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Opportunities and Risks of Developing a Green Economy

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ABSTRACT

The relevance of the topic is due, firstly, to the importance of sustainable development as a priority task of the world community, and secondly, the green economy is an important tool for achieving it. **The purpose** of this research article is to identify the opportunities and risks of developing a green economy within the framework of sustainable development. **Methods:** the study was carried out using up-to-date data and sources, as well as a theoretical analysis of the basic principles and methodological approaches to the green economy. **Scientific novelty:** Summarizing the modern conceptual developments of the paradigm of the green economy, the author's definition of this scientific category is proposed, which contributes to a more accurate understanding of the concept of the green economy. The main features and principles of the green economy are given. **The results of the study**: The article substantiates the directions of development of modern forms of green economy, taking into account which priority instruments of green financing are identified. The author analyzes the total volume of green financing in the world and provides a rating of countries according to the GGEI index. The article systematizes the opportunities and risks of developing a green economy. **Practical significance:** results and conclusions of the article can be useful both for the scientific community and for decision-makers at the level of States and international organizations that strive for sustainable development and environmental protection.

Keywords: sustainable development; green economy; green finance; economic system; economic models; opportunities; risks

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INTRODUCTION

The experience of the twentieth and early twenty-first centuries clearly points to serious problems associated with the unsustainable use of non-renewable resources and environmental pollution, which are of a global nature and have a negative impact on economic development, as well as on the health and well-being of the population. The concept of sustainable development has become a key tool to address these challenges in order to meet the needs of the current generation without compromising the rights of the next generation. This means that economic development should be carried out in harmony with nature and the environment. A green economy seeks to reduce the negative impact of human activity on the environment, it is based on the efficient use of renewable resources, the application of environmentally friendly technologies and the promotion of the concept of circular economy approach, where waste and emissions are minimised and resources are recycled and reused.

Currently, the concept of green economy as a basis for sustainable development policy is widely reflected in the research discourse, in the context of various political [1, 2] and socio-economic [3] aspects of this phenomenon. Foreign studies [4–6] discuss such issues as the development of innovative technologies, the efficiency of renewable energy sources, the role of the state in the development of a green economy, etc. The Russian scientists are also actively studying such issues [7–11], paying attention to the peculiarities of green economy development in our conditions and its impact on the social sphere and living standards of the population.

International organisations are developing strategies to stimulate green investment and technological innovation. Recognising the green economy as a key instrument reflects global public readiness for a paradigm shift in economic development.

However, this requires additional investment, overcoming resistance from fossil-dependent industries and changing consumer habits, which requires broad public consensus and global co-operation to ensure a sustainable future for the planet.

BASIC PRINCIPLES AND METHODOLOGICAL APPROACHES OF GREEN ECONOMY

Green economy has become an important trend in both science and policy, mainly because of the increasing environmental problems and the need for sustainable development. It seeks to reconcile the needs of humanity with environmental protection and to ensure the stability of the economic system on a long-term basis [12].

One of the first attempts to formulate the ideas underlying the green economy was the study by D. Meadows [13], in which the author warned humanity against excessive consumption and spending of limited natural resources, as it would lead to environmental disaster and limit the possibilities of long-term economic growth. D. Meadows called for a transition to a model that would take into account the limited resources and the need to preserve them for future generations.

However, the term "green economy" was officially introduced into the scientific context in 1989 in the report of D. Pierce "Green Economy Plan" (Green Economy Report) [14], in which this scientific category was first defined as an economy that seeks to ensure sustainability and well-being of mankind, as well as the preservation of the natural environment and resources for future generations. In this regard, a new approach to the assessment of economic activity was

Table 1

Scientific approaches to the "green economy" category

Approach	Characteristics
Sustainable development and environmental protection	To ensure economic growth and prosperity, taking into account the need to preserve natural resources and the environment for future generations
Resource efficiency and renewable energy	Reducing dependence on fossil fuels and increasing the share of renewable sources: solar, wind and hydro energy
"Recircular" economy and waste management	Instead of a linear "production-consumption-disposal" model, a cyclical model is proposed where waste becomes secondary resources
Green technology and innovation	Developing new technologies that help reduce environmental impact and improve resource efficiency
Social justice and participation	Taking into account the interests, needs and ensuring equal opportunities for all members of society to participate in green initiatives

Source: compiled by the author.

Table 2

The main features and principles of the green economy

Directions	The main features	Principles
Social	Increasing the welfare of society, improving the quality of life of the population	1. Providing employment, developing green industries and creating green jobs. 2. Improving governance and employment, including public participation in the planning process; increasing accountability in decision-making. 3. Ensure equity, fairness and justice between countries and across generations. 4. Improving the quality of life: reducing poverty, increasing prosperity, social security, access to universal benefits for the population
Economic	Economic growth, ensuring sustainable and efficient use of resources	1. Development of environmentally friendly technologies. 2. Creation of effective mechanisms of economic management to achieve environmental sustainability and economic growth. 3. Development of innovative forms and methods of economic management for sustainable development. 4. Improving the efficiency of resource utilisation and reducing emissions of harmful substances. 5. Stimulating green investments and developing green finance. 6. Taking into account the cost of the environment and natural resources in economic calculations
Environmental	Risk reduction, protection and safeguarding of the environment, biodiversity and ecosystem services	1. Conservation and protection of natural resources. 2. Reducing harmful impacts on the environment and reducing emissions of harmful substances. 3. Development and implementation of environmentally friendly technologies. 4. Raising public awareness of environmental problems. 5. Promotion of environmental awareness and responsibility among the population. 6. International co-operation to solve global environmental problems

Source: compiled by the author.

Table 3

Features of various models of ecological and economic systems

Model	Features and characteristics	Boundaries
Circular economy (closed-loop economy)	Waste and resources are reused and recycled into new products. The basic idea is to minimise waste and maximise the use of existing resources	Determined by the opportunities and conditions in which these technologies can be implemented
Low-carbon economy	Shift from fossil fuels to renewable sources (solar and wind power) to reduce greenhouse gas emissions and limit climate change	Related to the introduction of new technologies and infrastructure to reduce emissions and improve energy efficiency
Bioeconomy	Utilisation of biological resources to create new products, technologies, and services. Biological processes and biodiversity are taken into account, as well as sectors related to the use of biological resources: agriculture, forestry, fisheries, etc.	Determined by the availability of biological resources and the possibility of their sustainable use
Blue economy	Creating new technologies and infrastructure to conserve marine biodiversity; reducing emissions to the oceans and improving the efficiency of marine resource utilisation. It is an alternative to conventional industrial processes, shifting the focus from fossil-based resources to simpler and greener technologies that help protect the global ecosystem and create new jobs	Related to the use of marine resources and environmental constraints of marine ecosystems
Green growth economy	Creating a sustainable economy in which economic growth does not lead to environmental degradation — they are not opposites but can be achieved simultaneously	Determined by opportunities for economic growth while respecting environmental and social requirements

Source: compiled by the author.

proposed, taking into account not only the traditional indicators of economic growth, but also the impact on the environment, as well as the cost of loss of natural resources and environmental services.

Subsequently, ideas on green economy were developed and disseminated in the 1991 and 1994 World Reports prepared by the UN Commission on Environment and Development,[1] which emphasised the importance of the relationship between the economy and the environment and the need to adopt new approaches to production and consumption that take into account the protection of nature and resources (*Table 1*).

In general, all these approaches aim to create an economy that is sustainable, environmentally friendly and socially responsible — a system that takes into account not only economic performance, but also social and environmental aspects.

Thus, in a green economy, economic growth and human well-being are achieved within the framework of respect for nature and its limited resources. The harmonious coexistence of economy, society and nature is based on the principles of balance, environmental sustainability, and social justice.

Summarising modern conceptual developments of the scientific paradigm

[1] UN Department of Economic and Social Affairs (UNDESA), A Guidebook to the Green Economy: Issue 1, 2012, 60 p.

Table 4

Directions of development of modern forms of green economy

Green economy				
Low-carbon economy	Bioeconomy	Green growth economy	Circular economy	Blue economy
Efficient utilisation of energy resources				
Widespread utilisation of renewable energy sources				
Minimising greenhouse gas emissions through more efficient use of energy resources and renewable energy sources	Sustainable development of agriculture and biotechnology	Extending the life cycle of used resources (products) to improve environmental sustainability and social well-being		
	Efficient utilisation of waste materials			

Source: compiled by the author.

Table 5

Green financing tools

Tools	Description
Green stocks	Shares of companies that are engaged in environmentally responsible business and/or have a sustainability strategy. Investors may purchase such stocks to support companies that are committed to sustainability and environmental stewardship
Green bonds	Bonds, the proceeds of which are used to finance environmental projects. Investors purchasing them can be assured that the money will be used to support projects that help reduce their carbon footprints
Green loans	Loans designed to finance environmental projects. Lenders screen a project for compliance with certain environmental criteria and issue a loan to the borrower to implement the project
Green funds	Investment funds in which money is invested to support environmental projects. Such funds can be both public and private
Green grants	Financial support provided for environmental projects and research. Usually do not require repayment
Green insurance	Insurance products designed to cover risks associated with environmental projects: insurance against floods, natural disasters, etc.
Financing of energy efficiency projects	Can be implemented through green loans, where borrowers receive additional preferences, e.g., lower interest rates due to the use of energy efficient technologies
Targeted investments in socio-environmental projects	Investments aimed at solving social and environmental problems in various spheres: healthcare, education, ecology, etc.
Investments in green technologies	Investments in the development and implementation of environmentally friendly technologies such as renewable energy, electric vehicles, environmentally friendly materials, etc.

Source: compiled by the author.

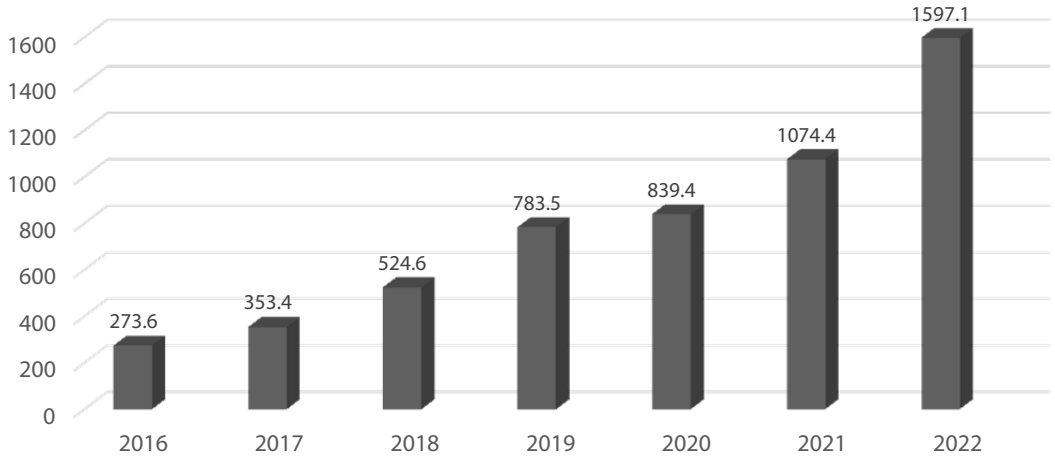

Fig. 1. **The total volume of green financing in the world, billion dollars**

Source: compiled by the author based on data from Green Finance Impact Report 2022. URL: https://www.macquarie.com/assets/macq/impact/esg/policies/2022-annual-green-impact-report.pdf

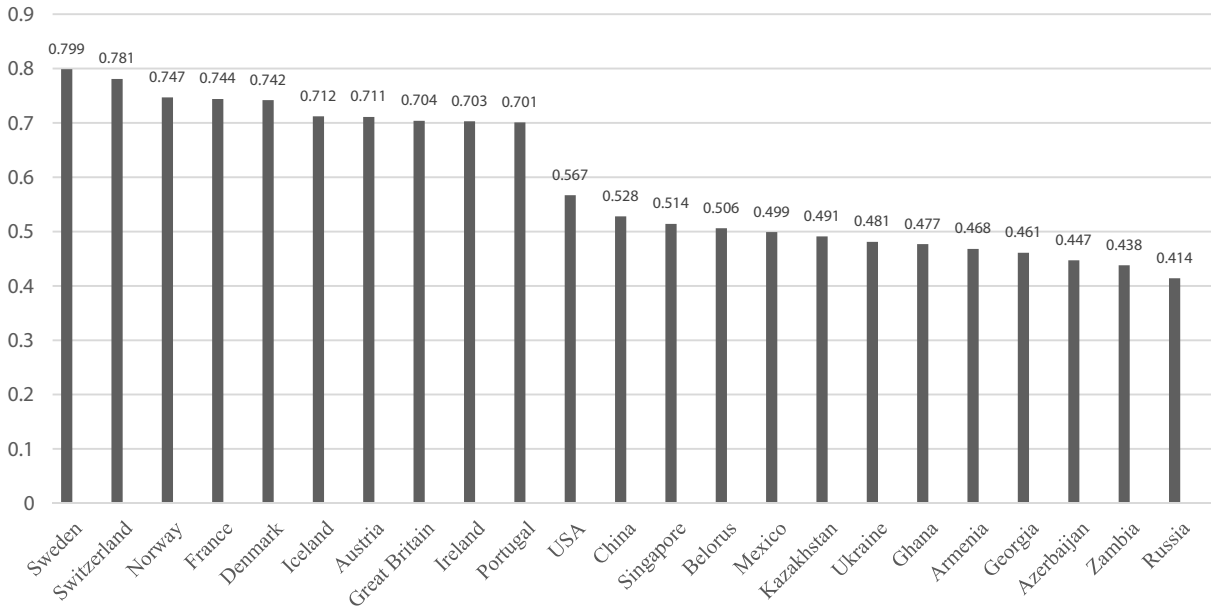

Fig. 2. **Ranking of countries according to the GGEI index in 2022**

Source: compiled by the author based on data from the Global Green Finance Development Index 2022. URL: https://composite-indicators.jrc.ec.europa.eu/explorer/explorer/indices/ggei/global-green-economy-index

of green economy [15–18], it is necessary to acknowledge that this category needs further clarification. The author proposes the following definition:

"Green economy — is an economic system aimed at achieving environmental sustainability and improving the quality of life of people, based on the use of environmentally friendly and energy-efficient technologies, products and services and the principles of environmental responsibility in business and public life. It

Table 6

Opportunities and risks of green economy development

Opportunities	Effect
Economic growth	Creating new jobs, stimulating innovation, and developing new industries
Energy independence	Reducing dependence on oil and gas
Reduction of greenhouse gas emissions	Helping to combat climate change and related problems
Reduced resource utilisation	Reduce environmental impact and save resources
New markets and investments	Creating new markets for environmentally friendly goods and services, attracting investment in innovative projects
Risks	Effect
Financial risks	Significant investments that may not always pay off quickly
Technological limitations	Some technologies and innovations may not yet be ready for large-scale implementation
Social consequences	Negative impact on certain sectors of the economy and employment, requiring social support
Unequal competition	Due to different access to technology between developed and developing countries, conflicts may arise when regulations are tightened, which can exacerbate economic stagnation in developing countries.
Dependence on resources	In some cases, new problems may arise with rare or scarce resources

Source: compiled by the author.

stimulates innovation, ensures interaction between government, business and society, and aims to achieve economic growth without harming the environment".

The main features and principles of a green economy include the following aspects (*Table 2*).

Thus, a green economy seeks to use resources sustainably and reduce negative environmental impact. At the same time, its goal is not to limit (or even reduce) economic growth (as previously stated by proponents of sustainable development ideas), but rather to restructure the economy in such a way as to "fit" it within the natural capabilities of the planet [19, 20].

In this regard, there is an active formation of different models of ecological-economic systems: circular economy or closed-loop economy, green growth economy, bioeconomy, low-carbon economy, blue economy; hybrid types, e.g., circular bioeconomy and others. [21] (*Table 3*).

Each of these ecological-economic systems models has its own unique emphases and focuses on certain aspects of sustainable development, but in general they all aim to create a more sustainable and environmentally responsible economy that recognises and accounts for the impact of human activity on the environment and takes active measures to reduce negative impacts on nature (*Table 4*).

Some of the models discussed — the circular economy, the low-carbon economy, and the green growth economy — are

already widespread in various countries (Netherlands, Finland, Sweden, France, Japan, China). Others — such as the bioeconomy and the blue economy — are at an earlier stage of development but have great potential to create new opportunities for sustainable development (e.g., in the EU countries, India, Brazil). One of the key factors for the successful implementation of these models is co-operation between government, business, and population.

However, building a green economy is impossible without an effective system of green finance, which involves providing financial support to projects and initiatives that promote the transition to more environmentally friendly and sustainable ways of production and consumption of resources.

Taking into account the key directions of development of modern forms of green economy there are: environmentally friendly investment, low-carbon finance, circularity finance, targeted social finance (impact finance), responsible finance (ESG-finance) [22–24]. Green finance instruments that help to stimulate environmental investments and orient financial markets towards sustainable development are given in *Table 5*.

Green finance instruments are actively developing. In 2022, its volume globally significantly exceeded $ 1 trillion (*Fig. 1*). This trend reflects the growing global environmental awareness and responsibility and allows reorienting financial flows towards a sustainable future.

Overall, green finance plays an important role by enabling investment in projects and initiatives that promote conservation, reduce greenhouse gas emissions and contribute to sustainable development at the global level.

To measure the extent to which different countries are engaged in green and climate-resilient development, the Global Green Economy Index (GGEI) has been developed at the international level to compare countries, taking into account indicators such as:

- Leadership and climate change — climate change policy, regulation of greenhouse gas emissions, utilisation of renewable energy sources, etc.
- Efficiency sectors — energy saving, resource efficiency, pollution reduction, etc.;
- Markets and investments — volume of investments in green projects, availability of financing for green enterprises, degree of development of green markets, etc.;
- Environment — the country's results and achievements in terms of air and water quality, protection of natural resources, biodiversity, etc.;.

