

Effective implementation of ESG principles under technological sovereignty

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Abstract. Government acts have been formed and the principles of ESG have been enshrined in the national development strategy, however, until quite recently there has been a lack of activity in the practical aspect. In the meantime, the sanctions pressure which began in 2014, compounded by pandemic restrictions and post-pandemic exacerbation, brought about a new way of revitalization for the development of the principles of "Environment", "Society", "Governance" - different from the previously accepted one in the global economy. If 10 years ago it really seemed that the world economy should function on the basis of joint production of a single product from components produced in different countries, then at present, especially within the framework of Russian realities, it seems necessary to master the path of "own full-fledged national production". This for its part requires the creation of theoretical and practical presupposition for the implementation of the concept of "technological sovereignty" which can become the framework for the real introduction of ESG principles into practice. Based on the analysis of the concept of "sovereignty", its applicability to the technological area of the economy is valid, distinctions from the term "scientific and technical security" are identified, its role in the system of scientific knowledge is determined. The matrix of the evolution of technological sovereignty in the economy is clearly articulated.

1 Introduction

For a long time abroad, prioritization was placed on the primacy of human capital over other factors of production. This postulate was determined by the fact that in the "knowledge society" the state had to provide opportunities for impartial international cooperation to enhance the efficiency of the national economy within the global framework [10]. Quite a large number of researchers (both domestic and foreign), such as M. Dudin [6], G. Allen [1] etc., developed this idea in their writings. They assumed that the national economy is predisposed to the production of economic benefits that are historically or genetically determined by national and corporate interests, as well as their corresponding natural, technical, technological and human resources.

Under conditions of the protracted transformation of the command and administrative economy into a market economy in the Russian Federation, this led to the fact that individual

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industries and entire sectors of the economy were "abandoned". At present, as Russia seeks to find its own path, the economy's primary goal is to create a structure that will allow to solve problems with self-sufficiency in goods, works and services. Despite the fact that this aspect goes against the theory of involvement and integration of the national economy into the global one, it is not oppositional, but reflects the objective need to maintain the key function of the state in the form of ensuring a high quality of life for the population, which was threatened after the imposition of sanctions, which turned 10 years old this year and which show a trend towards deeper and deeper penetration into all sectors and spheres of the economy [12].

Thus, the officially announced trend towards ensuring the technological sovereignty of the Russian economy is not a subjective decision, but characterizes the state's interest in forming an open economy based on the independent provision of the most important attribute of the state and the main object of public law.

In this context, it seems relevant and significant for this study to form an idea of what sovereignty in general is, how and what role technical and technological independence plays in it, as well as which category most fully reflects the above-mentioned trend.

2 Materials and methods

On this basis, it seems legitimate to interpret technological sovereignty as a complex concept. On the one hand, it defines state's ability to fulfill its functions seamlessly to provide citizens with a high standard of living by giving them an opportunity to meet the necessary needs. On the other hand, this concept includes representation of an economic category that reflects national technical and technological independence, which determines the corresponding security. The proposed definition introduces a new perspective by exploring the connection between "sovereignty" and "technological sovereignty" through the validation of the term "state independence and security" in the technological realm of the economy. It also highlights distinctions from the term "scientific and technical security" through the matrix of the evolution of technological sovereignty in the domestic economy.

The study chose an evolutionary approach to the term sovereignty, as well as the analysis of its species gradation and component content.

The purpose of the study is to conduct a retrospective analysis of the concept of "sovereignty" and substantiate its applicability to the technological sphere of the economy.

Research objectives:

1) to determine the differences between the term "technological sovereignty" and the term "scientific and technical security".

2) to build a matrix of the evolution of technological sovereignty in the domestic economy, taking into account technological patterns.

This allows us to interpret technological sovereignty as a two-part concept:

- on the one hand, to consider it as an element of national sovereignty – in this case, it represents an opportunity for independent and independent implementation of a full range of state interests in order to ensure the basic needs of the state and its citizens;

- on the other hand, to characterize it as an economic category, which determines at the state level the ability to organize its own economic and technological security.

The scientific novelty of this interpretation is that it allows us to establish the differences between technological sovereignty and the term "scientific and technical security", since the former is based on the concept of independence in relation to scientific and technological development, and the latter implies ensuring conditions for preventing the release of national scientific developments and information outside the state.

