

DOI: 10.37930/2782-6465-2023-2-4-9-18

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## ISSUES OF TECHNOLOGICAL SOVEREIGNTY AND CIVILIZATIONAL DEVELOPMENT: FROM MODERN SOCIETY TO NOONOMY

**Abstract:** The transition to noonomy is considered to be the most rational option for solving significant problems facing humanity. Civilizational development following the direction of noonomy is systemic in nature and based on technological advancement. The importance of technological sovereignty to ensure import substitution in the context of strict sanctions is emphasized. It is shown that instability in the world is caused by the restructuring of the socio-economic system. The guidelines for development and growth should contain the transition to a qualitatively new post-economic state of society. Meanwhile, the role of a person is filled with new content: it becomes creative. With the basis of new values people themselves and their behavior are transformed: from “zoo” to “noo”, from homo economicus to a homo culturalis... Five main directions of development have been identified: a new social model; transition to a scientific and technological breakthrough; environmentally oriented development; a new model of spatial development; response to the Eurasian challenge. The transition to a new organization of the economy of society must take into account the regional characteristics. Industrial macro-regions become particularly important; they become the centers of new industrial development and the crystallization of new technologies.

**Keywords:** civilizational development, noonomy, economic and technological potential, technological sovereignty, sanctions pressure, centers of gravity, human resources, socially oriented society.

**For citation:** Bodrunov S. D. (2023). Issues of Technological Sovereignty and Civilizational Development: From Modern Society to Noonomy. *Noonomy and Noosociety. Almanac of Scientific Works of the S.Y. Witte INID*, Vol. 2, No. 4, pp. 9–18. DOI: 10.37930/2782-6465-2023-2-4-9-18

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### 技术主权问题与文明发展——从现代社会到智慧经济社会

**摘要:** 文章论述了解决当前人类所面临重大问题的最合理途径是向智慧经济过渡。以智慧经济为方向的文明发展具有系统性的特点, 其基础是技术发展。文章强调指出, 在严厉制裁形势下确保“进口替代”生产的技术主权极其重要。作者认为, 世界的不稳定是由社会经济体系重组造成的。应当把向本质上新的后经济社会形态过渡作为发展和增长导向。同时, 人的作用也应被赋予新的内容: 创造。在新价值观的基础上, 人本身及其行为正在发生转变: 从“动物性”到“智慧性”, 从“经济人”到“文化人”。文章给出了五个主要发展方向: 新的社会模式、科技的跨越性进步、环境友好的发展、新的区域发展模式、应对欧亚挑战。向新的社会经济组织形式转型应考虑到区域特点。工业大区正在成为新型工业发展和技术创新的中心, 将发挥重要作用。

**关键词:** 文明发展、智慧经济、经济和技术潜力、技术主权、制裁压力、发展中心、人力资源潜力、社会需求导向型社会。

**引用注释:** 博德鲁诺夫S. D. (2023). 技术主权问题与文明发展——从现代社会到智慧经济社会//智慧经济与智慧社会. 维捷新兴工业发展研究所论文选. Vol. 2, No. 4, pp. 9–18. DOI: 10.37930/2782-6465-2023-2-4-9-18

The main route of civilization evolution lies in the following direction: “modern society is a new industrial society of the 2<sup>nd</sup> generation (NIS.2) by means of re-industrialization of economy on the modern technological basis – noonomy [Bodrunov, 2016; Bodrunov, 2018]. This route requires regular updates and tactical adjustments in response to peculiarities of socio-economic system transformations, its priorities, rational choice of transformation tools, reduction of situational difficulties and risks, etc.

That being said, the evolution of civilization in the direction of noonomy bears *fundamental, systemic features*.

**At the foundation** (I would like to stress out it – not the only driver) of this evolution is technological development. The evolution of society proceeds from numerous factors but the new technologies are the ones that play the *key* role in it.

On the way of civilizational development we are confronted with a number of difficulties predetermined by the fact that in contrast to the theoretical models in which society, economy are treated as holistic categories, in real life we witness their differentiations, division by political, religious, ethical and moral, demographic, administrative and other features.

Civilizational transition is taking place not in airless space but in the real world where contradictions between countries sometimes take an acute form. And in the heat of contradictions alleviation countries and groups of countries embezzle resources to fight and counterattack one another instead of consolidating them to pursue common civilizational aims [Maksimtsev, Mezhevich, 2020]. Undoubtedly, this fact proves to be an *impediment* to progress and above all for the new industrialization, reindustrialization without which the transition to NIS.2 becomes impossible.