The ranking of countries according to the GGEI index in 2022 is shown in *Fig. 2*.

According to this rating Sweden is ranked No. 1, reflecting its outstanding efforts in developing a green economy and climate-resilient approach. The USA is ranked relatively low. This can be attributed to various factors such as political decisions, government priorities, lack of certain environmental measures and restrictions, as well as opportunities for innovation and development of green technologies. Russia lags behind Belarus, Kazakhstan, Armenia, Georgia, and Azerbaijan in the green economy. This indicates the need for additional efforts, and successful practices applied in countries with high green economy indices can become valuable experience and a source of incentives to support sustainable development in Russia.

PROBLEMS AND PERSPECTIVES OF GREEN ECONOMY DEVELOPMENT

The development of a green economy is an important and promising area with various opportunities. However, it also involves certain risks (*Table 6*).

In order to successfully develop a green economy, countries need to consider risks

and develop appropriate coping strategies. Recognising and addressing these risks will help avoid unforeseen problems and ensure more effective implementation of green policies and measures.

Creating conditions to stimulate innovation, investment and partnership between government, business and society is also a key factor in the successful implementation of the green economy, allowing for the pooling of efforts and resources to develop and implement effective green projects and strategies.

The lack of a clear and systematic methodology can make it difficult to understand and implement the green economy. There is a point of view of the expert community [25–29] that there are certain gaps in the formation of a theoretical and methodological platform for the transformation of the economy to sustainable development, including:

- lack of common standards and definitions, without which a variety of approaches and interpretations can arise, which can lead to ambiguity and lack of clarity in the development of policies and strategies;
- lack of integrated approaches, the absence of which will contribute to poor coordination and coherence between different sectors and stakeholders;
- lack of reliable data and measurements, which will make it difficult to assess the progress and impact of green policies;
- the need to address all dimensions of sustainability: economic growth, social well-being and environmental conservation, which requires harmonised and standardised indicators that can capture the complex and multidimensional nature of a green economy;
- debate about the possibility and extent of decoupling economic growth from environmental degradation (critics argue that the pursuit of continued economic growth within the planet's limited environmental constraints can lead to unsustainable resource consumption and negative environmental impacts, even with renewable energy sources);
- distributional impacts, where it is important to consider the potential social and economic inequalities that may arise (including the risk of job losses in traditional sectors and the uneven distribution of costs and benefits between different groups and regions);
- technological optimism and trade-offs that need to be critically evaluated (e.g., production and utilisation of renewable energy technologies may have consequences such as waste generation or land use conflicts);
- social aspects: it is important that the green economy framework adequately addresses social concerns and does not exacerbate existing inequalities;
- political and institutional challenges that require co-operation and co-ordination between governments, business, civil society and international organisations..

To address these gaps, it is necessary to closely study modern experience in the field of green transformation, to develop and systematise methodological approaches and principles of green finance and social investment adapted to modern realities, as well as to integrate the green economy into the system of state and corporate governance.

Thus, active, and constructive work by all stakeholders is required. Governments can create legislative frameworks and economic incentives for environmentally friendly technologies and investments, as well as provide conditions for the development of environmental infrastructure. Business industry can contribute by developing and introducing new technologies, reducing

its ecological footprint, and ensuring sustainable production. Coordinated efforts of society should be aimed at financial, organisational, and ideological support for a green economy; environmentally responsible consumption; implementation of global projects promoting the development of a closed-cycle economy, new green energy, creation of a system of fiscal incentives for the transition to environmentally friendly technologies, as well as increasing environmental literacy of all segments of the population.

CONCLUSIONS

1. The transition to a green economy is a complex but necessary process to achieve sustainable development and preserve the environment for future generations.

2. Successful implementation of a green economy requires an integrated approach, risk consideration and active co-operation between governments, business, and the public.

3. The prospects for a green economy are bright and encouraging, but further research and innovation are needed.

4. The development of a green economy requires strategic plans and broad co-operation of all actors in society.

Thus, analysing and solving theoretical and methodological problems in the field of green economy is critical for its effective development and successful implementation within the framework of sustainable development. The development and application of appropriate approaches will allow to define strategic directions, outline goals and priorities, think through effective measures to accelerate the implementation of the green economy and create a sustainable, environmentally friendly future.

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The Strategy of Indirect Approach in the U.S. Foreign Policy

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ABSTRACT

The essence of the strategy of indirect approach (SIA), the definition and notion of which was introduced into the scientific discourse in the mid-20th century by the English historian B.G. Liddell Hart, is that the main consideration in it was given not to the military force factors, as it had been previously in history, but to alternative options for subduing a hostile state. Nowadays, according to many American scientists and experts, SIA should be used primarily in the preparation of war, and therefore it has switched from the purely military sphere to other areas of state activity — economy, culture, ideology, etc. Nowadays, one of the types of the SIA of the United States is the so-called proxy war, in which military actions of the allied state are the final stage of gradual inclusion of another country into the zone of American influence through alternative methods.

Keywords: strategy of indirect approach; war; the United States; economy; foreign policy

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From the historical point of view, the concept of "strategy" (from Greek — the art of the commander) implies the management of the actions of the armed forces of the state during the war [1]. But with the development of social relations, this definition no longer reflected the real situation in world politics. Therefore, the famous German (Prussian general) military theorist Carl von Clausewitz, defining strategy as the use of combat operations to achieve the goal of war, at the same time pointed out that it "borders on politics and statesmanship or, rather... becomes both" [2]. This trend has arisen because the outcome of geopolitical conflicts has become more dependent on non-military factors — economic, social, ideological, etc. Based on this thesis, American scientific and analytical publications have now begun to operate with the concept of "irregular warfare, which aims to change the political regime of a hostile state through indirect methods".[1] It is no secret that such actions pursue mainly economic goals. For example, control over the production and export of oil in the Persian Gulf, as well as its sale for dollars, allows the United States to ensure the leading role of its currency in the global financial system [3]. Thus, the statement of the fact that geopolitical tensions are now spreading to economic relations, voiced in the Global Risks Report of the World Economic Forum 2022,[2] is quite consistent with the current situation.

Consequently, indirect actions became the main policy of the United States and its NATO allies not only in the military sphere, but also in other areas of state activity. In this regard, it should be noted that in Anglo-Saxon geopolitical concepts, unlike the continental

[1] Unconventional warfare (United States Department of Defense doctrine). URL: https://military-history.fandom.com/ (accessed on 20.04.2023).

[2] The Global Risks Report 2022. 17th Edition. INSIGHT REPORT. URL: https://www3.weforum.org/docs.pdf (accessed on 11.03.2022).

European ones, the indirect approach was largely based on the experience of conquest and exploitation of colonies. Thus, the main geopolitical goal of Great Britain was the conquest of the natives by the hands of the natives themselves [4]. In general, the strategy of indirect approach reflects the essence of the Anglo-Saxon strategy, which the French historian F. Braudel saw in the fact that the dominance of Great Britain was achieved through trade, deception and "cunning" [5]. If we continue developing his thought, we can state that the main methods of the Anglo-Saxon strategy of indirect approach — deception and bribery — were the traditional and most effective weapons of the British Empire: "One of the main duties of British residents ... was to bribe and corrupt ministers and other officials" [4].

Such methods in international activities were subsequently actively used by the United States to open foreign markets for American goods — the so-called "open door policy" [6]. Its justification was the doctrine of "sea power" of the American Admiral A. Machen, in which the establishment of control over the world trade routes was declared the main task of US foreign policy. According to the famous American political scientist J. Friedman, the relevance of this strategy remains to this day, because "the fundamental threat to American national security can only come from the sea" [7]. As early as 1926, W.B. Howe, president of the U.S. Navy League, expressed the opinion that a sound economic policy of his country must ensure a continuous flow of imported goods from outside, "vital to the American people" [8], and accordingly, indirect action along with the Navy must guarantee the achievement of this goal. It should be emphasised that its main difference from traditional military strategy — is the wide use in geopolitical confrontation not only of economic, financial, diplomatic, but also psychological means, which gradually come to the fore in confronting hostile states or their coalitions.[3] Therefore, the main thing in the strategy of indirect approach, according to B.G. Liddell Hart, is that "victory or defeat depends mainly on the opponent's morale and only indirectly — on the blows against him" [1]. Many scholars and experts note that the ideas of the English historian are largely based on the writings of the famous Chinese thinker Sun Tzu (6th century BC) [9]. "To fight a hundred times and win a hundred times — is not the best of the best; the best of the best — is to conquer another's army without fighting. Therefore, the best war — is to defeat the enemy's designs; the next place — is to defeat his alliances; the next place — is to defeat his armies" [10].

This statement, as modern American scholars emphasise, captures the essence of the indirect approach, as it points to the importance of pre-planning in war, which in the future makes it possible to "disarm the enemy without incurring the costs of battle (e.g., money and lives)" [11]. Thus, the peculiarity of the practical use of the concept of indirect approaches in conflicts between states is to ensure that victory is maximised before hostilities begin.

The principles of indirect action became imperatives of US foreign policy after World War II. Sun Tzu's work, as well as the Chinese treatise on thirty-six stratagems,[4] were carefully studied by the famous American intelligence officer A. Dulles during his tenure as consul in Shanghai (1945–1946). He believed that the Chinese thinker gave profound recommendations on the organisation of "counterintelligence,

[3] It should be noted that in recent decades considerable attention has been paid to economic psychology, which is engaged in interdisciplinary research on the relationship between psychology and economics. It studies the psychological bases of economic behaviour of individuals and the impact of economic processes on their psychology.

[4] Thirty-six stratagems. Chinese secrets of success. Moscow: White Alves; 2000.

psychological warfare, deception, security, falsification" [12]. The principles of CIA special operations, including in the economic sphere, became largely based on Sun Tzu's stratagem: "To go forward where one is not expected; to attack where one has not prepared" [10].

According to the American researcher J. Schwartz, indirect actions are most effective at the major strategic level of warfare (Grand Strategy, as defined by B. G. Liddell Hart), which establishes a state's political goals in war and determines what military and non-military means (financial, commercial, diplomatic, and ethical) will be used to achieve them [11]. But this idea is not new. In a review of General A. A. Svechin's book "Strategy" (1927), the Soviet military theorist A. E. Snesarev pointed out that strategy should be continuous, and its goals can be achieved by non-military means — agitation, destruction of the enemy rear and economy, etc.

Based on such approaches to the development of strategy of indirect approach and its application in geopolitical confrontation, the concept of "soft power" was created in the United States — a term that was first applied by Harvard University Professor J. Nye, understanding it as language, culture, and political leadership [13]. Currently, its continuation is the theory of "network-centric warfare", the basics of which are outlined in the article by Vice Admiral A. Sebrowski and Professor J. Garstka. It states that the organising principle of such a war "originates in the dynamics of growth and competition that have emerged in the modern economy…, and the means of warfare are increasingly becoming a commodity" [14].

Thus, the fact that modern warfare for the US — is mainly an economic and financial operation, only technologically different from the wars of the past, is rather straightforwardly fixed. Since its main component is information technology, in the military sphere this allows for a shift to accelerated decision-making in combat operations, which at present are theoretically only an addition to the strategy of indirect approach.

Its further development was based on the law of system change in the long term from insignificant influences ("butterfly wing flapping effect") discovered in 1961 by mathematician E. Lawrence. On its basis, the theory of "chaos management" as applied to large social and state formations emerged, the author of which is the American diplomat S. Mann. He put the main emphasis on the rejection of stability in international relations, which he regarded as an "illusory end in itself". In his opinion, the creation of instability allows the application of strategies that promote US interests [15].

In general, the theory of controlled chaos "is based on reforming mass consciousness, worldview and spiritual sphere by subjecting individuals to modern means of manipulation". It is a "global psychological operation" that destroys "the culture of solidarity" and replaces it with "the cult of money and social Darwinist stereotypes regarding the role of the individual in society." Thereby reducing "the ability of the masses to resist through self-organisation" [16].

Based on such perceptions, Western expert and academic circles have increasingly started to operate with the concepts of "invisible power" and even "invisible geopolitics". As Serbian scientist and UN expert J. Kurbalija reasonably emphasises "in this increasingly interdependent world, politicians and diplomats will have to pay more attention to invisible geopolitics. Facebook friendships, Twitter exchanges, the level of Internet traffic, the flow of remittances — all this can be no less important than, for example, military alliances and other indicators of traditional geopolitics" [17].

The creation of such concepts and theories in the United States and other

Western countries has led to a definitive shift in strategy from the military sphere to the governmental sphere, where military considerations often play a far from central role. They can only be prioritised with the approval of the government, as only the government can decide whether it is "worth the gamble". It logically follows that the preparation for war to achieve a bloodless victory over a hostile state does not provide for any time and space limitations. At the same time, the military component is only one component of the Grand Strategy, which, in order to weaken the enemy's will to resist, "must take into account and use the full force and power of financial, diplomatic, commercial and, last but not least, ideological pressure" [1].

These ideas formed the basis of the theory of the so-called colour revolution, created in 1972 by American professor J. Sharp. It centred on the organisation of subversive actions in a potentially hostile state through a large number of "small-scale non-violent" acts of civil disobedience, which should result in the destruction of the existing system of power and political regime change.[5] More broadly, this strategy is referred to in the U.S. as the vacuum strategy, which suggests that instead of "open frontal confrontations and large-scale battles", the enemy should be dealt in a way of "small pinpricks, like mosquito bites". Although they are capable of inflicting damage, the object of attack itself remains invisible to the enemy, forcing him to disperse his forces and means and thus lose initiative and "judgement" [18].

At present, from the point of view of American analysts, ideological factors are largely determined by intensive information and psychological influence, the purpose of which is to change the mass consciousness of the population of this or that country in the direction necessary for the USA.[6] This approach was formulated after World War II by General W. Donovan, head of the Office of Strategic Services (from 1942 to 1946), who pointed out that the task of propaganda at the initial stage of confrontation is "to prepare the population of the territory chosen for invasion... Then the fifth column comes into action, followed by sabotage units or commandos, and finally, the invasion divisions" [19]. It is assumed that in this way the U.S. and its allies will be spared the costs of conflict, while achieving the weakening of their adversaries regardless of their military strength. In order to achieve this effect, according to the Italian professor G. E. Valori, it is necessary to use disinformation on a large scale, which "increases aggressiveness" and, consequently, "weakens thinking abilities". Hence "the geostrategic effect of these operations: when the whole country is gradually filled with this type of communication, everyone, including the ruling class, will be affected by it". As a consequence, when its representatives start making decisions, "they will in any case operate with pseudo-concepts, automatic reactions, platitudes, misperceptions and old stereotypes".

As Valory stresses, the ability to influence the population "in a stable, effective, and comprehensive way has already reached its peak..., and the one who succeeds in manipulating the enemy remains the winner", while the object of influence always loses, and perhaps he "does not even realise it". This is facilitated by the fact that the most advanced

[5] Sharp Theory of Nonviolence Struggle and Color Revolutions. URL: https://softpanorama.org.shtml (accessed on 30.05.2023).

[6] Subsequently, it usually results in the destruction of the hostile state and the enslavement of the population, although formally the institutions of the former statehood may remain in place. A "fictitious reality" therefore emerges, which is that "today's slavery is characterised by the fact that it is illegal, and as a result it is more hidden than in the past. Nevertheless, it is believed that there are more slaves today than at any time in history." URL: https://edition.cnn.com/2019/03/13/ (accessed on 30.05.2023).

information-psychological technologies have become "individual", i.e., they are quickly adapted to each individual citizen. This makes it possible to create the effect of "invisible manipulation and regulation", primarily in the global information environment. For example, according to Valory, bots generated more than 50% of all global internet traffic in 2017 alone [20].

It is clear that only the United States can fully apply this kind of technology used by Western countries in geopolitical confrontation with their rivals and adversaries. Their prolonged dominance in the world economy allowed the American expert on irregular warfare P.W. Taylor to introduce the concept of "globalisation of strategy", since now "every state relies to a greater or lesser extent on foreign resources". Consequently, he states, an assessment of the situation must include relevant regional and global "points of contact so that these links can be utilised in planning military operations".

Taylor goes on to point out that the indirect approach requires reliable intelligence about the adversary in order to determine where the adversary is least resistant. Since this approach involves influencing the governance structure of a society "alien to our own," the intelligence collected and analysed must include political, military, economic, social, information, and infrastructure variables. It is also necessary for planners to conduct a comprehensive self-assessment of their capabilities to avoid miscalculations in planning operations.

It is also important, according to Taylor, to make every effort "for a coordinated Western alliance led by the United States to degrade the capabilities of the adversary" through coercive diplomacy,[7] economic pressure, information operations and military threats. "Criminal sanctions could be used, if not to capture the targeted leaders, at least to prevent them from travelling abroad." Subsequently, covert operations involving "undermining a hostile government's ability to respond to threats and crises" and information operations using criminal elements, media, NGOs, corporations, and other influencers are possible [21].

At the same time, US experts point out that in the context of globalisation, the expansion of Internet connectivity has made the critical infrastructure of each nation state — water, electricity, communications, etc. — "more vulnerable", making it possible to inflict damage on an adversary without using military forces. In addition, a country that dominates strategic industries and supply chains can gradually "impose its geopolitical will and undermine the position of its rivals without direct military intervention." These actions, according to Singaporean expert K. Ramakrishna, are a classic example of a long-term indirect strategy [22].

Such actions, in Taylor's view, could form the basis of a new theory of unconventional warfare that would allow for a more rational use of available resources and reduce dependence on the political decisions of a country's leadership. Since the theoretical underpinnings of the strategy of indirect approach, in his assessment, have not yet been developed in the United States, this approach could serve as the basis for a consolidated theory of indirect action, — ranging from covert action to security co-operation with allies in multinational operations. Taylor emphasises that the United States must, first, plan and assess the situation at the local and regional levels; second, expand its presence in strategically important regions; third, ensure the loyalty of local authorities; and fourth, facilitate allied actions while guaranteeing the durability of the results achieved [21].