Based on the main provisions of national legislation ("On Security", "On strategic National Security of the Russian Federation", "On the strategy of scientific and technical

development of the Russian Federation"), combined with knowledge of leading domestic experts (V. Faltsman, S.V. Eshtokin, A.I. Gretchenko, etc.), conclusions were drawn about the evolution and modern ancestral concept:

- the term "sovereignty" comes from the French "souverainete" or the German "soveranitat" and means "supreme power" or "independence";
- its core is the ability to freely implement certain interests;
- over time, this concept was categorized based on its relevance, resulting in a classification into national, economic, technological, and other forms of sovereignty. This shift in focus from political and legal to historical, military, economic, social and other spheres was brought about by socio-economic development.

3 Results

Although sovereignty was originally viewed as independence or ultimate authority, the key factors that define this term are its association with a specific place and local people [9]. This point was initially described by philosophers J. Boden and T. Hobbes. It was them, who gave the definition to the word sovereignty as "a way of conceptualizing supreme power over political education" [10]. Subsequently in the research of J. Locke, N. Machiavelli, S.D. Montesquieu, J.J. According to Rousseau, the term "sovereignty" began to be endowed not only with political, but also with historical, social and geographical characteristics that make it possible to fully reflect the independence of state (or other) authority in a particular territory [11]. It is legitimate to note that until the beginning of the 20th century, sovereignty was considered only as a concept of international law, allowing the State, by virtue of its capabilities, to respond to unfriendly external influences that impede or limit national independence. At the same time, the very principles of the implementation of sovereignty were not considered in sufficient detail.

The use of the historical component method allowed us to trace how the concept of sovereignty evolved (Table 1).

Table 1. Evolution of approaches to the concept of "sovereignty"

The idea of sovereignty and the authors. Source: [3, 10, 12].

Old French "soveranite"	Zh. Boden interpreted sovereignty as the absolute and unshakable power of the monarch in the state	The Westphalian Treaties provided for territorial binding of sovereignty, which brought it significantly closer to statehood	T. Hobbes – suggested the need for a social contract headed by the sovereign	Zh. J. Rousseau promoted the idea of the domination of the sovereign over society for his own good, i.e. justified the restrictions	M. Weber introduced the concept of legitimate violence
Latin "suprematis"					
German "soveranitat" = "Supreme power"					
Variants of the original origin (Middle Ages)	Official introduction to practice 1576	Mention in international law 1648 г.	Development of the theory of sovereignty	The predominance of radicalism in the theory of sovereignty XVIII	Period XX century

The above scheme reflects several important aspects:

1) sovereignty has passed a long way of perception from a political term in its purest form to a commonly used social term and phenomenon;

2) the "monarchical" nature of sovereignty gradually lost its position and moved into a state of nationwide restriction of certain freedoms in favor of strengthening independence and opportunities.

In Russia, the above-mentioned changes took on an even more distinct character due to the transition to "their own path", namely, the path of Marxism-Leninism. At that time, sovereignty began to be interpreted as an unshakable aspect of totalitarianism, and the idea of the correctness of the chosen direction for a bright future and the corresponding demands for independence, manifested in an unwillingness to focus on Western values, became the engine of the country's sovereignty. The historical (but not logical) continuation of the development of sovereignty in Russia was that the transition to the market returned it to the position of the original misunderstanding of legal, historical, economic and social aspects, which manifested itself in the desire to obtain the unhindered realization of any interests.

In the Russian theory of sovereignty, the authors identify a number of its specific features, emphasizing the «special path» of socio-political, technical, technological and economic development of Russia:

- first of all, the hierarchical nature of sovereignty is emphasized, which makes it possible to consider it in relation to the state as a whole, individual spheres (economics, science, etc.) as well as areas (technology, technology), this allows us to more deeply identify close intersectoral ties and the corresponding dependence between the achieved level of sovereignty and the effectiveness of its protection system [2];
- there are various perspectives suggesting the specialization of state sovereignty, such as normative, which means economic and political independence of the state, socio-economic (ability of the system to stay strong against external challenges and threats), material (fulfilling citizens' rights to own national wealth) and market (ability to impact on international economy), [4];
- the ability to ability to innovate and engage in technological development is recognized, with the condition that the security and confidentiality of individuals or groups are safeguarded [13];
- the link is dependent on creating conditions for the state to function independently, especially in economic, social, and other aspects [7].

The definition of technological sovereignty was reduced to three core points:

1) the ability of the national economy to provide the population with products in the required quantity and acceptable (corresponding to foreign analogues) quality [14, 398-403];

2) the availability of equipment, technologies, production units, spare parts and the possibility of their maintenance by Russian organizations, as well as the ability of their social and economically feasible functioning based on the production of economic benefits needed by the population [5, 83-91];

3) the ability of the state to maintain such a level of scientific, technical and industrial development that will allow it to create and maintain its own technologies and infrastructure sufficient to ensure the independence of its policy, economy and defense capability from foreign technologies in critical, vital areas [15].

