the economic security of the country and its regions.

In our opinion, the priority development of these industries involves an integrated approach and should be based on solving a whole range of tasks both in the branches of material production interconnected by technological chains and in the scientific sphere. The most important thing is the training of highly qualified specialists based on the latest achievements of domestic and foreign science in higher and secondary vocational educational institutions, the formation of systemic knowledge at the junction of various sciences among young specialists, as well as flexible skills that allow them to quickly navigate in a constantly changing external and internal environment and make adequate decisions in the economic, social and environmental spheres.

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