[7] In 2006, former U.S. Secretary of State K. Rice coined the term "transformational diplomacy," which she interpreted as "working with multiple partners around the world to build and sustain democratic states. Meanwhile, in fact, it is a diplomacy of influence and coercion."

At the same time, the American military analyst C. Livieratos believes that the first priority should be to "invest in the opportunities created for non-violent influence and stop the excessive use of force to solve the many problems of irregular warfare". In his view, it should also be taken into account that the line between direct and indirect approaches is unclear and blurred [23].

Indeed, from the point of view of Taylor and other American scientists and experts, there is currently no unified theory of strategy of indirect approach, and therefore "it is open to different interpretations" [11]. As a consequence, there is a clear understanding in US analytical and academic circles of the limitations of the strategy of indirect approach, especially in terms of forecasting [24], and many Western researchers are aware that it is impossible to fully determine the consequences of its application. In the context of globalisation, it will be quite difficult to implement indirect actions, especially in the information and economic spheres, because of the possible "boomerang effect". Thus, according to British scientists, "the more purposefully a strategic goal is pursued, the more likely it is that such an action will ultimately undermine the initial success" [25]. B.G. Liddell Hart therefore pointed to the need for flexibility in using the strategy of indirect approach, which involves "activities in case of success, failure or partial success, which is most often the case in war" [1].

Based on this thesis, it should be noted that the existence of various approaches to the formation of the strategy of indirect approach, despite their shortcomings, allows Washington to correct its mistakes quite quickly, sometimes radically adjusting its strategy and thus providing the necessary flexibility in its implementation. This approach was particularly evident in the practical application of the strategy of indirect approach.

As noted above, previously little-connected non-military factors and means have formed the basis for the United States' use of indirect action since World War II. Nevertheless, the use of direct military violence remains a critical component of Washington's foreign policy.[8] Thus, in 2022, the Congressional Research Service estimated that the U.S. Army has participated in 251 military operations around the world since the 18th century,[9] and independent experts count 392 such cases [26]. In a much-quoted speech of the American General S. Butler in the U.S. Congress in 1935, he said literally the following: "I spent 33 years and 4 months in the military service and for most of that time I was a high-class bully working for Big Business, Wall Street and the bankers. In short, I am a racketeer, a gangster of capitalism." [27].

In an article by American journalist T. L. Friedman, printed in the influential American newspaper "New York Times" in 1999, it was openly proclaimed that "the invisible hand of the market never acts without an invisible fist", which is called "the army, navy, air force of the United States" [28]. But given the fact that at present the world order based on the dominance of one power is experiencing a quite obvious crisis, "the United States faces a changed geopolitical situation and a new set of economic problems" [29].

It should be remembered that in the modern period, the United States' use of the strategy of indirect approach takes place in the context of globalisation, which until recently was often considered a purely economic phenomenon. But its negative consequences have led to a systemic crisis in world politics

[8] To achieve its goals, the United States, as a maritime power, often uses so-called carrier diplomacy. Earlier in the 19th century it was called "gunboat diplomacy".

[9] Instances of Use of United States Armed Forces Abroad, 1798–2022. URL: https://crsreports.congress.gov (accessed on 25.04.2023).

and a sharp increase in global instability. Therefore, British expert and businessman C. Devonshire-Ellis believes that the current Russian-Ukrainian conflict means a struggle both for the preservation of the existing model of globalisation and against it, which leads to increased confrontation between the West and the East.[10]

Under these conditions, the United States is seeking to accelerate the transition to the sixth technological mode, based on nano- and biotechnology, artificial intelligence, genetic engineering, etc., in order to maintain its global advantage and weaken its competitors and rivals as much as possible. For this purpose, the United States enacted the "Countering America's Adversaries Through Sanctions Act" of 2017. Therefore, Taylor believes that as part of indirect action, economic sanctions measures can also be used to influence high-ranking officials of hostile states, "who can then later be contacted by intelligence agents" [21].

The growing role of supranational structures, which are mainly controlled by the United States, contributes to the implementation of the American strategy of indirect approach. Their task is to weaken the sovereignty of national states and, if necessary, to dismember them. Thus, before the Second World War there were about 50 states in the world, and now (together with unrecognised states) — there are more than 250. To reduce their sovereignty, the United States, using its monopoly position in the world financial system, purposefully created financial crises in unfriendly, from their point of view, states — in Argentina (1982, 2001), Mexico (1992), Russia (1998) and others. In 1972, Washington developed a doctrine of financial sabotage ("shock doctrine"), i.e., a certain algorithm of actions to destroy the political, social, and economic order of a country. The US first implemented it in Chile after the CIA-led military coup in September 1973. [30].

Such actions since 1953 were justified by the thesis of US President D. Eisenhower — "strengthening allies and winning the friendship of non-aligned governments". This "friendship" was quite often achieved through the planning and implementation of coups d'état. The US has now admitted that this kind of indirect CIA action was "sometimes questionable" because it involved "bribes, subversion and even assassination attempts", but was nevertheless authorised by the US leadership [31].

In addition to financial sabotage, colour revolution technologies have been effectively implemented by US intelligence agencies in a number of countries: East Germany, Hungary, Romania (1989), Georgia (1995), Serbia (2000), Ukraine (2004, 2014), Kyrgyzstan (2005, 2010). Often these attempts were unsuccessful: China, Georgia (1989), Mongolia and Armenia (2008), Moldavia (2009), Belarus (2006, 2020) and Russia. But these failures are considered temporary by the theorists and technologists of colour revolutions. This view is largely due to the successful use of the strategy of indirect action against the Soviet Union, which was one of the main factors that led to its collapse and the creation of a monopolistic system of world order led by the United States.

Currently, the US National Security Strategy of 12 October 2022 (Strategy 2022) states unequivocally that "around the world, the need for American leadership is greater than ever" and states that "rules-based order must remain the foundation of global peace and prosperity". Thus, it is assumed that "rules" established by the U.S. in its own self-interest completely supersede the established system of international law. It is therefore not by chance that the term "failed state" has emerged and spread in the American expert community to describe those countries that,

[10] Op-Ed Commentary by Chris Devonshire. URL: https://www.asiabriefing.com/news/2022/02/2022 (accessed on 12.04.2023).

for a variety of reasons, are unable to maintain their independent existence. The introduction of this concept has caused mixed reactions in the world — for many it is clear that its use is often just a pretext for direct military intervention.

According to the Strategy 2022, securing United States leadership in the world requires three areas of national action: investing in key sources and instruments of American power and influence; building an effective coalition of allies to enhance collective influence in shaping the global strategic environment and addressing common challenges; modernising and strengthening the military to ensure that it is equipped for an era of strategic competition with major powers, "while maintaining the ability to suppress the terrorist threat to the homeland".[11] Consequently, military force, from Washington's point of view, is by no means an anachronism inherent in past historical eras; it can be used at any time to achieve certain political goals if the strategy of indirect approach proves ineffective. Therefore, Strategy 2022 states that the U.S. military is — "the most powerful fighting force the world has ever known" and the U.S. will not hesitate to use it "when necessary" to defend its national interests. However, the document caveats that they should be used as a "last resort" and that non-military tools should be used before then.

Thus, this document traces a clear interconnection of direct and indirect approaches to the realisation of the main geopolitical goal of the US — to maintain its dominance in the international arena. Based on this imperative, earlier, in 2008, US Secretary of Defence R. Gates warned: "Never ignore the psychological, cultural, political and human dimensions of war, which are of inevitably tragic, unproductive and uncertain character" [32]. But in practical terms, a fundamental contradiction has emerged in the US foreign policy, which, according to the assessment of American Admiral E. Olson, is that direct military-power influence has become paramount [23]. Therefore, the US military expenditures are constantly increasing, although, according to the American economist J. Galbraith, it is not due to political necessity. This approach, according to him, is dictated by the interests of large corporations, which allows them to influence the state policy [33]. And this is despite the fact that the direct use of the army and navy in geopolitical confrontation often resulted in tangible defeats for the United States, as, for example, in its largest armed conflict in Vietnam (1965–1975). Therefore, indirect action subsequently began to prevail in the so-called non-contact warfare. Operations such as "Decisive Force" in Yugoslavia (1999), "Desert Storm" (1991) and "Shock and Awe" (2003) in Iraq were based mainly on the strategy of indirect approach, which became dominant, "pushing aside the military-force factor, which was to achieve the defeat of the enemy by creating a numerical superiority in forces and means" [34]. These actions by the Western alliance initiated a long period of instability on Iraqi territory and in the Near and Middle East region as a whole [35].

The US operation against Iraq in 2003, which mainly involved non-military components of the strategy of indirect approach, is particularly indicative in this respect, as it was prepared over several years and involved the processing of public opinion at home and abroad. As soon as the military operation was launched, massive radio propaganda and disinformation of the Iraqi command, as well as the distribution of leaflets calling for an end to the resistance, were organised. Particular attention was paid to the targeted destruction of civilian

[11] NATIONAL SECURITY STRATEGY. URL: https://www.whitehouse.gov/ (accessed on 30.04.2023).

communications, which, according to American analysts, is an example of a successful information and psychological operation by the American military leadership during this war [36]. In addition, one of the main tools of the US strategy of indirect approach in Iraq was the bribery of Republican Guard generals who ordered their subordinates to stop resistance. At the same time, bribes were given to high-ranking Iraqi military officers before the start of hostilities [37]. Together, these factors allowed the US and its allies to achieve victory with minimal losses, although the Iraqi army was superior to the coalition forces in many respects. In this operation, the United States made extensive use of information and remote (non-contact) influence in combination with other methods and means as part of the indirect approach.

Based on this experience, American experts concluded that information superiority is the main condition for victory in modern local conflicts. At the same time, "information, in its broad sense as deception of the enemy, achieving surprise, application of military cunning, intimidation of the enemy by demonstration of force, has moved to a new technological level" [34]. In their opinion, the means of information influence in modern geopolitical conflicts are now so developed that they are capable of solving strategic tasks, in particular, disorganisation of military and state administration. At the same time, their effectiveness is achieved by the fact that they are used, as a rule, in combination with other forces and means [38], as they have certain disadvantages. Thus, Professor M. Vego of the US Naval War College publicly stated: "The concept of warfare in a unified information environment is increasingly turning into a new religion — a set of beliefs that cannot be seriously challenged. Its flaws or vulnerabilities are not publicly discussed, and they are reluctantly accepted" [39].

Therefore, while generally oriented towards the use of indirect action, the United States is simultaneously improving methods and tools of military force influence on the enemy. In particular, military personnel with knowledge of foreign languages and cultures and the ability to create combat units out of the local population are involved in tactical operations. As Livieratos rightly notes, "this is no longer conventional force, but an unconventional technique for destabilising foreign governments and regimes" [23].

Such U. S. actions are based on the understanding that the indirect approach is not always successful in military operations and in preparation for them [11]. Thus, Washington's attempts (from 2013 to 2018) to accuse the Syrian leadership of using chemical weapons were unsuccessful due to Russia's principled position on this issue. This is also convincingly proved by the situation with Iran — the US military threats to Iran were never implemented, as well as repeated attempts to organise a colour revolution in this country failed. That is why US Defence Secretary O. Lloyd, during his visit to Israel in March 2023, had to declare that diplomacy — is "the best way to prevent Iran from obtaining nuclear weapons".[12]

In a broader context, growing dissatisfaction with U.S. policy around the world, including among its allies, has led U.S. experts to recognise the ineffectiveness of its influence on the populations of many countries. In Livieratos' assessment, this leads the U.S. military to overly focus on coercive capabilities and neglect non-violent measures such as, for example, information-psychological operations. But as the United States are facing increasingly complex challenges from great power rivals (here meaning Russia and China) as well as

[12] Readout of Secretary of Defense Lloyd J. Austin III's Meeting in Israel With Israeli Prime Minister Benjamin Netanyahu. URL: https://www.defense.gov/ (accessed on 30.04.2023).

continuing threats from non-state actors (terrorism), "it needs to use more non-violent influence techniques and stop the excessive use of force to address armed conflict" [23].

In this regard, it should be noted that Washington's costs in modern conflicts often exceed the benefits it planned to obtain, which clearly contradicts the "golden rule" of strategy formulated as far back as ancient Rome.[13] For example, the French historian E. Todd noted that the situation in Ukraine has existential significance for the United States, which risks losing control over global finance: "America is fragile, and the resistance of the Russian economy is pushing the US imperial system towards the abyss".[14]

In the future, Livieratos warns, proxy military conflicts (proxy wars) and competition in the so-called "grey zone"[15] with almost equal opponents will not allow the US to win a quick victory. He points out that states such as China and Russia have already adapted their strategies to the new reality to capitalise on capabilities that "the US military has side-lined over the past thirty years". In his view, fierce U.S. competition with these states will require a rethinking of approaches because Washington "never learnt how to effectively influence populations" [23].

It should be noted that these judgements of the American analyst are in line with the American Strategy 2022, in which China and Russia are indirectly referred to as "hostile forces" that are "increasingly close to each other". This approach confirms the permanence of Washington's geopolitical goals, as Admiral A. Mahan argued back in the late 19th century that the United States should unite not only with Great Britain, but also with Germany and Japan to contain Russia on the arc of Eurasia — from Europe through the Middle East to China and Northeast Asia [40]. Therefore, the deepening military co-operation between Moscow and Beijing is currently of particular concern in Washington [41]. In general, it has, as follows from surveys of world public opinion, led to the fact that countries that have a favourable attitude towards Russia almost always have a positive attitude towards China, and vice versa [42].

American experts also note that the development of military philosophy in the United States, which is concerned with understanding the situation in the enemy country and using its weaknesses to achieve victory over it, does not affect China [23]. At the same time, the confrontation between Washington and Beijing, according to J. Friedman, is gradually shifting towards the economy, which is "much more important for the Chinese than the military balance" [43]. But such trends, as stated in The Economist, occur at a time "when America's weight and influence in the global economy are on the decline", which, in turn, requires a revision of previous geopolitical theories.[16]

The existing contradictions in scientific approaches to the formation of an effective strategy of indirect approach towards the competitors and adversaries of the United States are largely a reflection of the growing domestic political and economic instability in the United States itself. Therefore, Livieratos argues that the idea of direct and indirect approaches should have been "abandoned altogether", although he believes they are still

[13] The «Golden Rule» of strategy for Roman Emperor Octavian Augustus was that he never started a battle or war unless he was certain that he would gain more in victory than he would lose in defeat.

[14] Emmanuel Todd: «La Troisième Guerre mondiale a commencé». URL: https://www.lefigaro.fr/vox/monde –20230112 (accessed on 29.04.2023).

[15] American military analysts understand the "grey zone" as a geographical space with indistinct borders, in which there is no universally recognised legal regime, and the activities of all political actors balance on the edge of war and peace. URL: https://info.publicintelligence.net/USSOCOM-GrayZones.pdf / (accessed on 11.07.2023).

[16] The new geopolitical epoch. URL: https://www.economist.com/united-states/2022/12/26/ (accessed on 27.05.2023).

useful in conventional war planning, but their "simplistic separation limits creativity".

His thesis shows that the US and its allies will continue to do everything possible to maintain their dominance in the world, using, among other geopolitical tools, a strategy of indirect action to do so.

In conclusion, it should be noted that its prolonged use as the most important instrument of US foreign policy was a natural consequence of its orientation towards economic and financial dominance in the world. At present, in order to maintain this dominance, a complex of political, economic, informational-psychological, military and forceful methods and means of influence on potentially unfriendly states are used. At the same time, the central component of the modern strategy of indirect actions of the United States has become the processing of world public opinion in a favourable direction on the basis of information technologies. At the same time, it should be emphasised that a unified theory of strategy of indirect approach has not been developed so far in the United States, as well as in the West in general. This is largely responsible for the desire of the United States to dictate its will everywhere and anywhere, which introduced and still introduces elements of "strategic adventurism" into the foreign policy of this country. At the same time, the existence of different approaches to the formation of a strategy of indirect approach allows Washington to find and correct its mistakes quite quickly and, if necessary, radically change the strategy.

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Dynamics and Structure of Investments in the Main Types of Economic Activity in Russia After 2014

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ABSTRACT

The multidirectional, hybrid warfare war against the Russian Federation, launched in March 2014 and designed for many years, makes it necessary to strengthen the country's power. Investments in the fixed capital of the main activities of society largely contribute to giving stability to the economic, financial, scientific, technological, military-technical potential of the state. **The purpose** of the study, the results of which are presented in this paper, was to find an answer to the following question. Are investments directed in Russia in those economic activities that contribute most to the development of the country's economy, as well as in industries that are most dependent on the state of affairs in foreign trade? **An analysis** of the data presented in the Rosstat's collections "Russian Statistical Yearbook" for 2015–2022 showed that after 2010, investments in fixed capital of the most dependent on foreign trade economic activities in the Russian Federation grew faster than other groups of activities. The growth rates of investments in fixed capital of those types of economic activities, the development of which contributes to the expansion of other types of activities, were higher than the all-Russian ones until 2017. The reason is that economic entities, having adapted to the anti-Russian sanctions, the main damage of which, according to the author, was inflicted on the domestic economy in 2015–2016, accelerated the growth of investments in other economic activities. The overall structure of investments in fixed capital of 47 types of economic activity in 2021 differs little from the structure of 2014.