In 2022 the community of the “collective West” countries imposed multiple sanctions aimed to destroy economic and technological potential of Russia, to restrain our development. Our country has become the world record holder in the number of sanctions imposed in the entire history of observation [Fedyunina, Simachev, 2023].

What are the outcomes of this pressure?

All year through in 2022 international and some Russian experts published numerous prognoses on Russia’s GDP catastrophic fall. Initially they predicted that the economic downturn will constitute tens of percents but gradually the alarming tone of prognoses softened. As it turned out, Russia’s economy has high resistance to crisis triggered by sanctions [Bakhtizin, 2023]. Table 1 provides proofs of that. One may clearly see that the shock our economy was experiencing in the second quarter of 2022 is replaced with its revival. The GDP drop in the end of 2022 turned out to be less than its decrease in 2020 as a result of the pandemic shock. The economy has shrunk just by 2,1 %.

Let us ask ourselves: how severe was this fall on a global scale? Let us study the table with data provided by the World Bank (see Table 2). In the pandemic year 2020 the majority of countries

witnessed GDP drop coupled with the fall of a global GDP. In 2022 in the provided sample GDP fall comparable with the data represented by Rosstat (2,2 %) occurred only in Russia. But if we consider the medium term and evaluate the “cumulative growth” over 5 years (2018–2022), we will see that Russia has been demonstrating quite good results.

Table 1  
Indices of the physical volume of the gross domestic product of the Russian Federation,  
% to the corresponding quarter of the previous year.

2022				2023	
1 Quarter	2 Quarter	3 Quarter	4 Quarter	1 Quarter	2 Quarter
103,0	95,5	96,5	97,3	98,2	104,9

Source: Rosstat

Nevertheless, there was a decline in indicators of the national economy in 2022. Although we have returned to the level fixed before the Special Military Operation (as stated by the President of Russia), not all the difficulties induced by the sanctions are resolved. Structural transformations caused by the sanctions shock are still ongoing in the Russian economy [Plotnikov, 2023]. In relation to this, quite important questions are arising: how we should evaluate these transformations? To what extent are they anticipated (from the fundamental positions and not situational)? What outcomes should they lead to?

Table 2  
GDP growth rate per capita, %.

Country	2020 to 2019	2022 to 2021	2022 to 2018
China	2,0	3,0	20,2
India	-6,7	6,3	10,3
US	-3,7	1,7	5,5
EU	-5,7	3,4	4,6
Russia	-2,5	-2,2	3,5
Eurozone	-6,3	3,0	3,2
Great Britain	-11,4	4,2	0,5
Germany	-3,8	0,7	0,2
Japan	-4,0	1,5	-0,3
World as a whole	-4,0	2,3	4,7

Source: World bank

For many successive years when studying regularities of the national and global economic growth we have criticized the approach itself which is based on the idea that growth is measured by *GDP dynamics* along with the *quality* of this growth. After all economic growth especially in the developed countries for many years in a row, and even more so in the recent years, has not resulted in the real increase of population wellbeing since the growth was accompanied by the formation and satisfaction of *simulacra needs* to an increasing extent.

As a result, development *has been losing its sustainability* with damage to the environment growing and society experiencing enhancing social problems caused by the endless *qualitative*

growth. Do we need today *such* growth? Should we return back to it? Or should we perhaps get off the beaten track which as it is shown in NIS.2 theory and noonomy takes us to the civilizational impasse fraught with “pseudo-development”?

The world has been experiencing instability for a long time. In this regard, scientific and expert communities have been discussing the issue of the “new normal”, later the subject of “turbulence” and recently the ideas of “post-normality” have gained their popularity. We will not analyze these ideoconstructions which are elaborated in a vain attempt to explain the nature of economic development instability.

This instability no matter what situational facts could cause it, from our point of view, is fundamentally predetermined by different forces – by the starting *reconstruction of the world socio-economic system* in the direction of *noonomy* formation with its *starting point – the formation of NIS.2*.

We are witnessing today qualitative transformations revealed in the theory of noonomy, which cover all spheres of economic and social life and accompany this transition. Moreover, not only socio-economic system in its integrity, but also *human being* himself, his moral values and culture, etc. are subjected to transformations. Let us highlight: we are witnessing today the launch of processes of *qualitative transformation* of human civilization.