Therefore, both "technological sovereignty" and "sovereignty" are viewed as complex structures that encompass various types and levels of authority, as summarized in Table 2.

Table 2. Types of sovereignty and their interpretation by various authors ("+" marks the types interpreted by the author)

Author \ Type of sovereignty	Zh. Sapir [13]	A. A. Sergunin [14]	V. Faltsman [15]	M.N. Dudin [16]	O.V. Andreeva [17]	S.V. Eshtokin [13]	A.I. Gretchenko [14]
Economic	+			+		+	+
State	+	+		+		+	
Social	+						+
Ecological						+	+
Political		+				+	
Financial					+		
People 's		+					
Food	+						
Scientific and Technological			+		+		
Technological			+		+	+	+
Digital				+			
T-sovereignty (Association of technological and scientific-technological)			+				
Partial						+	

Source: compiled by the authors

The unclear interpretation of different types of sovereignty arises from both subjective and objective elements: the subjective aspect pertains to how sovereignty is perceived in various domains of human activity, while the objective aspect relates to the relativity of sovereignty based on its application context. It is also important to highlight that the initial five types of sovereignty are typically interpreted consistently across various authors, whereas the other types exhibit considerable fragmentation. This inconsistency may stem from the relatively recent application of sovereignty in areas such as technology, digital platforms, finance, and the environment, which has yet to coalesce into a coherent form and structure.

In comparison, the concept of T-sovereignities is increasingly gaining attention from both experts and various users. However, views on their identity and their comparison to other ideas remain quite divisive, as illustrated in Table 3.

As Table 4 shows, technology and technology directly reflect the development of the main areas of society, including economics, politics, social relations and others.

As one of the patterns of such a technical and technological evolution, it is legitimate to note a corresponding change in the interests and perceptions of citizens, which leads to such phenomena as political, social, scientific, technical, cultural and other revolutions. As a result, it is legitimate to note that the objective desire of the state to meet the key needs of citizens, on the one hand, as well as their demand for sustainable development and security, on the other, form the prerequisites for the emergence and development of technological sovereignty.

In addition, the following assumptions create perfect conditions for the development of technological sovereignty:

- dilution of borders due to the possibility of wide communication, which makes it possible to obtain the required equipment and technologies, and determines the presence of competition, which significantly reduces the opportunities for the population to receive economic benefits created in their home country;

Table 3. Identity and components of T-sovereignities

Components Type of sovereignty	The opposite of the processes of regional socio-political integration and globalization	is the component of national and political sovereignty calculated as the ratio of net exports to foreign trade turnover	Internal independence of the state in determining the policy of technological development	External independence of the state in determining the policy of technological development	The national security component	A synonym for technological security	Implementation of goals and objectives in the field of management of innovative industries to achieve the independence of the individual, society, state
Technolo-gical	S.V. Yeshtokin [13]	S.V. Yeshtokin [13], V. Faltsman [15]	S.V. Yeshtokin [13]	S.V. Yeshtokin [13]	A.I. Gretchenko [14]	A.I. Gretchenko [14]	A.I. Gretchenko [14]
Scientific and Techno-logical		V. Faltsman [15]	O.V. Andreeva [17]		A.I. Gretchenko [14]	A.I. Gretchenko [14]	A.I. Gretchenko [14]
Digital		A.I. Gretchenko [14]		S.V. Yeshtokin [13]			

Source: compiled by the authors

Table 4. The genesis of the "sovereignty" category in technological structures

Cycles Indicators	1780-1840	1840-1890	1890-1940	1940-1990	1990 -2020	beginning of the XXI century – present
Cycle characteristics	The Industrial revolution: textile production	Steam and railway cycle	The cycle of electricity and steel	Cycle of cars and synthetic materials	The computer revolution	"digital" revolution, development of nanotechnology
Realization of interests	The interests of the owner of the enterprise			Innovative interests of corporations and enterprises	Innovative interests of TNCs, industries, and holdings in the context of globalization	Innovative interests of the national economy in the context of globalization
The role of the State	Practically absent	Protectionist policy, ensuring favorable development conditions for certain industries	Ensuring public interests, environmental protection, government business	Synthesis of Keynesian methods of regulation, monetarist and neoclassical methods in the presence of liberalism as an alternative	The State determines the strategic priorities of socio-economic development	

Source: compiled by the authors

- the rise of cyber weapons as a fourth branch of armaments, alongside the army, aviation, and navy, has led to the ability to inflict damage on important infrastructure and the development of cyber warfare [13];
- the evolution of concepts, phenomena, and practices;
- the occurrence of technological, digital and informational [17].