Keywords: types of economic activity; investments in fixed capital; growth rates and structure of investments; anti-Russian sanctions

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INTRODUCTION

A work with the data of the input-output balance of the Russian Federation for 2019, presented on the website of the Federal State Statistics Service of the Russian Federation (Rosstat),[1] allowed us to divide the types of economic activity in Russia into two classes [1]. The first class includes those types of economic activity (let us conditionally call them "locomotive industries"), the increase in the growth rate of which does not require a faster increase in other types of economic activity. This class, in particular, includes:

- manufacture of motor transport vehicles, trailers and semi-trailers;
- production of agricultural and hunting products and services;
- provision of electricity, gas, steam; air conditioning;
- mining and quarrying;
- manufacture of chemicals and chemical products;
- financial and insurance activities;
- air and space transport activities;
- development of computer software equipment, consulting and similar services in the field of information technologies;
- manufacture of computer, electronic and optical equipment;
- manufacture of electrical equipment;
- manufacture of basic pharmaceutical products and pharmaceutical preparations;
- professional, scientific, technical, and other activities; veterinary activities.

The second class includes the types of activity, for the growth of output of which by some given value it is necessary to increase by a larger value the output of products and services of at least one other type of economic activity. Thus, according to calculations, to increase the output of construction by *r* per cent, it is necessary to raise the output of 18 other types of economic activity by more than *r* per cent. And the growth of services in the sphere of public administration and defence; compulsory social security requires outstripping growth of products of 27 types of economic activities.

The products and services that bear the greatest damage from bans, restrictions and sanctions imposed by states unfriendly to the Russian Federation on the export of Russian products and on the import of goods and services by Russia were also identified.[2]

It is known that the volumes and rates of output of products and services depend not only on inter-sectoral relations. Important factors[3] are also the volume and dynamics of investment in fixed and current capital, the number and professional skills of employed in the production of products and services, the quality and consistency of management, and, in a market economy, also the resulting profit. Profit, investment volumes, requirements to personnel qualification and quality of management largely depend on the level of technologies used and the scale of production. The latter, in turn, depend on the technologies used and the amount of effective demand for the goods and services produced.

The results of the study of the dynamics of one of the mentioned factors — the volume of investment in fixed capital by types of economic activity in the economy of the Russian Federation in 2001–2021 — are presented below. The statistical base of the study was the data of Rosstat published in the "Russian Statistical Yearbook" for the corresponding years. We

[1] URL: https://rosstat.gov.ru/statistics/accounts (accessed on 20.05.2022). This balance sheet contains 61 products (OKPD 2) and 61 industries (OKVED 2). There are no more recent Rosstat inter-industry balances. There is also an inter-industry inter-regional balance sheet for 2019 compiled by the Asian Development Bank (ADB) 2019.

[2] A similar set of such products and services is obtained from the Bank of Finland Institute for Transition Economies (BOFIT) based on the Asian Development Bank's (ADB) 2019 inter-industry inter-regional balance sheet data [2].

[3] "Factor — is the cause, driving force of any process or phenomenon, determining its character or individual features" (Prokhorov A. M., ed. Soviet Encyclopaedic Dictionary. 3rd ed. Moscow: "Soviet Encyclopaedia"; 1985. 1600 p.).

studied only those activities and products that are given in 2019 input-output balance sheet of the Russian Federation.

INVESTMENTS IN FIXED ASSETS

For some of the above-mentioned locomotive industries, there is no data in the statistical yearbooks of Rosstat. They are not available, for example, for such types of sectors as "Activities of air and space transport", "Development of computer software equipment, consulting and similar services in the field of information technologies", "Manufacture of computers, electronic and optical products" and "Activities of land and pipeline transport", etc. Instead of: "Health care activities", Rosstat uses the article "Health care and provision of social services".

The data on investments in the production of manufacture of basic pharmaceutical products and pharmaceutical preparations, in the production of computers, electronic and optical products, in professional, scientific, technical, veterinary activities, in forestry and logging, in telecommunication activities and a number of other types of activities are given starting from 2014.

Therefore, in 2000, 2005 and from 2010 to 2013 we considered investments in fixed capital of 24, and in 2014–2021–36 types of economic activity, the list of which coincides with the one presented in the 2019's input-output balance for 2019. The set of 22 types of economic activity (2000, 2005, 2010–2021) includes seven locomotive industries. Another 3 are included in the set of 36 types of economic activities in 2014–2021.

The Rossta's data allow us to work with investments in ten types of economic activities whose volumes of products and services, according to our calculations [1], are the most sensitive to export bans and restrictions, and with investments in 11 types of activities whose work is most affected by export bans to the Russian Federation.

Let us consider the dynamics of investment in fixed capital of three groups of economic activities: locomotive industries (group "Locomotives"); those dependent on the external market (group "Dependent") and all other types of economic activities (group "Others"). In the group of those dependent on the external market we will include the types of activities that are most sensitive to bans and restrictions both on exports of products and services they create and on imports of products and services they need, excluding the locomotive industries that are equally exposed to the influence of foreign trade.

Official data from Rosstat allow us to work with investments in the fixed capital of four types of economic activities from the group of those dependent on the external market: production of food, beverages, and tobacco products; metallurgical production; production of other vehicles and equipment; wholesale trade, except for wholesale trade in motor vehicles and motorbikes.

The average annual growth rates of investments in fixed capital of all groups of economic activities under consideration were decreasing in 2001–2013. With the introduction of anti-Russian sanctions, there were fewer investment opportunities (in particular, attracting foreign investors and using the funds of Russian legal entities and individuals frozen by the sanctioning countries). This is one of the reasons why there were changes in the dynamics (and, consequently, the structure) of investments in 2013. In 2014–2016, when the domestic economy felt the impact of anti-Russian sanctions to the greatest extent, the growth rate of investment in fixed assets of the locomotive industries and activities of the "Others" group continued to fall, while in the group of activities most sensitive to bans and restrictions on both exports of goods and services they create and imports of products and services they need, it increased (*Fig. 1*). Apparently, this group started to prepare and implement the transformations necessary for work in the

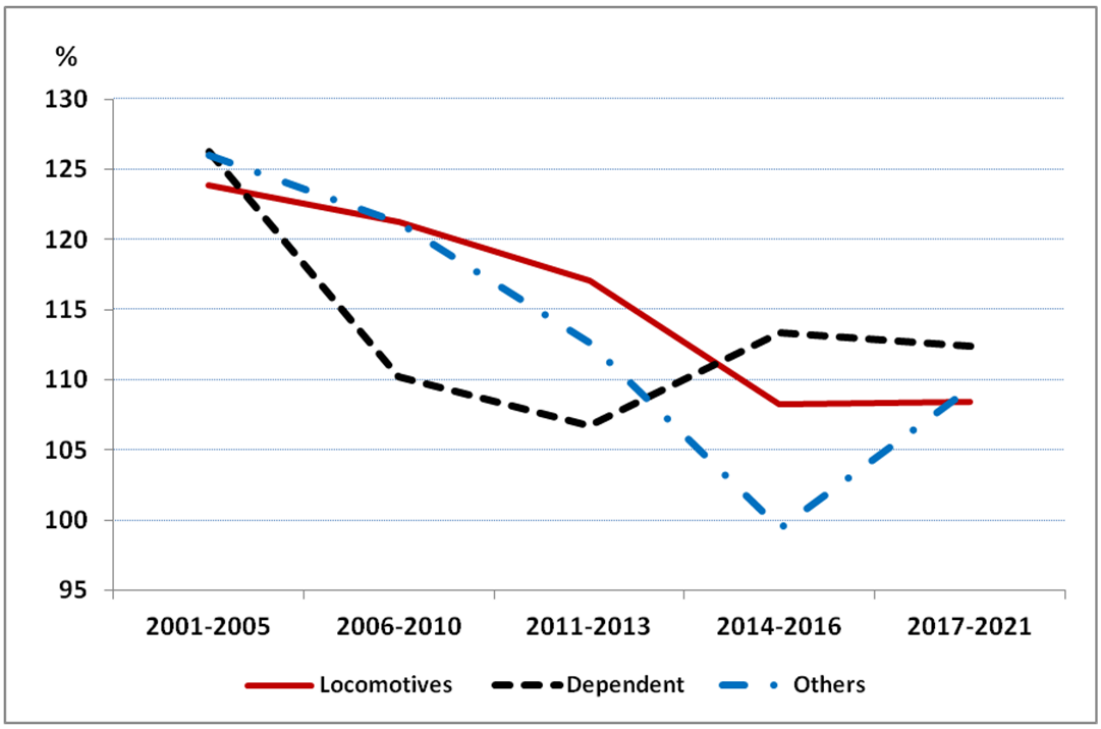

Fig. 1. **The average rates of growth of investments in fixed capital by three groups of economic activity in 2001–2021, %***

Source: compiled by the author according to the Rosstat's data.

changed geo-economic conditions: transition to new markets for sales and purchase of goods and services, restructuring of technological chains and logistics, changes in the range of products, etc.

The locomotive industries maintained the growth rates of investments in fixed assets in 2017–2021. The group of activities that depend simultaneously on the export and import of goods and services ("Dependent") slightly reduced the growth rates of such investments, which at the same time continued to remain high in 2017–2021.

The volume of investment in fixed assets of the "Others" group of industries decreased noticeably in the most painful due to sanctions period for the Russian economy — 2014–2016. In 2016 it was 151 bln roubles less than in 2013 (*Table 1*). After adapting to the anti-Russian sanctions, investors started restructuring the economic activities of this group, in particular, because their products are necessary both for the development of the industries of the other two groups under consideration and for meeting the needs of domestic and foreign markets.

The difference in the growth rates of investments in fixed assets has led to a change in the shares of the groups of economic activities under consideration in the total volume of such investments (*Fig. 2*).

The economic sovereignty of the Russian Federation is largely based on its natural resources: water, minerals, forest, biological. "Russia is almost the only country in the world that is able to fully provide itself with natural resources",[4] although some mineral resources are not extracted in the country. The resources obtained from nature should be processed, use to create a means of production of production and consumer goods, to deliver them to consumers,[5] not just exported.

[4] Plenary session of the Eastern Economic Forum. URL: http://kremlin.ru/events/president/news/69299

[5] S.N. Gorkov, General Director and Chairman of the Management Board of Rosgeologia, rightly noted that "we now need to create

Table 1

The difference in the volumes of investments in fixed assets Δ*I*(*t*) of the three groups of economic activities at the end (I(t)) and at the beginning (*I*(*t* – 1)) of the period, Bln roubles at actual prices

Groups of activities	Beginning and end of the period				
	2000–2005	2005–2010	2010–2013	2013–2016	2016–2021
Locomotives	684.8	1687.6	1646.2	1169.4	2767.5
Dependent	213.8	195.1	108.8	280.3	709.6
Others	1547.3	3658.3	2543.1	–151.0	4719.4

Note: Δ*I*(*t*) = *I*(*t*) – *I*(*t* – 1), where *I*(*t*) is the volume of investment in fixed capital in year *t*.
Source: compiled by the author according to the Rosstat's data.

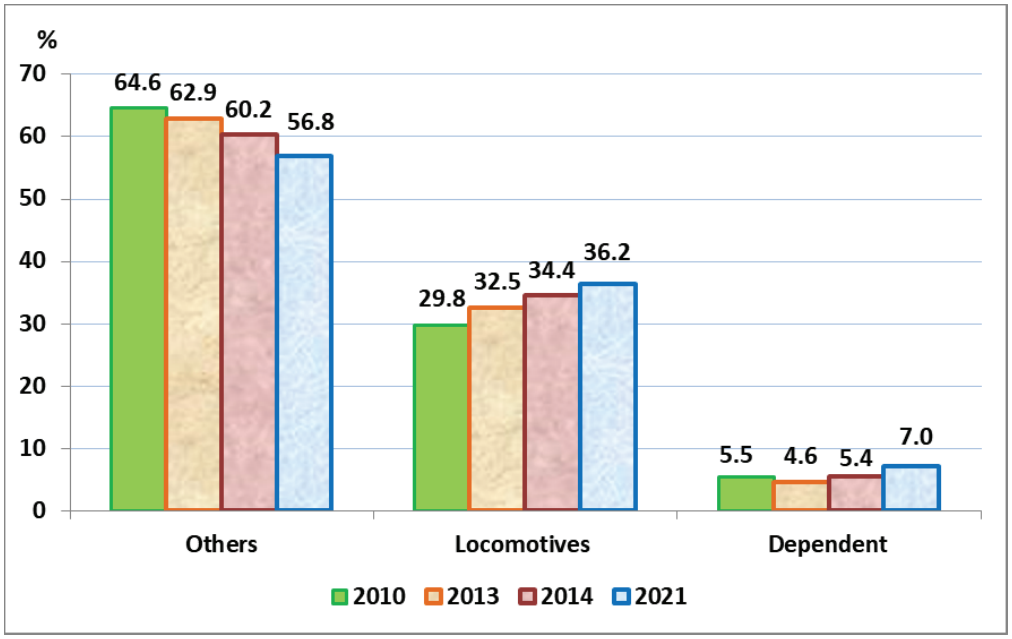

Fig. 2. **The shares of three groups of economic activity in the total volume of investments in fixed assets in 2000–2021, %**

Source: compiled by the author according to the Rosstat's data.

For this purpose, it is necessary to have a developed industry for manufacturing means of production — modern technological lines and equipment, machines, apparatus and tools, data processing, surveillance and control systems, software and much more — and to possess advanced technologies and knowledge. It also needs infrastructure development, advanced science, information, communications, a sustainable financial system and, of course, a well-functioning, professional and efficient management system.

All this requires resources of development [4], including investments. In the period under consideration in Russia in the total volume

not only the first stage of production (mining), but also the second (processing), third (production output), and fourth (ready-to-sell goods to consumers) stages of consumption. We need to create our own production chains, because the sanctions have destroyed many links with the global market" [3, p. 5].

Table 2

The shares of investments in fixed assets of some types of economic activity in the Russian Federation, 2014–2021, percent

Type of economic activities / Year	2014	2016	2021
Mining and quarrying	15.4	18.4	15.2
Manufacturing industries	15.0	14.3	14.9
Providing electricity, gas and steam; air conditioning	7.9	5.9	4.9
Transportation and storage	18.9	16.4	16.4
Information and communication	2.5	3.1	4.3
Financial and insurance activities	1.1	1.4	3.3
Professional, scientific and technical activities	2.3	3.2	4.8
Public administration and defence; compulsory social security	1.7	1.8	1.7
Education	1.7	1.4	2.1
Health care and provision of social services	1.4	1.3	2.6

Note: during the period under review for the Russian economy 2015–2016. turned out to be the most difficult after the start of the introduction of anti-Russian sanctions (March 2014).
Source: compiled by the author according to the Rosstat's data.

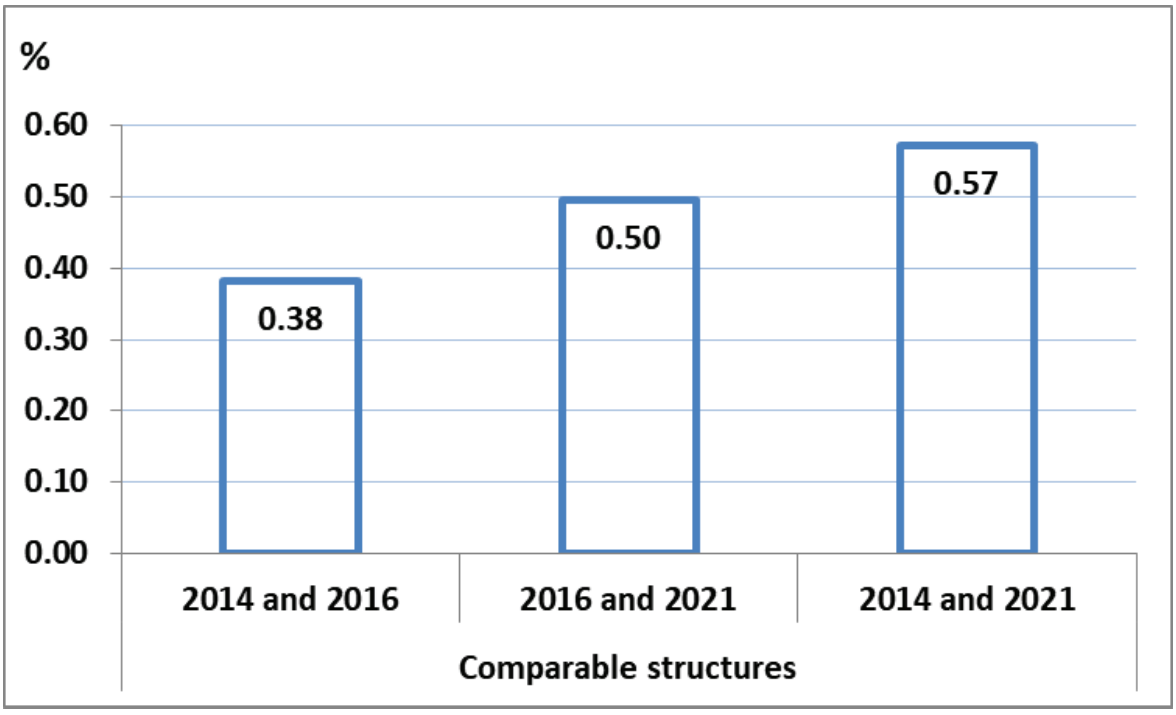

Fig. 3. **The value of the linear coefficient of structural shifts in the structure of investments in fixed capital of 47 types of economic activity of the Russian Federation in 2014–2021, percent**

Source: compiled by the author according to the Rosstat's data.

of investments in fixed capital, the shares of investments in information and communication activities, financial and insurance, professional, scientific, and technical activities, education, and health care increased (*Table 2*). The shares of investments in mining and processing industries in Russia in 2021 remained at the level of 2014.