Classical views promoted by the dominating schools of economic thought, in particular in the concept of the market fundamentalism fail to respond to those demands which arise out of necessity to resolve practical problems of development. Apparently, Russia gets off the beaten track of the preceding stage of development engaging into the new motion many other countries who are carefully observing the ongoing geopolitical changes. Despite the natural apprehension about radical changes we believe that they enable us to change the development trajectory, replace its *conceptual foundation*.

The series of economic and social macro-shocks caused by the pandemic followed by struggle with sanctions which split the world community – they are just the symptoms of deep tectonic shifts in economy and society. They are the impulses arising with the beginning of movement in a new direction, development within the new paradigm.

Modern crisis manifestations enhanced by the foregoing macro-shocks are well-known: climate issues, economic stagnation, social inequality growth, financialization of economy, spreading terrorism, social and psychological destruction and many others. The transitional period will aggravate the problems.

It is linked to the evident lack of resources needed to solve all these problems. This is why one can hardly expect that more and more available resources will be allocated to deal with situational problems for the benefit of solving global problems which are strategically important and will continue piling up.

There is another important consequence of sanctions against Russia, they are technological ones. “Unfriendly countries” have ceased cooperation with us in the technological field overnight. It is impossible to replace Western technologies at the spur of the moment (no technologically advanced country can do it). The import dependency especially of highly developed countries is rooted in the international labor division.

Meanwhile the *necessity* to ensure *technological sovereignty* in the face of sanctions pressure has its positive consequence since it enables Russia to make a huge leap in the development [Glaziev, 2022]. We talked about its necessity many times 10 or 15 years ago. Today it is not just a

wish but an urging necessity. And a chance. In the current conditions, one should put a stake at *own* technologies demanding and the state is obliged to provide an impetus for their accelerated development.

That being said, it is irrational to restore the production of old technological orders in Russia under new conditions. The potential of old technologies based on reproductive labor has largely been exhausted. The transition to a *qualitatively new – post-economic* state of society that requires new technologies capable of changing in the near future not only economy but also society as a whole should become the new benchmark of development and growth in the context of the coming technological order.

At the same time, we should take into account that modern production itself is experiencing *qualitative changes*: digitalization, automation, robotization, etc. And it is becoming more and more “alienated” from the *direct* human involvement. At the same time, the role of human is not limited to the role of a “consuming appendage to a producing machine”. Human’s activity is being filled in with *new content*: it is becoming *creative*; human undertakes functions that machines cannot handle.

Moreover, people’s behavior is transformed on the basis of *new values*.

Society transformations naturally cause transformation of the social hypostasis of human: from “zoo” we are moving towards “noo”, from homo economicus to homo culturalis, towards a true “sapiens”. Apart from that, we are moving from economic values to noo-values that determine human life, his noo-needs coupled with the *goals of social production* [Bodrunov, 2018].

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The described conceptual views as well as trends of civilization development and practical plans bear long-term, *fundamental* nature. However, it does not mean that one should passively await the emergence of the new time. Purposeful development does not happen on its own as a result of random combination of circumstances.

Even when all the prerequisites and factors show trajectory of the highly probable development, random circumstances let alone subjective actions may shift the trajectory of socio-economic system. It goes without saying that one needs *tools* for meaningful, *reasonable* transition to a new organization of society with objective prerequisites having been already formed for that.

*Noonomy genesis* is an objective process ripping in the depths of the modern economic system and indicating the possible (although not the only one) outcome - development. As our research shows the transition to noonomy is the most rational option for solving global problems humanity is facing today. However, one cannot do it without purposeful support of this process. We need a thorough course of actions that will allow us to resolve existing contradictions and move step by step towards noonomy.

*Planning* is one of the recognized tools of the controlled movement of society and the economy development towards new quality or NIS.2, and then after towards noonomy. The refusal from planning in Russia in the beginning of the transition period in the 1990-s turned out to be destructive. Planning in the modern Russian economy of a mixed model is an objectively determined and a required supplement to the market self-regulation. This combination allows you to put together advantages of the market and the pluses of planning.

This is achieved, in particular, by the *law on strategic planning*. The law establishes *national development goals* aimed at building a *socially driven society* with a developed economy based on



a new technological order. There are many sub-goals of these national goals. There are national projects. And there are many sectoral, regional and other strategies. The major task is to develop this system of plans by adding full-fledged *strategizing* in priority areas [Kvint, Bodrunov, 2021].

For instance, recently there has been a lot of talk around the necessity to achieve *technological sovereignty*. These discussions were ignited by the need for the country's technological development (which is crucially important in the process of transition to NIS.2) in the context of skyrocketing pressure from sanctions since 2022. One might get an impression that the formation of technological sovereignty is a situational reaction of the Russian authorities to sanctions.