4 Discussion

Based on the analysis of tables 1 and 2, some authors believe that technological and scientific and technical sovereignty are the synonyms and consider them to be components of national sovereignty. Moreover, some of them (for example, Gretchenko A.I.) replace them with the concept of "technological security", thus comparing the terms "security" and "sovereignty" which seems to us to be incorrect, because:

1) they differ in goals and mechanism (if technological security is primarily reduced to a systematic increase in scientific and technical potential, then technological sovereignty is based on the desire to form competitive economic benefits based on intellectual achievements and their expression in appropriate technical and technological achievements);

2) they have a different relationship, hierarchy and connection with the concept of "scientific potential," which still does not have singular interpretation and needs clarification.

The general concept is able to turn into more specific by incorporating various elements such as human, natural, scientific, industrial and informational components within the economic potential.

Therefore, scientific potential can be accurately defined as an economic factor that facilitates collaboration within its structure of productive resources and industrial relationships, driven by intellectual assets that enable the conduct of scientific endeavors. This in turn establishes a network of economic connections for the development and utilization of scientific knowledge in practical applications.

The proposed content of the term "scientific potential" allows us to consider it as a characteristic of economic and technological security, while distinguishing it from the concept of "technological sovereignty".

Deepening the study of subordination and non-identity of the above-mentioned concepts, the hypothesis formulated in V. Faltsman's work "Technological sovereignty of Russia" was used, which consists in the fact that technological sovereignty goes beyond the national due to the fact that it can be provided not only at the expense of its own technical and technological resources, but also through their import, which in turn, it is a reflection of the global trends indicated in the introduction to this article, related on the one hand to the contradiction of global international cooperation based on the production of only those economic benefits for which a particular country has prerequisites, and on the other – with the desire of each state to provide its citizens with the opportunity to receive maximum satisfaction of their needs on the basis of, first of all, the use of domestic economic factors and technologies [5].

The main difficulty in determining the "technological sovereignty" is the discrepancy between two opinions on national independence – Domestic and Western. While in Western countries sovereignty is seen as being involved in global networks, in Russian Federation it is perceived as a risk of inability to operate with their own resources (which may lead to the loss of sovereignty). In order to demonstrate the accuracy of the Domestic paradigm, it is worth noting that the only clear outcome of involvement in globalization is that there is no country with a full technological sovereignty at this moment, mostly because the global chains of technologies are closely intertwined.

Furthermore, besides the tension that arose for this reason at the global level, the Western paradigm seriously impacted the national interests of Europeans (especially in Germany).

Ideas of achieving state independence with strategically important technologies, that were close to Russian ones, began to be voiced. This was preceded by the fact that large corporations, including those located outside the country, concentrated technical and technological chains and information resources that mediate them to such an extent that they began to compete with the state in the production of particularly important economic benefits, creating a direct and indirect threat not only to the economy, but also to security in general.

This, in turn, led to a rollback of positions on the global involvement of states in the economy to the level of the need to at least ensure technological sovereignty, which is the object of this study and is defined as "the national ability to INDEPENDENTLY and FULLY" ensure technologies that they are needed for their well-being and for keeping them competitive. The suggestion of this hypothesis which emphasizes the importance of the definition of technological sovereignty is to make sure that states are able to develop or achieve them externally. It is also important to notice that two conditions must be met:

- there should be no one-sided structural dependence during the period of growing geopolitical uncertainty and no threats of global trade conflicts;
- there are no issues with questioning the international division of labor on critical technologies (involving quantum technologies, blockchain, chips, artificial intelligence and 5G), which guarantees the trade openness and the improvement of welfare.

The period of the pandemic, the further recovery of the global economy and the current era of geopolitical redistribution have also led to a number of changes in the Western concept of sovereignty. For example, distribution of technologies between USA and China raised concerns. They form configurations of global value chains, international payment, financial infrastructure, etc. As a result, some Western countries may try to join the pool of states because they start to fear for their own sovereignty, while realizing that technological sovereignty is a necessary but still not sufficient condition for economic sovereignty.

For now, technological sovereignty determines a minimum, but insufficient level of economic and national sovereignty.