Such changes, including the increase in the share of investments in fixed asset of the locomotive industries and types of economic activities of the "Dependent" group did not have a significant impact on the structure of investments. The values of the linear coefficient of structural shifts (*Fig. 3*) indicate insignificant changes in the structure of investments in fixed asset of 47 types of economic activities, the data on which are published by Rosstat.[6]

Based on this, we can conclude that investment reserves for changing the orientation of the Russian economy on raw materials production and export have not been created by 2022. One of the main functions of investment, "related to the creation of the basis for the gradual reorientation of the economy to a new quality of growth" has not been fulfilled [5, p. 47]. Of course, in a hostile geo-economic and geopolitical environment, the transitional stage can cause instability, intensify even weak negative external and internal influences. But the preservation of the previous state, immutability in a new environment can lead to degradation and destruction of the existing one.

CONCLUSIONS

In the period under consideration, the volume, dynamics, and sectoral structure of investments in Russia varied depending on the investors' opportunities, the conjuncture of the world and domestic markets, the phase of the business cycle, the profitability of investments and other factors. In 2001–2013, the volumes of investments in fixed assets of all three groups of economic activities under consideration in the Russian Federation increased, but under the influence of external and internal factors their growth rates decreased. In 2014–2016, investments in fixed assets of industries in the "Locomotives" and "Dependent" groups continued to increase, but in the group of industries-locomotives they grew at a lower rate, while in the group of economic activities most strongly dependent on the state of exports of domestic products and imports of goods and services to the Russian Federation — the rates increased. This was partly a consequence of their low average annual growth rates in 2011–2013 (*Fig. 1*). The volumes of investments in fixed capital of the types of economic activities of the "Others" group decreased in 2014–2016. Apparently, high uncertainty of the future; investors' expectations of deterioration of foreign economic relations; actions of states unfriendly to the Russian Federation to freeze Russian assets, ban payments of some Russian banks, refusal to insure goods and services; decline in the role of money incomes of the population as a factor of economic growth had their impact.[7]

In 2015–2016, the primary adaptation of the Russian economy to the negative changes in the economic environment took place, and the average annual volumes of investments in fixed assets of all three groups of economic activities under consideration increased in 2017–2021. Slowdowns and accelerations in the growth rates of investments in fixed capital did not lead to a noticeable change in their structure by types of economic activities under study. This gives grounds to believe that in terms of investments by 2022 the country has not created the groundwork for the development of the economy with the reliance mainly on its own forces.

Successful development is possible when all the necessary components are in place

[6] Structural shifts are considered small if the value of the linear coefficient of structural shifts is less than 2%. In our case, this coefficient is less than 0.6%.

[7] "It can be argued that the monetary incomes of the population ceased to be an important factor of economic growth in this period" [6, p. 107].

and their interactions are well established. Investments are an important, but not the only factor of economic development. In addition to them, skilled labour, modern technologies and information support, markets, effective demand, competent management, efficient motivation, reliable financial system, developed science and rentable production are also needed.

Another important aspect, not considered in this paper, is the object in which investments are made. They can be used to replace worn-out and retiring funds with the same or new ones, to expand existing funds, to reproduce existing means of production or to develop fundamentally new ones, to replicate already used or to invent new technologies, etc. The consequences for the economy and the time when they will manifest themselves may be radically different for investments in different objects.

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Opportunities and Limitations of the "People's Capitalism Model"

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ABSTRACT

The article considers the opportunities and limitations of the so-called "People's capitalism model" (PCM). For this purpose, the authors systematize the historical practice of implementation of PCM in different countries and available empirical assessments of the effectiveness of such initiatives. In addition, the authors undertake a theoretical analysis of PCM features, for which the interests of the company and its employees are modeled. The analysis of the model allowed us to determine the conditions of effectiveness of the people's capitalism model, based on Базовыйwhich we formulate proposals for the introduction of a new initiative for Russian strategic enterprises in order to ensure Russia's technological sovereignty.

Keywords: people's capitalism; technological sovereignty; geopolitics; ownership

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INTRODUCTION

Since 2022, due to the aggravation of the geopolitical situation, Russia has faced the problem of lack of technological sovereignty. After the collapse of the USSR, the country lost or almost lost many knowledge-intensive sectors of the economy — civil aircraft construction, microelectronics, pharmaceuticals and so on. Restoration of the lost technological sovereignty implies active re-industrialisation, including the construction of many large technology-intensive enterprises in the country, which requires huge amounts of investment. However, Russians still remember the times when the country's unique plants and factories were closed down for no apparent reason or sold for next to nothing to foreign owners with subsequent closure. In this regard, the problem of investment deficit in Russia is aggravated by the need to closely monitor new production facilities and to build an incentive system aimed at ensuring efficient operation of state-owned enterprises. The chain "loans — construction — corporatisation — loan repayment" should be organised in such a way that loans are regularly both granted and repaid. The latter is possible through corporatisation of the enterprise that has been built and started functioning, while retaining strategic control over its work.

These problems give rise to searches and experiments to solve them. One of such solutions is seen in the introduction of the "people's capitalism model" (PCM), which implies vesting ownership in the form of a block of shares in strategically important enterprises. Of course, this measure will not solve all the problems associated with the restoration of technological sovereignty, but it will contribute to it. The practice of PCM implementation has a long history and mixed results. In this regard, the renewal of this initiative requires a full understanding of the opportunities and

limitations inherent in it. This is the purpose of this article.

THE CONCEPT OF THE MODEL OF PEOPLE'S CAPITALISM: ESSENCE AND VARIETIES

The concept of PCM has a long history. The reign of US President D. Eisenhower was marked by the aggravation of the contradictions of capitalism associated with the confrontation between labour and capital, socialist ideas, and the philosophy of entrepreneurship. This required the formation of a moralistic idea capable of inspiring society and neutralising socialist sentiments in it. Such an idea was embodied in "people's capitalism", the progenitors of which are considered to be the American economists M. Nadler and A. Burleigh. Later, PCM ideas were developed in the works of J.M. Clark, L. Erhardt, M. Salvadori, D. Lilienthal, J. Galbraith, and others.

Despite the fact that the ideological basis of PCM originated in the 1920s in the USA and was connected with the "democratisation of capital" and the emergence of joint-stock companies, the term "people's capitalism" itself appeared only in the mid-1950s. In 1956, a travelling exhibition demonstrating the achievements of American capitalism was organised in the USA, for which a brochure "Dynamic Economy — Capitalism of All the People" was published. The brochure proclaimed the transformation of the American system of capitalism into "people's capitalism", as a result of which 60 per cent of Americans became homeowners, 10 million — owners of shares, 115 — insured their lives [1]. After its release, the *New York Times* wrote that "*once it* [the name "people's"] *had not occurred to us earlier, it was a great disadvantage in the worldwide struggle for people's minds*" [2, p. 3]. Since then, the term "people's capitalism" has firmly established itself in the political and scientific lexicon, as well as in the public consciousness of the population.

Initially, it was most likely an advertising slogan highlighting the participation of the masses in a business process that should become socially oriented and lead to a continuous improvement in the standard of living of the population, both through technological progress and through the deep desire for justice embedded in American culture and religion [1]. The PCM doctrine was formed of three components: "diffusion of ownership", expressed in the placement of shares among the broad masses of the population; "managers' revolution", aimed at increasing the role of hired managers in the management of the company; "income revolution", focused on reducing inequality in society. A little later, PCM became widespread in West Germany and Austria, where it was expressed in the implementation of the policy of "productive participation" (distribution of shares of enterprises among employees), "diffusion of ownership" (issuance of "people's" shares), anti-cartel legislation protecting small and medium-sized businesses [3]. In the UK, under M. Thatcher, PCM took the form of a programme of privatisation and the formation of an ownership class [4].

The modern PCM has been developed in Russia, where a number of features of this socio-economic model of society development have been pointed out in the scientific community: ownership of no more than 25% of shares by the general subject of ownership (while the rest are distributed among the employees of the enterprise with their mandatory transfer to the enterprise fund upon dismissal); distribution of profits from the revenues of the raw materials sector of the economy and natural monopolies in the proportion of 20% — to shareholders, 80% — to the state in the form of direct and indirect taxes; permission to sell to foreign investors no more than 20% of shares of raw material sector enterprises; exemption from the tax burden of production sector enterprises with

less than 30 employees, etc. [5]. It is obvious that the above requirements are redundant for PCM, therefore, at the legislative level "people's enterprise" was defined as a joint-stock company in which employees own less than 49% of the charter capital.[1]

It is worth noting that along with PCM there are related concepts. For example, the theory of "American economic republic" by A. Burleigh, the profit-sharing system of M. Weizmann, etc. Recently, an unconventional interpretation of the "sharing economy" based on the principle of access to resources rather than their possession has become widespread [6,7]. This understanding fundamentally deviates from the original "classical" PCM, therefore, it will not be used in this paper.

PRACTICAL IMPLEMENTATION OF THE MODEL OF PEOPLE'S CAPITALISM

PCM has been implemented in different countries, in different periods of time and with varying degrees of success. Without seeking to provide an exhaustive historical picture of such practices, let us consider the most typical and textbook examples from the available arsenal. The purpose of these examples is to clarify the essence of the PCM model and the possibilities of its projection into business practice.

The USA. The first attempts to introduce PCM within the framework of the experiment on "democratisation of capital" were made in the 1920s in the USA, when joint-stock companies, whose authorised capital was formed with the participation of workers, became widespread. This made it possible not just to turn workers into co-owners of enterprises, but to form an ideology of owners in their minds. In 1929 there were already 456 thousand joint-stock companies in the USA, most of which belonged to the manufacturing and extractive industries [2]. This widespread democratic form of participation in the ownership of companies was due to the fact that these areas required quite large investments, and the sale of shares allowed to painlessly attract the necessary amounts for investment. The Great Depression put an end to this endeavour, but after the Second World War the USA returned to the theory of "people's capitalism" and tried to modernise it.

The new wave of formation of the class of owners led to the fact that the number of shareholders in the USA increased from 6 million people in 1927 to almost 30 million people in 1965, and their share among those employed in corporations increased from 12.5 to 27.8% over the same period. However, the majority of shares (65 per cent) were concentrated in the hands of 1.4 million shareholders, among whom 200,000 owned a half of their total value (32 per cent). At the same time, only 2.5% of families with annual income up to 3 thousand dollars had shares, while the share of shareholders among families with annual income over 25 thousand dollars was 45.3%. The annual dividends of the first rarely exceeded $ 3, in connection with which there was a complete lack of any interest on the part of small shareholders in the activities of the company, which only strengthened the power of the owners, who concentrated the majority of shares [2]. These facts allowed J. Galbraith to characterise the idea of "people's capitalism" and the annual general meeting of shareholders as "the most elaborate form of indoctrination of illusions to the people" [8, p. 94].

Thus, the first experiments with PCM in the U.S. in general did not give noticeable positive results.

Austria and Germany. Apparently, the countries of the "second wave", where PCM became widespread, were post-war Austria

[1] Federal Law No. 115-FL of 19.07.1998 "On the Specifics of the Legal Status of Joint-Stock Companies of Employees (People's Enterprises)".

and West Germany. There, after the Second World War, the share of state ownership was quite impressive due to the large-scale nationalisation of the economy. In these conditions, the idea of people's capitalism was used by big financiers as an ideological screen to disguise the planned sell-off of state-owned enterprises. For example, Austrian propaganda was careful to indoctrinate society that there were only two paths to further development: either through "decentralisation of property" (i.e., PCM), whereby the previously disadvantaged classes become owners and thus rise to the middle class, as was the case in Canada and the USA, or through a social state concentrating all property in its hands, whereby the population jointly owns these state-owned enterprises, as was the case in the USSR and the socialist bloc countries [9]. The German ideologists developed this thesis by arguing that capitalism is able to overcome all its inherent class contradictions through the formation of "collective capitalist property". According to the German political technologists, this should make it possible to put the interests of workers and society as a whole in the first place in the activities of enterprises, promptly solve social problems, reduce the gap between different segments of the population, and thus contribute to the transformation of capitalism into a society of social justice, and universal equality [2].

In order to achieve the task of building PCM in West Germany in 1950–1960, about 40 projects were launched in the 20th century to form ownership of wage labourers, which provided not only for direct sale of shares in enterprises at reduced prices, but also for the establishment of various kinds of tax and social benefits for their acquisition. For example, the "Savings Encouragement Act" of 1959 introduced a 20 per cent premium on savings deposits when they were frozen for five years or used to purchase shares, bonds, and other securities. The Act of 1961 "on the Promotion of the Formation of Property of Employees" established tax and social security benefits for entrepreneurs and employees if the former provided funds for the formation of property for their employees (up to a maximum of DM 312 per year per person) and the latter used the funds to acquire property, the sale of which was prohibited for a period of five years. [2].

In 1967, in order to develop these initiatives and due to the low response of the German population, the decree "On the Compulsory Interest of the Workers of Large Enterprises in the Results of Production Activities" was adopted, according to which a special fund was to be created from the company's profits in enterprises with more than 100 employees. Each month from this fund each worker was allocated a sum of money, which was not handed out, but was placed in securities (shares, bonds), thus turning the worker into an owner — even against his wishes. However, it was possible to dispose of these securities only after 5–8 years, receiving interest on them during the rest of the time. In 1969, the West German government supplemented this PCM with a new programme to issue "people's bonds", which became another means of raising money from the population and accumulating public debt during the economic downturn of the country [2].

Great Britain. In Great Britain the idea of PCM was launched by M. Thatcher. It was an ambitious privatisation programme, which provided for the transfer of state property into private hands and the formation of a large class of owners, whose number increased from 2 to 11 million people respectively during Thatcher's rule from 1979 to 1990. A significant part of shares was purchased by employees of privatised enterprises, who had certain privileges when buying them. For example, when buying shares in *British Gas* company 130,000 employees became shareholders, each of whom had the right to

buy 52 free shares and 1481 shares at a 10% discount from the initial price. As a result, the size of the ownership class during Thatcher's reign increased from 7 per cent to 20 per cent of the total adult population [4].

In addition to the socio-political effect aimed at restructuring the political consciousness of the society, PCM solved purely economic problems associated with reducing budget expenditures, revitalising competition, increasing production efficiency and attracting investment into the economy. It is believed that the realisation of the PCM idea allowed M. Thatcher, who gained power at the bottom of the economic cycle, to maintain economic growth in the country and significantly increase its competitiveness in the global marketplace.

Russia. In addition to new initiatives, Russia already has experience with PCM. The first experiment of PCM implementation is associated by the majority of the country's population with the negative practice of voucher privatisation. Thus, the Decree of the President of the Russian Federation of 14.08.1992 No. 914 "On the introduction of the system of privatisation cheques in the Russian Federation" envisaged the transition from socialism to capitalism by means of transferring state property into private property with the help of vouchers, which every Russian could receive free of charge in the amount of 10 thousand rubles and then purchase shares of enterprises with them. As a result of privatisation, only 13% of the population bought shares, the rest sold their vouchers, thus contributing to the formation of a class of oligarchs in Russia.

The idea of PCM in Russia continued with the entry into force of Federal Law No. 115-FL dated 19.07.1998 "On the Specifics of the Legal Status of Joint Stock Companies of Employees (People's Enterprises)", aimed at regulating the practice of establishing and operating companies in which employees own at least 49% of the authorised capital. However, this form of joint stock companies is not widespread in Russia: by 2017, there were no more than fifty such enterprises in the country [10].

Starting from 2022, there is a restart of PCM implementation in Russia. Thus, in autumn 2022, Vladimir Potanin, President and Chairman of the Management Board of PJSC "Mining and Metallurgical Company Norilsk Nickel", announced the launch of a "people's capitalism" programme in his company. Its essence is to increase the shareholding owned by the company's employees to 25% within 10 years. This, according to preliminary estimates, will affect almost 80 thousand employees of the company [11]. At the moment, according to Potanin's estimates, employees hold about 10% of shares. The implementation of this programme envisages both vesting of shares in the company's employees and their sale on the stock market in the longer term [12].

Norilsk Nickel programme has several objectives.

Firstly, the transfer of shares to employees is expected to expand the circle of co-owners involved in the company's business success. Although the new shareholders will not be able to play a decisive role in management, they will be interested in the results of their own labour and the company as a whole, as their personal wealth will depend on these results. Secondly, PCM will allow the company to attract additional financing both by selling shares and by increasing their market value due to the reduction of their free float (on the stock exchange). B Thirdly, according to Potanin himself, the implementation of the programme of "people's capitalism" will restore "*some historical justice*", when after the privatisation of the company in 1994, its employees, who owned about 25% of shares, *"could not take full advantage of this kind of investment and sold their shares"* [13]. Fourth, the involvement of the company's employees

as co-investors increases their responsibility for the development of the territory where they and their families live: since the social projects implemented by Nornickel are oriented towards the improvement of this territory, making it more comfortable and environmentally friendly, construction of housing and social and cultural facilities [14].

The mechanism of the "people's capitalism" programme includes an opportunity for employees who have been with the company for at least one year to acquire digital financial assets (DFAs). These assets are equal in value to the price of Nornickel shares and subsequently entitle them to receive dividends paid by the company. This approach makes it possible to fragment the purchase of shares by splitting it into parts and to make investments for people who do not have large savings. For DFAs distributed through the "Atomise" blockchain platform, there is a one-year period during which the acquired assets cannot be sold; they are scheduled to be redeemed at market value after five years. To implement this mechanism, in 2022 "Digital Assets", the issuer of the DFAs, acquired 0.27% of "MMC Norilsk Nickel" shares (≈400,000 shares) for RUB 6.27 bln, and in May 2023 the first participants of the People's Capitalism programme applied for these assets.[2]

THE SIGNIFICANCE OF THE PEOPLE'S CAPITALISM MODEL: EMPIRICAL ASSESSMENTS

Some initiatives to form PCMs have been reviewed above and their *scale* has been shown. However, for an objective assessment of these endeavours it is necessary to have an idea of their *economic and social efficiency*. Unfortunately, it is impossible to give an unambiguous answer to this question due to the lack of comprehensive statistical data and the complexity of assessing this difficult phenomenon. In this regard, let us consider some empirical data that allow us to at least roughly outline the real effectiveness of PCMs.