As a matter of fact, the strive for technological sovereignty is one of the *necessary strategic steps on the way to the new industrialization as part of the transition to NIS.2 and noonomy*. Technological sovereignty defined as "ensuring the required level of independence of the Russian Federation in the field of artificial intelligence, including by means of the prime use of domestic artificial intelligence technologies and technological solutions developed on the basis of artificial intelligence" was already named among the *basic principles* for the development and use of artificial intelligence technologies in the National Strategy for the Development of Artificial Intelligence for the period until 2030 approved by the Decree of the President of the Russian Federation No. 490 of October 10, 2019 (pre-sanctions),

This is a striking example of *strategic foresight* embodied in a *national-scale strategic document*. Two and a half years later this foresight and the need for the *targeted commitment* to new principles of development in the technological sphere were completely confirmed.

The provided example proves that the main scientific task now constitutes in the formation of a *methodological basis* for the *institutional foundations* of the transition to NIS.2 as the most rational and efficient form of organizing the next stage of social development.

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Apart from the development of planning and strategizing tools one needs elaborate *benchmarks and goals* that prescribe the *direction* of development in the medium term.

Here we need to outline five main directions:

1. A new *social* model of development. The **goal** is to reduce the share of the low-income population and increase the share of the middle class. **Measures**: an extensive package of traditional, but radically enhanced measures to support low-income and underprivileged social groups; introduction at a sufficiently high level of the nationwide standard of services in the public and budgetary sectors including remuneration; increase the share of labor costs in the national product; measures to reduce interregional and intersectoral differentiation in wages; adjustment of monetary policy; measures of tax regulation of the level of monetary inequality of citizens.

2. A shift from lagging behind to a scientific and technological breakthrough resulting in taking a leading position in the global scientific and technological competition. The *objective* is doubling the pace of technological development and entering the top five world scientific and technical leaders in the basic areas of the 6th technological order by 2035.

3. The environmentally conscious development and creation of a framework for an *environmentally friendly economy*. **Priorities**: integrated use of natural resources while adopting and implementing high standards of environmental preservation within the framework of the concepts of "clean air", "clean water", "rational forest management"; solving the problem of industrial,

household and other types of waste while supporting the introduction of environmentally friendly technologies in the traditional Russian energy sector.

4. A new model of spatial development aimed at the rise of central Russia (including the Urals) including a new turn to the East and the Arctic. Measures: creation of new levels and mechanisms of territorial management and financing of regional development; a step-by-step transition from the current almost completely subsidized to a normal financing system; formation of development budgets for regions and territories, redistribution of taxes.

5. A response to the *Eurasian* challenge. Global centers of world economic development in the coming decades will inevitably move to the East, the Asian continent. A powerful economic restructuring and reintegration of the Eurasian space is underway. *Russia's tasks*: the formation of centers of economic, educational, scientific and social cooperation alongside with the creation and development of appropriate, currently absent or poorly functioning institutions in the countries encompassing our Asian neighbors and economic partners.

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While working on these tasks one should keep in mind that Russia includes regions and macro-regions that differ significantly in potential and available resources. Therefore, the transition to a new organization of economy and society should include *regional features* and *opportunities*. It seems that the discussed transition will be implemented unevenly on a territorial level. Inevitably, as it turns out to be in large and complex systems, leading regions will emerge and become the *locomotives* of new development. Since the *technological component* plays an important role in this development, industrial regions, which will become **providers**, the main **points of application** of society's efforts and **centers of new industrial development**, play an essential part in noo-transition.

Following the concept of technocenosis (B.I. Kudrin) technological development occurs in a comprehensive manner based on the combination of various resources. These ideas are close to the NIS.2 ideas shared by us. It is highly inefficient to analyze the development of technologies in isolation from their impact on each other as well as on the economy and society as a whole.

At the same time, when studying *technological development in a spatial aspect* one may always identify "points" or even "zones", "concentrations" of new technologies, unique technological clusters, where the concentration of resources and factors as well as system of formal and informal institutions contribute to accelerated development. These points or zones act as unique centers of crystallization of new technologies which give rise to the processes of new technological development that encompass economy on a nationwide level. Striking examples of this kind one may come across in the IT sector, like the Silicon Valley in the USA and Bangalore in India.