In addition, given the increasing influence of digital technologies and their becoming one of the flagships of technological sovereignty, it is legitimate to note that due to their globality and internationality, there is a further development of the concept of mutual influence of technological and national sovereignty, which challenges the classical economic and economic foundations:

- the law regulating public relations;
- a society that is turning into an absolute phenomenon affecting all aspects of human life, society and the state;
- public administration, which must abandon outdated and inefficient procedures and introduce digital processes into its life (public policy, lawmaking, revenue administration, state property management, etc.);
- national currencies that transform the monopoly of a sovereign state on monetary issuance.

5 Conclusion

As a result of the conducted research, the following conclusions were made:

1) due to a critical analysis of the evolution of the substantive components of the concept of "sovereignty", it becomes obvious that the Western concept of mandatory involvement of the national economy in interstate cooperation is not unconditional, since it violates the principles of state independence in the possibility of full-fledged production of economic benefits due to the separation of technical and technological operations between different participants;

2) the experience of the Russian economy, which, as part of the transition from command and administrative to market economy, transferred (and in fact lost) control over most of the factors of production (including in strategic industries), allows us to conclude that it is necessary to be able to solve issues with self-sufficiency in goods, works and services independently;

3) technological sovereignty is both a part of the general economic and the driving force of the national sovereignty, it is proposed to consider technological sovereignty from two sides:

- as part of the general economic sovereignty, the technological one is designed to ensure the realization of the basic needs of citizens based on the use of necessary state resources and economic factors;
- as the driving force of national sovereignty, it covers three levels of security: national, economic and technological.

In addition, the non-identity of the concepts was justified:

1) technological and scientific and technical sovereignty due to their differences in goals and mechanism (if technological security is primarily reduced to a systematic increase in scientific and technical potential, then technological sovereignty is based on the desire to form competitive economic benefits based on intellectual achievements and their expression in appropriate technical and technological achievements), and also subordination and interrelation with such a concept as "scientific potential";

2) technological sovereignty and technological security, since sovereignty is aimed at ensuring independence in the technical and technological support of the production of economic benefits, and technological security consists in regularly increasing scientific potential and ensuring the highly intellectual competitiveness of the state.

The proposed definition, in our opinion, will contribute to a more detailed understanding of the mechanisms and tools necessary for enterprises to adhere to the ESG principles, which, in turn, may contribute to an increase in their number in correlation with pan-European trends compiled on the basis of a report by the Vice President of the Russian Association for Public Relations (RASO) Oleg Poletaev (fig. 1).

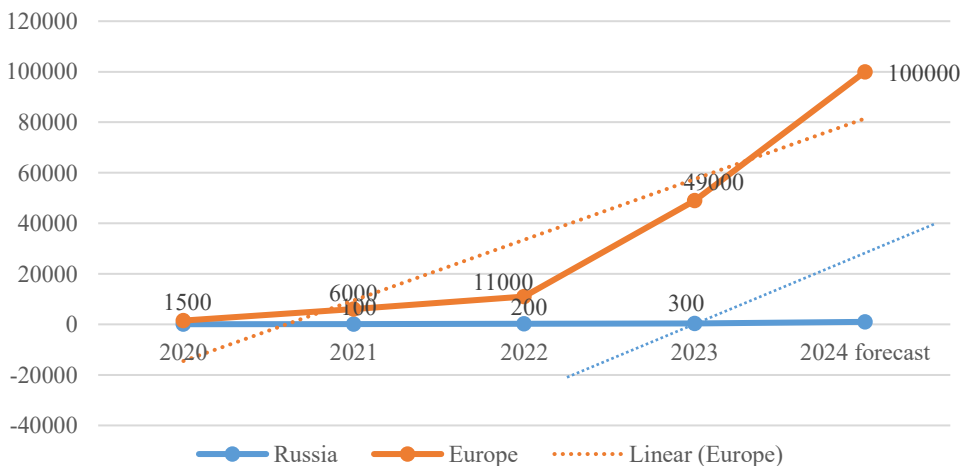


Fig. 1. Dynamics of companies adhering to ESG principles in Russia and Europe (according to the report by Oleg Poletaev, Vice President of the Russian Association for Public Relations (RASO) at the conference "ESG Reassembly: new priorities for sustainable development under constraints") [18]

..... a possible trend when using the refined concept of "technological sovereignty" to detail the steps to implement the ESG principles

The proposed theoretical justification of the content of the concept of "technological sovereignty", which is the strategic basis for the functioning of the Russian economy in the future, can be used to approach foreign trends in the practical implementation of ESG principles at the corporate and national levels.

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