USA and other countries. After the first attempts to introduce PCM in the USA failed in the late 20th century, new initiatives were taken in this direction. Among them, the most popular was the corporate property vesting programme for employees — *Employee Stock Ownership Plan* (ESOP) ("equity capitalism"), which was widely spread in the USA, France, Great Britain, China, and other countries. Under an ESOP, employees of companies are allowed to buy their shares below market value, allowing them to build up a portfolio of shares by the time they retire and receive an extra boost to their pension. This is why ESOPs are often associated with a retirement savings programme.

A study of the efficiency of employee ownership of company property in the United States between 1988 and 1999 showed that after the implementation of the ESOP programme there were higher annual growth rates of sales (by 2.4%) and employment (by 2.3%) [15]. In 2010, it was found that not only did companies' sales and employment increase, but also their survival rate over a long period of time increased as well as their labour productivity. At the same time, calculations showed that the total increase in the influence of employees on the development of new products, work organisation and marketing by one point gave an increase in the company's sales by $ 19 thousand [16]. Despite the fact that another analysis conducted in 2012 did not reveal a clear relationship between "share capitalism" and the financial performance of companies, it showed a significant reduction in staff turnover, a high degree of employee involvement in the production process and

[2] Digital Assets issued the first tokens for participants of Nornickel's corporate programme. URL: https://www.nornickel.ru/news-and-media/press-releases-and-news/tsifrovye-aktivy-vypustili-pervye-tokeny-dlya-uchastnikov-korporativnoy-programmy-nornikelya/ (accessed on 29.07.2023).

their perception of their company as a "great place to work" [17]. This is largely due to the higher wealth of shareholder employees and their retirement benefits upon termination of employment. According to the study, in companies with ESOPs, the average income of shareholder employees was 30 per cent higher than those who did not own company property, and the average value of pension benefits in companies with ESOPs was several times higher than in companies without ESOPs.[3]

At the same time, other studies have shown that companies with an ESOP programme outperform non-shareholder companies on a range of financial indicators on an annual basis. For example, an analysis of a six-year period in 382 companies with an ESOP programme (two years — before ESOP implementation, four years — after) showed an average 2.7% increase in return on assets compared to their pre-ESOP projections. At the same time, these companies outperformed the industry average by approximately 7%, and 303 companies outperformed the industry average by 14%; share price growth averaged 1.6% across all companies. In addition, the reports showed a 5.5% increase in return on equity for companies with ESOPs, a 10.3% increase in return on net income, a 5.7% increase in operating cash flow per employee, and an average 2.9% decrease in corporate debt.[4]

The conclusions drawn in the reviewed studies are confirmed in practice. For example, a 10-year experience of implementing an employee incentive programme at pump manufacturer *Ingersoll Rand* has resulted in a significant reduction in employee turnover (from 20 to 3%), an increase in employee engagement (from 20 to 90%) and an increase in employee income (up to 80%).[5] Motivational programmes formed the basis for the creation of *Ownership Works* in 2022, a non-profit organisation aimed at helping companies launch motivational programmes. Today, the project already has around 60 partners, including major corporations, investment companies and various funds such as *Harley-Davidson, Silver Lake, TPG* and others. [18, 19].

Thus, over time, PCM initiatives, not only in the US but also in other countries, have become increasingly productive and encouraging.

Austria and Germany. The results of PCM in post-war Austria and West Germany are extremely mixed. For example, as a result of the actions implemented by the German government and its entrepreneurs, the number of co-owners of many West German enterprises among workers reached 40–60 per cent of their total number, but the share of the total value of their shares was very small. This external social effect was offset by the extremely dubious economic effect of property ownership by the masses: during 20 years of continuous capitalisation, the 312 "joint-stock" marks allocated under the law "On the Promotion of the Formation of Property of Persons in Wage Labour" increased a worker's property by only the amount of his annual salary. This contrasts sharply with the "results" of the richest stratum of the population: while between 1950 and 1962 the index of nominal income in the country rose by 143 per cent, the index of businessmen's profits rose by 236 per cent; the amount of annual remuneration of the financial upper echelons was 10–40 per cent of the profits earned [2].

In Austria, the PCM also failed to guarantee workers permanent jobs, decent wages and living standards. Rather, on the contrary: the

[3] Research on Employee Ownership, Corporate Performance, and Employee Compensation. URL: https://www.nceo.org/articles/research-employee-ownership-corporate-performance (accessed on 29.07.2023).

[4] Ibidem.

[5] Ingersoll Rand Provides Equity Grant to All Employees. URL: https://www.industryweek.com/talent/article/21142915/ingersoll-rand-provides-equity-grant-to-all-employees (accessed on 29.07.2023).

initiative accelerated the redistribution of previously nationalised property to oligarchs and strengthened the role of the financial sector in the country's economy.

Great Britain. In Great Britain, PCM and the accompanying privatisation had a tangible social effect: they changed people's consciousness turning them from an employee to owner, which had a positive impact on companies' operations. For example, the privatisation of the transport company *National Freight Corporation* transformed it into a more profitable and modern logistics organisation. This happened, among other things, because employees had a fundamental change in their attitude to work, increased motivation and interest in its qualitative fulfilment. Equally striking is the example of the miners' £ 2 million buyout of the unprofitable *Tower Colliery* mine in Wales, which then operated successfully until its closure in 2008. At the same time, many electricity companies began to modernise, moving to heat-saving and cleaner power stations. The outdated electromechanical equipment of the telephone system was also replaced by electronic and digital equipment, and the abolition of the monopoly in this area paved the way for the mobile phone revolution [20].

Thus, Thatcher's New Policy and her version of the PCM made it possible to accelerate the modernisation of the economy and revive business activity in the country. It is enough to recall that the rate of economic growth in the UK in the 1980s was 4–5 p.p. higher than in other Western countries: strong growth in industrial production led to a 27 per cent increase in GNP from 1981 to 1988. In addition, the government managed to reduce the rate of consumer price growth from 13.6 per cent in 1979 to 4.9 per cent in 1988.

Russia. Although the practice of establishing people's enterprises in the country on the basis of Federal Law No. 115-FL dated 19.07.1998 "On the Specifics of the Legal Status of Joint Stock Companies of Employees (People's Enterprises)" has not become widespread, it still demonstrates positive results. Among the PCM-based enterprises established at that time, some have survived to the present day and are carrying out successful economic activities. For example, CJSC "People's Enterprise Naberezhnochelninskiy Cardboard and Paper Mill named after S.P. Titov" is still one of the ten largest enterprises of the Russian pulp and paper industry. The most famous producer of raw materials for refractories and ceramics, CJSC "People's Enterprise Chelyabinsk Ore Management", is successfully operating. One of the leading places among asbestos-cement enterprises in Russia is occupied by AOR "People's enterprise Znamya". Thus, it is impossible to disregard the historical experiment with PCM in any way.

As for MMC Norilsk Nickel's PCM, it is currently problematic to assess its effectiveness, but it has both supporters and opponents. Thus, according to some experts, the company's scheme for creating tokens[6] of its property is quite revolutionary and will compete with other tangible and intangible assets in the future due to its security, flexibility, ease of handling, transparency and guarantee of data safety [21]. Other financial analysts have raised concerns about investing in digital financial markets due to their underdevelopment in Russia, lack of legal regulation and vulnerability to hacker attacks, which makes them too risky.[7] A number of experts believe that the introduction of PCM

[6] A token — is a digital asset (certificate) that represents a certain value, operates on a blockchain or other decentralised network, and guarantees a company's obligations to its holder. Tokens can be used to grant a stake in a project, access to certain services or products.

[7] The "people's capitalism" project invented by Nornickel did not find support among financiers. URL: https://zapad24.ru/articles/97842-pridumannyj-nornikelem-proekt-narodnyj-kapitalizm-v-ne-nashel-podderzhki-u-finan.html (accessed on 29.07.2023).

is not so much motivational in nature for employees as it is aimed at enriching the oligarch himself. This opinion is substantiated by the fact that the programme's backbone bank will be Rosbank, acquired by Vladimir Potanin, where employees wishing to become beneficiaries must have a special account linked to their salary account. This will allow Rosbank to attract new clients, strengthen liquidity and ensure the turnover of additional hundreds of billions of roubles.[8] In addition, there is an assumption that this programme is an anti-sanctions measure to mitigate the negative consequences of the sanctions imposed on V. Potanin. [22].

Thus, MMC Norilsk Nickel's PCM is a vivid example of the competition between the pros and cons of the new initiative.

THE SIGNIFICANCE OF THE PEOPLE'S CAPITALISM MODEL: THEORETICAL FOUNDATIONS

The empirical evidence discussed above shows that in a number of cases PCM provides significant economic and social benefits in many areas. At the same time, one cannot ignore the fact that there are many critical arguments against this system. Such diametrically opposed opinions do not allow to form a correct attitude to PCM and need at least a preliminary ordering.

Let us try to explain the stability of interest in PCM over 100 years. For this purpose, let us recall a series of remarkable works by M. L. Weizmann devoted to the profit-sharing system [23–25]. In them, results were obtained that shed light on the significance of PCM. In particular, Weizmann considered two alternative models of economic organisation — the traditional system of employment with fixed wages regulated by labour contracts, and the one where a company's employees, in addition to a minimum wage, are entitled to a share of its profits (this is a more general case compared to PCM). Weizmann's modelling analysis showed that there are major functional differences between the two systems in favour of the participation (sharing) system [24]. Let us consider its macroeconomic advantages:

1. The traditional employment system is characterised by a tighter labour market and larger social problems; it is in a chronic unemployment mode and any negative shocks only increase this distress. In contrast, the participatory system tends towards a state of full employment and, even when taken out of it, returns to it rather quickly.

2. In the participatory system, the level of productive activity and real wages are systematically higher than in the traditional employment system.

3. The participatory system has a natural "immunity" against inflation and market prices are set lower than in a traditional employment system.

4. The participatory system is more flexible, manoeuvrable and manageable than the traditional employment system; it is more sensitive to monetary and fiscal regulatory measures. In it, the level of production is at its maximum and does not depend on government action, whereas in the traditional system it depends on money issue and government expenditure, hence any deterioration in these parameters leads to a decline in production. Prices and real wages in the traditional employment system, on the contrary, do not depend on state regulation and are determined by the technical characteristics of the production system, whereas in the participatory system they can be adjusted by fiscal and monetary policy instruments.

Thus, the large-scale implementation of the participatory system generates a completely different, more efficient macroeconomic system. It is this circumstance that largely

[8] Potanin's non-people capitalism. URL: https://argumenti-ru.turbopages.org/argumenti.ru/s/society/2023/04/825044 (accessed on 29.07.2023).

explains the undying interest in PCM as a kind of participatory system.

Now let us try to give an answer to the difference of estimates regarding the effectiveness of PCM. To do this, let us use an extremely simple theoretical construct that defines the motivation of employees of a company working on PCM:

$$U = W + KD(r), \quad (1)$$

where: U — is the remuneration of the company's employee; W — employee's salary regulated by labour contractual obligations; K — shareholding owned by a particular employee; D — dividend on shares; r — profitability (efficiency) of the company's work.

In the traditional employment system, the employee's compensation function is limited only by the amount of his wages, whereas PCM adds a second component to the right-hand side of (1) in the form of equity income. In formula (1), it is assumed that the amount of dividends (D) depends on the success of the company (r). In the traditional employment system, however, the improvement of the company's financial position does not affect the income of its employees, who receive their predetermined wages. However, in PCM, the success of the company directly affects the remuneration of employees:

$$\frac{\partial U}{\partial r} = K\left(\frac{\partial D}{\partial r}\right), \quad (2)$$

where: $\partial U/\partial r$ — *is the motivation effect, and* $\partial D/\partial r$ — *is the incentive effect*. It is easy to see that firm success motivates workers ($\partial U/\partial r > 0$) only if there is a properly tuned incentive effect ($\partial D/\partial r > 0$). If the incentive effect does not work ($\partial D/\partial r = 0$) or is completely broken ($\partial D/\partial r < 0$), then the firm's success will only irritate workers and cause outbursts of protest and sabotage ($\partial U/\partial r = 0$ and $\partial U/\partial r < 0$ respectively). It is this circumstance that explains the existence of contradictory opinions about the effectiveness of PCMs. Indeed, some companies may have a well organised mechanism for reconciling profitability (yield) and dividend payments to employees, while in others it may be blocked for reasons beyond the control of employees. As a rule, the existence of such a coupling mechanism depends on the goodwill of the majority owner of the company.

Of course, the strength of the motivation effect depends on the size of the shareholding owned by the employee — the coefficient K in the right part of formula (2). If a company employee owns a purely symbolic share capital ($K \to 0$), the effect of his motivation will be practically nullified even with a well-adjusted incentive effect.

Let us now consider the behaviour of the company in the simplest and most aggregated form possible. Suppose that the efficiency function of the company is described by the following dependence:

$$r = f(F) + \alpha U, \quad (3)$$

where: F — factors other than employee motivation affecting the company's performance (in an alternative interpretation, F can be interpreted as an aggregate managerial resource of the company); f — function linking managerial factors of the firm's activity with profitability; α — coefficient of participation of the company's employees, which provides a direct link between the interests of the company and the employee in contrast to the motivation effect, reflecting an inverse relationship between them (to simplify the analysis, the effect of participation is presented in an additive form, which does not violate the generality of the analysis).

Ratio (3) can be translated into a dynamic form:

$$dr/dt = (\partial f/\partial F)(dF/dt) + \alpha(dU/dt), \quad (4)$$

where: t — is time.

Then, taking into account (1) and (2), the basic equation follows from (4):

$$\frac{dr}{dt} = \frac{\partial f / \partial F}{1 - \alpha K \left(\partial D / \partial r \right)} \left(\frac{dF}{dt} \right). \quad (5)$$

The resulting equation allows us to determine those conditions that ensure the coordination of employee and company interests and thus determine effective PCM, i.e., when $dr/dt > 0$:

$$dF / dt > 0, \quad (6)$$

$$\alpha > 0, \quad (7)$$

$$dD / dr > 0, \quad (8)$$

$$dD / dr < 1 / \alpha K. \quad (9)$$

Let us consider the content of the obtained conditions.

Inequality (6) requires that all organisational and investment components of the company's management system increase, i.e., the quality of management and investments increase. This condition is the key one, because without its fulfilment all other aspects of the company's work lose their meaning. That is, condition (6) unambiguously says that PCM itself is not a determining element of the company's work, but on the contrary — a kind of additional tool for fine-tuning.

Inequation (7) shows that there is a positive relationship between the efficiency of the company and the employee's remuneration. Otherwise, there would be an inherent malevolence of the employee, who would work worse and worse with increasing income. Such situations are not excluded in reality, but they can be regarded as degenerate and be not considered.

Condition (8) postulates the existence of an incentive effect, when the growth of the company's profitability "spills over" into the dividends of employees. If this effect disappears, a frankly hostile relationship is established between the company and the employee.

Finally, condition (9) is the most non-trivial, because it limits the effect of incentives from above, preventing excessive profit spillovers in favour of workers. Such a requirement is perfectly natural and intuitive. However, apart from this general conclusion, inequality (9) produces another very important thesis: a reasonable incentive system is possible only if the shareholding in the hands of the worker (K) is modest enough and if there is no overly aggressive complicity (α) on his part. This conclusion automatically follows from the fact that when $K \to 0$ the upper bound on the restriction on the incentive effect increases to infinity: $dD/dr \to \infty$. This implies that vesting workers in the firm with small blocks of shares is productive and makes them sensitive to the dividend policy. If the distribution of shares among employees is unequal (i.e., some have rather large shareholdings and others have small ones), workers are divided into two groups: those who are affected by the PCM incentive system and those who remain insensitive to it. This may contribute to a conflict of interest among the holders of the company's shares. Therefore, one of the main principles in the distribution of shares among employees should be the *principle of approximate equality of all shares*.

Thus, the modelling analysis unambiguously shows that in an effective PCM the employee should not be a "full-fledged" owner of equity capital, but only "one of many" participants. Hence, another important statement follows: for companies with a small number of employees and solid capitalisation (amount of share capital), PCM is unlikely to be an effective support to the corporate management system. Let us emphasise that

the enlargement of a shareholding in the hands of an employee (K) and his too active involvement in the financial success of the company (α) lead to his transformation into a "normal", "full-fledged" owner with the emergence of qualitatively new economic interests.

The conditions (6)-(9) obtained above shed light on the existing discrepancies in assessments of the effectiveness of PCM as a social institution. Since not all of the above conditions are fulfilled in practice, PCM does not always become truly effective.

IMPLEMENTATION OF THE PEOPLE'S CAPITALISM MODEL IN RUSSIA: SUGGESTIONS AND RECOMMENDATIONS

The considered properties of PCM do not allow us to give simple recommendations on its application, but some principles can still be formulated. It should be borne in mind that all the proposals set out below are of an initiative nature, and therefore are subject to a broad expert discussion in order to harmonise the positions of different social groups — majority owners of enterprises, their management and employees, as well as public authorities.

In view of the above, the following measures can be proposed to organise the work of PCMs.

Firstly, PCM enterprises should be provided from the very beginning with the principle of *obligatory payment* of dividends to the owners of "people's shares", i.e., in the hands of the employees of the enterprise. This principle is basic to ensure the effectiveness of the incentive system. Otherwise, when the employee-shareholders do not receive dividends, the PCM is completely discredited and devalued. In practice, this principle can take different forms, for example, in the form of regulating the relationship between the company's return on equity and dividend payments. The main thing in this case is not to break the very link between the firm's success and additional remuneration of employees.