It goes without saying that there are many points like that on the map of Russia. They are Moscow and the Moscow region, St. Petersburg, Kazan, Nizhny Novgorod, Novosibirsk, the Ural region, etc. In the process of strategizing it is important not only to identify development trajectories but also to "ground" them by considering them not speculatively within the framework of the strategic document but in reference to the economic and social space creating "growth poles".

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Technological development, as we pointed out [Bodrunov, 2018], is based on *knowledge*, on expanding its content. But they are the people who happen to be carriers and at the same time

Table 3  
Production indices by main types of economic activity  
in the Sverdlovsk region for January – August 2023, %

Type of activity	August 2023 to August 2022	January–August 2023 to January–August 2022
<b>Industrial production in general</b>	<b>108,3</b>	<b>111,8</b>
<b>Manufacturing industries</b>	<b>108,7</b>	<b>114,7</b>
Out of them:		
Manufacture of wearing appare	121,5	104,2
Production of leather and leather products	240,8	153,8
Metallurgical production	102,9	108,7
Production of finished metal products, except machinery and equipment	112,1	134,4
Production of electrical equipment	93,4	121,2
Production of machinery and equipment not included in other categories	158,4	145,1
Production of motor vehicles, trailers and semi-trailers	120,3	135,9
Production of other vehicles and equipment	119,5	135,6
Furniture manufacture	132,7	171,5
Maintenance and installation of machinery and equipment	178,5	161,4

Source: Sverdlovskstat

sources of new knowledge. And the *personnel potential* for technological development typical of the industrial macro-regions is their most important advantage in the implementation of the National Strategy for Technological Development.

It is for sure that one should take into account the most important feature (and promising one!) of the modern type of spatial development. Its name is urbanization.

In contrast to the popular belief that the period of rapid urbanization that took place at the end of the last century is over, that urban dwellers became obsessed with ideas of moving to the countryside, into cottages (including “electronic” ones), the trend is quite the opposite in reality. Since 2007 more than half the world’s population lives in cities, a situation that was typical of Russia in the 1950s. Cities, occupying about 2% of the planet’s territory consume more than 3/4 of material resources (and according to the data published by the Higher School of Economics and UNESCO the consumption rockets - from 41 billion tons in 2010 to more than 88 billion tons by 2030). This is where – and this is especially important – the main “knowledge intensity” of production is concentrated taking into account that the growth will occur in the future growth precisely in the “knowledge intensive” sector of industry, i.e. in cities. This objective tendency must be taken into account.

There is one more aspect to mention. 80% of the world’s largest megacities which are merging economically and logistically into “Megacities” are located in the northern hemisphere at geographic latitudes from +160 to +40 – this is the so-called urban belt, the center of economic concentration. Most of our cities that are contenders for growth are located in this belt.

Taking these factors and trends into account, it should be noted that one of the main centers of “Megacity”-construction can and should be in the Ural macro-region with its “industrial heart” –



the city of Yekaterinburg. Yekaterinburg and the Sverdlovsk region act as a kind of *center of gravity* for new industrial and technological development being surrounded by large scientific and industrial centers (Perm, Chelyabinsk, Kurgan, etc.). This is a point of gravity, which like a lens allows to bring together the resources available in the macro-region directing them to achieve breakthrough goals related to the transition to NIS.2. The industrial power of Yekaterinburg and the Sverdlovsk region, their ability to act as a locomotive of growth and not just a driver is proved by the objective statistical data, which show that the shock caused by sanctions in the region's industry has been successfully eliminated (Table 3).

For instance, for the first 8 months of this year, the region's manufacturing industry demonstrated growth of 14.7% compared to the same period last year. When in our country did we see the double-digit growth rates last?! We overwhelmingly mention such indicators in relation to China, India and other fast-growing economies (and even so not often). At the same time, the economy of the Urals is in the row of successful examples according to the world standards. Therefore, its good *technological prospects* are beyond any doubt. It is necessary to scrutinize these results in order to scale the Urals valuable experience up in other regions and locations of the country.

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The modern economic model and the *economic society* based on it cannot “disappear” overnight. We can and should talk about the gradual, in proportion to the development of technological and other *prerequisites*, diffusion of economic relations and the genesis of new, *post-economic* forms. This requires a new understanding of the growth resources we have been discussing.

The involvement of the mentioned resources and their mobilization are possible only on the basis of a clear *strategy*. Moreover, modern challenges predetermine the transformation of the strategic development goal and the main benchmark. This is a movement towards NIS.2. “Place economy”, the formation of new points, zones and axes of spatial industrial and technological development of Russia should play a key role in this movement.

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