Second, based on the principle of mandatory payment of dividends and its normative regulation, it is necessary to calculate *the maximum size of the "effective shareholding"*, which ensures the fulfilment of condition (9) and prevents a worker from becoming an oligarch. Accordingly, all workers should have shareholdings not exceeding this value. At the same time, the minimum size of a worker's shareholding that provides him with a reasonable additional income should be determined. Then the policy of distribution of share capital will be based on the aspiration to ensure the *principle of homogeneity of the "people's owner"*.

Thirdly, it is possible to provide for *priority participation* in the equity of the enterprise by residents of the region in which it is localised. For example, the share of equity in the hands of employees of the enterprise may be 25 per cent and the share of equity in the hands of other residents of the region may be 24 per cent. At the same time, this category of people may not be subject to the regulations adopted for those who work at the enterprise. In any case, this issue should be resolved by consensual agreement between the owners of the company. If the said 24% of the capital is not fully demanded by the residents of the region, the residual amount may be sold to other willing parties.

Fourth, in order to ensure a permanent link between the enterprise and its employees and the population of the region, it is necessary to adhere to the *principle of continuity* with respect to minority owners, according to which when an employee is dismissed and changes his/her place of residence (registration), he/she must sell his/her shares to the enterprise. This procedure can be ensured almost automatically, when a person, when changing his status, loses ownership rights in one of his bank accounts and instead

receives regulated monetary compensation in another account.

Fifth, in order to maximise the attention of the regional authorities to enterprises of strategic importance, the practice of their *mandatory participation* in the share capital of these enterprises should be introduced. For example, the head of the region (city) should become the owner of a block of shares in one of such enterprises in the amount of his monthly salary. It is possible that in order to strengthen this measure, the principle of compulsory participation could be extended to deputy heads of the region (city).

We emphasise once again that these proposals are not a panacea for all problems and are subject to expert discussion with possible adjustments. However, without them, PCM risks going into "free floating" and losing its original advantages.

CONCLUSIONS

The return in Russia to the model of people's capitalism is caused by the current economic and foreign policy context with the requirement to restore technological sovereignty. It is the new historical context for the country that largely dictates and justifies PCM. There is reason to hope that the competent implementation of this model of economic management will solve a number of currently pressing tasks. The first one is to increase the visibility and transparency of enterprises of strategic importance, as well as the attention to them on the part of both the public and the authorities. The second is to link the interests of the state, ordinary employees of the enterprise and residents of the region of its localisation. The third is to gain access to the population's money savings for massive investments in enterprises that ensure the country's technological sovereignty. Fourth, to support the material well-being of the population through its participation in new highly profitable business, which in the future may become global.

There is no doubt that the solution of the above tasks is realistic. For this purpose, at the moment there is both conceptual understanding of the essence and nuances of the PCM mechanism and practical experience in its implementation. It remains only to move step by step, but quickly in the indicated direction.

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The Impact of Globalization on the Structure of National Economies

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ABSTRACT

The paper presents the results of a study of the nature of dynamic processes in the world economy. The dynamics of the development of national economies leading in the ranking of countries by GDP (PPP) with a population of more than 50 million people is analyzed. The tendencies and features of economic growth in various countries, which contributed to the structural changes in national economies, are revealed. It is shown how the distribution of economic competencies in the global economy contributes to the formation of models for the adaptation of national economies to the world trade system. A model has been developed for classifying countries on a scale of the level of integration of national economies into the global one. It was revealed that the level of dependence of the national economy on the global one in the service sector is noticeably less than in the industrial sector of the economy.

Keywords: structure of the economy; industry; manufacturing industry; real economy; service sector; export; import; balance of international trade

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INTRODUCTION

The national economies of both developed and developing countries have been experiencing crisis processes for several years, negatively affecting their socio-economic situation.[1] In particular, they generate unemployment, falling incomes of the population, increasing debt of states and households.[2] In addition, the coronavirus pandemic and increased geopolitical tensions have contributed to the regionalisation of the world economy [1–3].

In this regard, the problem of creating a recovery plan for both the national and global economy is relevant, for the development of which it is necessary to solve the fundamental problem of determining the causes of the generation of crisis processes.

Two paradigms of crisis processes in the world economy have emerged in the economic literature [4, 5]. One argues that the main source of crisis processes generation is the increase in geopolitical tension, to the greatest extent — since 2014, as well as the consequences of the coronavirus pandemic, which complicated various communications between states, economic entities, and the population [6–8]. In this regard, the key problem of overcoming the crisis is the development of mechanisms to

[1] World Economic Situation and Prospects: February 2022 Briefing. No. 157. URL: https://www.un.org/development/desa/dpad/publication/world-economic-situation-and-prospects-february-2022-briefing-no-157/ (accessed on 19.03.2022); Inflation in the OECD area continues to surge, reaching 7.2% in January 2022, the highest rate since 1991. URL: https://www.oecd.org/newsroom/consumer-prices-oecd-updated-3-march-2022.htm (accessed on 19.03.2022).

[2] World Economic Situation and Prospects: February 2022 Briefing, No. 157. URL: https://www.un.org/development/desa/dpad/publication/world-economic-situation-and-prospects-february-2022-briefing-no-157/ (accessed on 19.03.2022).

reduce the impact of these factors external to national economies.

On the contrary, the second one states that the above-mentioned factors have only catalysed recessionary processes in national economies, the signs of which began to appear even before the pandemic, and they are generated by factors internal to the economy. According to this paradigm, a new model of the economy needs to be developed [9–12].

In this regard, it is relevant to conduct research aimed at obtaining direct data showing the relevance of this or that paradigm and determining the impact of global processes on the economic growth of national economies. This constitutes the subject of the article's research. The authors put forward the following position as a hypothesis: the structure of the national economy and the level of its integration into the global economy determine the sustainability of national economic development.

RESEARCH METHODOLOGY

The dynamics of the global economy in 2020–2022 is determined both by external factors, such as pandemics and geopolitical tensions, and by the structure of national economies. When choosing the time period, the authors relied on statistical data from the World Bank, OECD and UNIDO, indicating signs of economic decline in the national economies of leading countries in the period 2008–2019, i.e., in the "pre-pandemic" period. In the study, the coronavirus pandemic is conditionally accepted as an external factor in the development of national economies; therefore, its impact on the dynamics of indicators of socio-economic development of national economies may distort the analysed trends to some extent.

Therefore, the authors decided to choose a time period not related to the pandemic when determining the nature of dynamic processes in the global and national economies. This allows levelling the influence of factors related to the difference in approaches of state regulation and restrictions of economic activity in the conditions of pandemic spread on the sustainability of development of national economies.

When selecting countries to analyse the dynamics of their development, the authors turned to the PPP GDP ranking. Thus, the first 15 countries with a population of more than 50 million people were selected. In aggregate, their contribution to world GDP in PPP terms is about 70%, which allows us to say that the dynamics of their development largely determines the dynamics of the world economy.[3] In the course of the study, the authors use the terms "aggregate economy", "aggregate exports/imports", which are understood as the total value of the relevant indicators of the studied sample of countries (the total value of GDP, exports, imports, etc.).

The specifics of pricing in different countries, as well as the impact of inflation on statistical data were taken into account by using PPP data in constant prices.

In determining the significance of integration of the national economy into the global economy, the authors studied the role of integration processes in the development of the industrial sector and services. The assessment of the effectiveness of the current model of the national economy was determined on the basis of the following assumption: the economic system is effective if the potential for balancing supply and demand is formed within its framework. If this potential does not decrease, such a system can be considered sustainable.

When quantitatively describing the level of integration of the national economy into the global economy, a number of factors should be taken into account:

- domestic demand for goods produced by the national economy;
- domestic demand for imported products;
- external demand for the products of the national industry (export potential).

[3] World Bank Open Data. URL: https://databank.worldbank.org/reports.aspx?source=2&series=NV.SRV.TOTL.ZS&country= (accessed on 19.03.2022).

The degree of impact on the national economy of the second and third factors is determined by both internal and external reasons. The intensity of this impact shows the level of economic dependence of the national economy on the global economy.

In this case, the degree of impact of the first factor on the national economy depends only on internal reasons, so, taking into account the fact that the second and third factors determine the interaction between the national and global economies, we can calculate the level of integration of the national economy into the global economy as the ratio of the total effect of the second and third factors to the sum of the effects of all three factors. The instruments of impact are imports and exports of the products.

STRUCTURAL TRENDS IN THE DYNAMICS OF THE WORLD ECONOMY DEVELOPMENT IN THE SECOND HALF OF XX – EARLY XXI CENTURY

Since the 1970s, the dynamics of the world and national economies have been determined by the accelerated growth of the share of services in them. This is reflected in the "servicisation" of the economy and the slowdown in the development of the real sector.[4] Indeed, if in 1980 in the US economy the added value of the service sector in GDP was 70%, in the year 2019 it was already 77.3%.[5] A similar situation is observed in other OECD countries.[6]

This is accompanied by the intensification of the movement of labour force and capital from material production to the service sector, which was noted back in the 1930s. The theoretical explanation of such processes in the mid-20th century was given by economists A. Fisher [13], C. Clark [15], J. Furastier [16], who developed a new three-sectoral approach to the study of the structure of social production, according to which, in the course of historical development, each economy goes from the predominance of the primary sector to the secondary sector, and then — to the dominance of the tertiary sector. The theory was further developed in the works of S. Kuznets [17], D. Bell [18], P. Dicken [19], M. Castells [20], J. Singelman [21], A. Sayer, P. Walker [22], R. Reich [23] and other economists who added quaternary, quintuple, and hexahedral sectors of the economy.

The structural changes that took place in the economy in the second half of the 20th century were explained by the theory of post-industrial society, according to which one of the main characteristics of the new economy is the transition from material production to the production of services.

However, the dynamics of the crisis processes in South-East Asia (1997–1998), the dotcom crisis in the USA (2000–2001), the Great Recession (2008–2009), and the Coronacrisis (2020) showed that the greatest decline in economic activity was observed in the services sector.

Due to the high elasticity of the service sector of the economy, the demand for services is reduced first of all. The manufacturing sector is more resistant to negative processes. During the above-mentioned crises, the countries with the largest contribution of the manufacturing industry to GDP were the first to emerge from it,[7] which increases the relevance of its study as a factor in ensuring sustainable socio-economic development in modern conditions.

The importance of the development of manufacturing industry for improving the

[4] Harnessing the potential of services, including infrastructure services, to achieve the Sustainable Development Goals. United Nations Conference on Trade and Development (UNCTAD). URL: https://unctad.org/system/files/official-document/c1mem4d23_ru.pdf (accessed on 19.03.2022).

[5] World Bank Open Data. URL: https://databank.worldbank.org/reports.aspx?source=2&series=NV.SRV.TOTL.ZS&country= (accessed on 19.03.2022).

[6] Ibidem.

[7] Who will be the last one? Which countries will emerge from the crisis later than others. URL: https://www.forbes.ru/biznes/401205-kto-posledniy-kakie-strany-vyydut-iz-krizisa-pozzhe-drugih (accessed on 08.12.2021).

sustainability of the economy is shown in the works of American and European scientists: J. Miller, T. Walton, W. Kovacic and J. Rabkin [24], G. Hosper [25], E. Heymann, S. Vetter [26], P. Prisecaru [27], W. Zhao [28], as well as domestic scientists S. Bodrunov [29], S. Gubanov [30], S. Chuprov [31], V. Chernova [32], V. Varnavsky [33].

These works substantiated the idea of re-industrialisation of the developed countries as a factor of increasing the sustainability of economic development in the turbulence of the global economy [34].

DYNAMICS OF ECONOMIC GROWTH OF NATIONAL ECONOMIES

Table 1 presents data characterising the growth rates of different sectors of the national economies of the leading countries in the PPP GDP ranking for the period 2008–2019.

Analysis of the data in *Table 1* shows significant differences in the GDP growth rates of the world's leading economies. Five countries (China, India, Indonesia, Turkey, South Korea) for the period 2008–2019 were above 40% in the GDP growth rate, while the rest — no more than 23%.

Significant differences in the growth dynamics of different sectors of the economy should be noted. Thus, in China, India, Indonesia, Brazil, the development rates of the services sector are more than 1.4 times higher than in the manufacturing sector. In Russia, this difference is 14 per cent, while in the other countries it is no more than 10 per cent. Consequently, the economies of these four countries are undergoing significant structural changes, while in the rest of the countries — the changes are to a much lesser extent.

The dynamic growth rates of industry are the same as in the manufacturing industry. Consequently, there is no noticeable structural change in the latter. The industrial sector in Brazil and Italy has structural changes, while its importance in GDP is decreasing. In Brazil, the manufacturing sector is declining to a greater extent, while in Italy the extractive sector is declining.

All of the above shows the priorities of countries in the formation of economic competences in the domestic and global markets. Thus, in China in the period 2008–2019, the services sector was developing to a greater extent in the domestic market, while in the global market the first place in the world ranking was occupied by the manufacturing industry, the share of which was 39.2%, which was three times higher than the value of the similar indicator of the USA (in other countries it was 1–8%) (*Table 2*).

According to *Table 2*, over the period 2008–2019, in the structure of value added produced in the manufacturing sector of the analysed sample of countries, there was a noticeable increase in the relative contribution of China's manufacturing industry — by 11%. India has a slight increase in this indicator — by 1.2 per cent. In contrast, the economies of the United States of America decreased their contribution — by 3.4 per cent, European countries — by 4.1 per cent and Japan — by 2.3 per cent. The result of these dynamic processes was the formation of new centres of development of the global manufacturing industry.

Despite the fact that in the structure of the US and European economies the service sector produces more than 70% of GDP, their relative contribution to the development of the "total service sector" has noticeably decreased — by 4.8 and 5.1%, respectively. At the same time, there is a sharp increase in this indicator in China — by 10.8%.

Table 3 shows the distribution of development centres of the world economy in its various sectors.

Analysis of the data in *Table 3* shows that 62% of total industrial production and 66% of manufacturing output is carried out in the Asian region, while the total relative contributions of the economies of the USA and the analysed

Table 1

GDP growth rates of the population of the economies and their amounts in the period 2008–2019, % (2019 to 2008)*

Country	GDP	Value added generated by the industry**	Value added generated in the services sector	Value added produced in the manufacturing industry
China	229	190	289	194
USA	122	112	126	113
India	205	163	221	164
Japan	107	108	107	105
Germany	114	113	115	109
Russia	111	116	119	98
Indonesia	177	144	209	126
Brazil	114	89	127	77
France	111	101	112	98
United Kingdom	115	100	118	103
Italy	97	88	100	93
Mexico	123	110	124	135
Turkey	168	174	170	188
South Korea	140	141	142	138
Iran	108	72	124	123

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/
Note: * – when calculating the indicators of *table 1*, data on the volume of GDP and value added of sectors of the economy at PPP in constant international dollars of 2017 (constant 2017 international $) were used; ** – the authorss in the article use statistics published by the World Bank, according to the methodology of which, when analyzing industry, the industry is taken into account, taking into account construction.

European countries, respectively, are 27 and 26%, i.e., more than 2 times less. In the "aggregate" services sector, the total contribution of US and EU manufacturing is 51 per cent, while that of Asian countries is 45 per cent.

Thus, as a result of dynamic processes in 2008–2019, two centres of production of services of the world economy were formed, while the world production of manufacturing industry concentrated in the Asian region.

The transformation of the structure of national economies led to the prioritised development of their competences and adaptation to the global economy in various directions.

IMPACT OF GLOBAL PROCESSES ON THE ECONOMIC GROWTH OF NATIONAL ECONOMIES

In order to quantitatively describe the level of integration, a number of transformations in the formula determining the volume of domestic consumption of manufacturing goods were carried out:

$$R = (1 - E)^*P + I = (1 - E)^*P + K^*R, \quad (1)$$

$$I = \frac{K^*(1-E)}{1-K}^*P = a^*P, \quad (2)$$

Table 2

Dynamics of the contribution of national sectors to the corresponding sectors of the "aggregate economy" of the leading countries

Country	Contribution of a country's GDP to total GDP, %		Contribution of value added (VA) produced by the industry to the total VA of the industry, %		Contribution of VA produced in the services sector to total VA of the services sector, %		Contribution of VA produced in manufacturing industry to the total VA of manufacturing industry, %	
	2008	2019	2008	2019	2008	2019	2008	2019
China	15.8	25.3	25.2	35.3	11.2	22.0	28.0	39.2
USA	27.1	23.0	19.2	15.7	33.4	28.6	18.3	14.9
India	7.2	10.3	7.6	9.1	5.4	8.2	6.8	8.0
Japan	7.8	5.9	7.7	6.2	9.1	6.6	9.3	7.0
Germany	6.3	5.0	5.8	4.8	6.5	5.1	7.0	5.5
Russia	5.7	4.5	6.0	5.1	4.8	3.9	4.7	3.3
Indonesia	2.9	3.6	4.7	5.0	1.8	2.6	4.4	4.0
Brazil	4.4	3.5	3.4	2.2	4.1	3.5	3.4	1.9
France	4.5	3.5	2.9	2.1	5.2	3.9	2.7	1.9
United Kingdom	4.4	3.5	3.0	2.2	5.0	4.0	2.3	1.7
Italy	4.2	2.9	3.4	2.2	4.5	3.1	3.6	2.4
Mexico	3.3	2.8	3.9	3.1	3.2	2.7	2.9	2.8
Turkey	2.3	2.7	2.0	2.6	2.1	2.4	2.0	2.8
Korea	2.6	2.5	2.8	2.9	2.4	2.3	3.6	3.6
Iran	1.5	1.2	2.5	1.3	1.2	1.0	1.1	1.0
Total	100	100	100	100	100	100	100	100

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/

$$a = \frac{K*(1-E)}{1-K}, \quad (3)$$

where R — is the value of manufactured goods sold on the domestic market; P — is the value of nationally produced goods; I — is the cost of imported products on the domestic market; E, K — respectively, the share of export products in national production and the share of imported products in the national market; a — the coefficient of proportionality between the value of purchases of imported products and the value of products produced in the national economy.

Using the notations introduced in equations (1)–(3), the level of integration of the national economy into the global economy γ is determined:

$$\gamma = \frac{(a+E)*P}{(1+a)*P} = \frac{a+E}{1+a}. \quad (4)$$

In formulas (1)–(4) the introduced parameters a, E, K — are abstract numbers representing, respectively, fractions of a unit, the values of which lie in the interval from 0 to 1. For the convenience of text perception, these values in

Table 3

Contribution of value added to total output of a sample of countries in various sectors in 2019*

Centre	Industry, %	Services, %	Manufacturing industry, %
USA	15.7	28.6	14.9
China	35.3	22.0	39.2
Other Asian sample countries	27.1	23.1	26.4
EU countries**	11.3	16.1	11.5
Latin America	5.5	6.2	4.7
Russia	5.1	3.9	3.3

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/
Note: *— Germany, France, Italy, UK. At the end of 2019, the UK was part of the EU.

the tables and text are presented in percentage form.

The authors of the article introduced a scale of the level of integration of national economies into the global economy.

This indicator is very high in national economies in which the cost of meeting external supply and demand accounts for more than 50 per cent of the total cost (C), of meeting domestic consumption of national production and offers to purchase or sell global market products.

At a high level of integration of the national economy into the global economy, the costs of providing external market offers are in the range of 50 to 40 per cent of total costs (C). In national economies with a moderate level of integration — from 40 to 30%. And at a weak level of integration — from 30 to 20%.

At lower values of the share of these costs, the national economy is practically unaffected by the global economy. In this case, the cost of providing external market offers is four or more times less than the cost of supporting national production to meet the needs of the domestic market.

Tables 4, 5 present data on the level of integration of the leading national economies in the world ranking by the level of GDP by PPP in 2008 and 2019.

The analysis of the data in *Table 4* shows that in 2008 the contribution of Asian countries to the world production of manufacturing industry — was 44.8%, and that of the G7 countries (USA, Japan, Germany, France, Great Britain, Italy) — 43%. In the services sector, the corresponding contribution of Asian countries — was 20.9 per cent and that of the G7 countries — was 63.7 per cent. Thus, the world manufacturing output is almost evenly distributed between the Asian countries in the top 15 in the GDP ranking and the above-mentioned G7 countries. However, the relative importance of Asian economies and G7 countries in global output changed in 2019. Thus, the contribution of Asian economies increased to 57.1%, while that of the G7 countries — decreased to 33.8% (*Table 5*). In the period 2008–2019, global manufacturing output was heavily concentrated in Asian countries. In the services sector, the opposite process took place: the contribution of Asian countries increased to 36.4 per cent and that of the G7 countries — decreased to 52.1 per cent

The data in *Tables 4 and 5* show that the manufacturing sectors in South Korea,

Table 4

Model for integrating the manufacturing industry of the national economy into the global economy, 2008*

Country	Share in "total sector of the economy"			Structure of domestic and external consumption of manufacturing goods as a share of national production, %				Level of integration (γ)
				Domestic demand		External demand		
	Industry, %**	Manufacturing industry, %	Service sector, %	National production	External offerings (*a****)	National production	Index of interaction with the global economy (*f*)	
China	25.2	28.0	11.2	77.4	13.4	22.6	0.25	0.32
USA	19.2	18.3	33.4	79.5	29.9	20.5	–0.19	0.39
India	7.6	6.8	5.4	77.2	26.2	22.8	–0.07	0.39
Japan	7.7	9.3	9.1	76.1	15.0	23.9	0.23	0.34
Germany	5.8	7.0	6.5	45.8	37.0	54.2	0.19	0.67
Russia	6.0	4.7	4.8	76.6	29.3	23.4	–0.11	0.41
Indonesia	4.7	4.4	1.8	56.1	56.0	43.9	–0.12	0.64
Brazil	3.4	3.4	4.1	84.4	15.9	15.6	–0.01	0.27
France	2.9	2.7	5.2	55.2	47.1	44.8	–0.02	0.62
United Kingdom	3.0	2.3	5.0	57.1	58.2	42.9	–0.15	0.64
Italy	3.4	3.6	4.5	63.9	29.6	36.1	0.10	0.51
Mexico	3.9	2.9	3.2	26.8	88.8	73.2	–0.10	0.86
Turkey	2.0	2.0	2.1	65.7	41.0	34.3	–0.09	0.53
South Korea	2.8	3.6	2.4	58.3	28.4	41.7	0.19	0.55

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/

Note: *— Statistical data on Iran are published irregularly, not in all analyzed areas and are not presented in all used databases, and therefore, during the study, it was not always possible to collect data for tables on Iran, and the authors were forced to exclude Iran from a number of tables; ** — the authors in the article use statistical data published by the World Bank, according to the methodology of which, when analysing the industry, the industry including construction is implied; *** — the designation was introduced in the explanation to the formula (3).

Table 5

Model of integration of the manufacturing industry of the national economy into the global economy. 2019

Country	Share in "total sector of the economy"			Structure of domestic and external consumption of manufacturing goods as a share of national production. %				Level of integration (γ)
				Domestic demand		External demand		
	Industry, %	Manufacturing industry, %	Service sector, %	National production	External offerings (*a*)	National production	Index of interaction with the global economy (*f*)	
China	34.4	38.3	21.2	82.5	11.1	17.5	0.23	0.26
USA	15.3	14.7	28.9	75.7	38.4	24.3	–0.22	0.45
India	9.4	8.3	8.0	74.0	31.8	26.0	–0.10	0.44
Japan	6.2	7.0	6.7	76.4	18.5	23.6	0.12	0.36
Germany	5	5.8	5.2	33.6	50.5	66.4	0.14	0.78
Russia	5.3	3.3	3.9	69.7	32.0	30.3	–0.03	0.47
Indonesia	4.9	3.9	2.5	67.8	42.3	32.2	–0.14	0.52
Brazil	2.3	1.9	3.6	81.4	21.6	18.6	–0.07	0.33
France	2.1	2.0	4.0	50.8	54.3	49.2	–0.05	0.67
United Kingdom	2.2	1.8	4.1	42.4	80.9	57.6	–0.17	0.77
Italy	2.2	2.5	3.2	53.4	36.9	46.6	0.12	0.61
Mexico	3.2	2.9	2.8	11.3	95.2	88.7	–0.04	0.94
Turkey	2.8	2.9	2.4	58.7	46.1	41.3	–0.06	0.60
South Korea	3	3.7	2.3	57.6	26.8	42.4	0.22	0.55

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/

Indonesia, Italy, France, UK, Germany, Turkey, and Mexico had a very high (over 50%) degree of integration with the global economy in 2008 and 2019.

The manufacturing sector integration indices of the US, Indian and Russian economies in 2019 were in the range of values corresponding to a high level (40–50%). Similar indicators were observed for these economies in 2008 as well.

The level of integration of Japan's manufacturing sector in 2008 and 2019, according to the values of γ, can be characterised as moderate (30–40%).

For Brazil, on the other hand, it increased from 27% in 2008 (weak level) to 33% in 2019 (moderate level).

China's manufacturing economy is the least dependent on the global economy, with its integration index values decreasing from 32% in 2008 to 26% in 2019, which corresponds to a weak level.

The analysis shows that the same level of integration can be achieved in different ways, for example, by using only exports of products and excluding imports for domestic consumption. In this case, in formula (4) $a = 0$, and the level of integration $\gamma = E$.

Table 6

Level of integration of the service sector of national economies into the global economy, 2016*

Country	*E/P*, %**	*I/P*, %**	γ	*f*
France	9,40	8,60	0,168	0,04
Germany	8,50	9,20	0,162	–0,04
Italy	5,17	5,40	0,10	–0,02
Japan	3,42	3,63	0,068	–0,03
Mexico	3,06	4,19	0,070	–0,15
UK	11,60	7,26	0,177	0,23
USA	3,32	2,24	0,054	0,19

Source: compiled by the authors according to OECD Data. URL: https://stats.oecd.org/
Note: *— as a source of data for the analysis of the services sector, the authors used the OECD database, where statistical data on services are published by member countries of the organization. The lack of an alternative source of information containing more up-to-date and broader information has led to a limitation in the number of countries in a number of tables; ** — values of exports and imports as shares of domestic consumption of services.

An alternative option assumes that only imports are used in integration. In this case, in formula (4) E = 0, and the level of integration $\gamma = \frac{a}{1+a}$.

In both cases, the same level value can be achieved using different integration tools. For example, let γ = 0,6. In the first case it will be at $E = 0{,}6$, and in the second case — at $a = 1{,}5$.

Therefore, to describe the features of the mechanism of integration of the national economy into the global economy, we introduce the parameter *f*, defined as:

$$f = \frac{E - a}{E + a}. \quad (5)$$

Values of *f* range from –1 to 1. In an export-oriented economy $f > 0$, in an import-oriented economy $f < 0$, and in a balanced economy $f = 0$.

The corresponding data calculated by formula (5) are presented in *Tables 4 and 5*. Their analysis shows that the group of highly integrated economies in 2019 includes three export-oriented (Germany, Italy, South Korea) and five import-oriented (Indonesia, France, UK, Mexico, Turkey) countries. Among the highly integrated countries, there are two import-oriented (USA and India) and one balanced country (Russia). Among the moderately integrated ones: Japan — export-oriented, Brazil — import-oriented.

At the same time, according to *Tables 4 and 5,* there is a marked decline in the level of integration of Japan (from 23% in 2008 to 12% in 2019) and Germany (from 19% in 2008 to 14% in 2019).

It should be noted that although China, in terms of the impact of the world economy on the national economy, is poorly integrated, nevertheless the scale of the latter has a significant impact on the development of the world economy — 38.3% of the total manufacturing value added of the countries presented in *Table 5* and 34.4% of the total value added of their industries. Thus, from the economic point of view, China has the

Table 7

The importance of international trade for the development of national economies in 2019

Country	Manufacturing industry			Services sector		
	Value added, USD billion	Balance, USD billion	Ratio of balance to value added, %	Value added, USD billion	Balance, USD billion	Ratio of balance to value added, %
China	3318	904.7	27.0	7150	–261.1	–3.65
USA	2610	–826.0	–32.0	17248	287.5	1.67
India	221.6	68.6	31.0	1563	84.2	5.60
Japan	931.9	144.8	15.5	3611	1.10	0.03
Germany	678.5	352.9	52.0	2588	–24.2	–1.00
Russia	187.9	–11.9	–6.3	1059	–36.2	–3.48
Indonesia	163.3	–39.6	–24.2	523.8	–7.7	–1.47
Brazil	208.8	–22.3	–10.7	1230	–35.1	–2.33
France	290.8	–54.4	–18.7	2128	24.1	1.27
United Kingdom	242.3	–172.8	–71.3	2218	134.9	6.69
Italy	290.8	130.2	44.8	1278	–2.3	–0.18
Mexico	151.2	–28.6	–18.9	683.3	–8.2	–1.20
Turkey	183.7	–15.8	–10.0	449.0	37.0	8.24
South Korea	507.2	220.6	43.5	85.8	–2.3	–2.63

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/

maximum potential for economic recovery during global crisis processes. This was clearly demonstrated in 2020–2021, when China's economy recovered from the negative consequences of the coronavirus pandemic with minimal losses (compared to the leading countries).

PECULIARITIES OF INTERNATIONAL TRADE IN SERVICES OF NATIONAL ECONOMIES

Using a wide range of instruments (exports and imports of manufactured goods, global production chains), the manufacturing industries of national economies shape the distribution of competences in the industrial sector of the world economy. On the contrary, the interaction of the global economy is less significant for the service sector of national economies. This is evidenced by the data of *Table 6*.

The analysis of the data in *Table 6*, in accordance with the scale adopted by us, indicates weak and very weak integration of the service sector of national economies into the global economy. At the same time, there are insignificant trends in the nature of the use of integration instruments — exports and imports. For the first four countries of *Table 6* the use of these instruments is practically balanced. A slight priority in the use of exports is observed in the UK and the USA. On the contrary, Mexico has a slight priority in the use of imports.

Thus, the dynamics of development of the services sector of national economies of the

Table 8

The structure of the balance of current operations of the balance of payments of national economies in 2019, billion US dollars

Country	Industrial sector of the market			Commodity balance **	Services balance	Balance of primary and secondary income	Total balance of current transactions
	MI Goods *	Energy carriers, mineral resources	Balance of the sector				
China	1084.9	−496.2	588.7	392.9	−261.1	−28.9	102.9
USA	−957.9	−22.5	−980.4	−861.5	285.2	104.2	−472.1
India	−10.7	−121.6	−132.3	−157.7	84.2	43.7	−29.8
Japan	186.7	−170.5	16.1	1.4	−9.9	184.7	176.2
Germany	357.0	−80.5	276.4	242.5	−23.0	70.1	289.6
Russia	−119.3	238.5	119.2	165.8	−36.7	−63.7	65.4
Indonesia	−38.3	13.7	−24.7	3.5	−7.6	−26.2	−30.3
Brazil	−81.0	28.4	−52.6	26.5	−35.5	−56	−65
France	−45.2	−52.0	−97.1	−52.4	26.8	17.4	−8.2
United Kingdom	−123.7	−18.9	−142.6	−176.8	150.3	−50.4	−76.9
Italy	109.0	−50.2	58.9	67.9	−0.6	−2.7	64.6
Mexico	18.1	−16.2	1.9	5.2	−8.3	−0.87	−3.97
Turkey	19.0	−42.0	−23.0	−16.8	−34.1	56.2	5.3
South Korea	170.3	−106.9	63.4	79.8	−26.8	6.7	59.7

Source: compiled by the authors according to WTO Stats portal (URL: https://stats.wto.org/) and IMF Data Portal (URL: https://data.imf.org/regular.aspx?key=62805740)
Note: *— manufacturing industry; ** — Total balance for all product groups, incl. products of the industrial sector.

countries leading in the GDP PPP ranking is influenced mainly by domestic factors.

Indeed, the values of the ratios of trade balance in the services sector to the value added of the services sector of national economies are a few per cent (2–8 per cent). On the contrary, the values of this indicator in manufacturing for 10 countries are 10 or more times higher (*Table 7*).

The exception is India, where it is only 5.8 times larger. The high importance of the global market for the services sector of the Indian economy is due to the fact that it has a developed software sector aimed at meeting the needs of the global economy.[8]

For Russia, this value is only twice as large — exports of oil products and metallurgical products largely compensate for the cost of foreign supplies of machine-building and chemical products. In the services market, payments to provide foreign holidays for the population are significant, which leads to a

[8] India Software Market Revenues Forecast to Surpass US$ 8.2 Billion by End of Year 2021, According to IDC. URL: https://www.idc.com/getdoc.jsp?containerId=prAP48517221&utm_source=ixbtcom (accessed on 20.02.2022).

Table 9

Sectoral structure of value added, %

Country	Industry		Manufacturing industry		Service	
	2008	2019	2008	2019	2008	2019
China	46.9	38.9	32.1	27.2	42.9	53.9
USA	20.9	18.2	12.3	10.9	74.5	77.3
India	31.1	24.8	17.1	13.6	45.9	49.4
Japan	29.0	28.7	21.4	20.3	69.8	69.3
Germany	26.9	26.7	20.0	19.1	62.2	62.6
Russia	30.8	32.2	14.9	13.1	50.7	54.0
Indonesia	48.1	38.9	27.8	19.7	37.5	44.2
Brazil	23.1	17.9	14.0	9.4	56.8	63.3
France	18.8	17.1	11.1	9.8	69.7	70.2
United Kingdom	20.0	17.4	9.6	8.6	69.8	71.3
Italy	23.6	21.4	15.5	14.9	64.7	66.3
Mexico	34.8	30.9	15.8	17.3	59.5	59.9
Turkey	26.2	27.2	16.3	18.3	55.5	56.5
South Korea	32.5	32.8	25.6	25.3	56.2	57.1

Source: compiled by the authors according to World Bank Open Data. URL: https://databank.worldbank.org/

negative balance of payments. In Turkey, the services sector is export-oriented to a large extent due to the provision of foreigners' holidays.

Thus, for only two countries (Russia and Turkey) the role of interaction with the global market is the same in both the services and manufacturing sectors.

The economic efficiency of interaction of national economies with the global market is determined by the balance of payments. *Table 8* presents data characterising its structure.

The data of *Table 8* show that only 7 countries out of 14 analysed have positive values of the balance of payments of current account transactions.

Based on the results of analysing its structure, we can conclude that the trade balance in the global market of manufactured goods is almost always larger in absolute value than in the market of services (with the exception of the United Kingdom, Mexico and Turkey).

At the same time, the impact of the global economy on the domestic market of industrial goods is noticeably greater than on the domestic market of the services sector. This follows from a comparison of the trade balance of industrial goods and the balance of the services sector. Indeed, the absolute value of the trade balance of industrial goods is two or more times higher than the same indicator for the services sector of 8 countries. Thus, it should be noted that the level of globalisation in services is noticeably lower than in the industrial sector of the economy.

The analysis shows that 11 countries have different types of integration with the global

market in its industrial and services segments. In this regard, it should be noted that in economies with a negative balance in international trade in manufactured goods, the main instrument of integration is imports. But it was assumed that the development of the national services sector would form a source of compensation for these losses. However, as the data of *Table 9* show, such a source has not been formed, despite the fact that in almost all developed countries the contribution of the services sector to GDP ranges from 65 to 80 per cent.

Indeed, even in the economies of the USA, France, and the UK with a high level of development of the service and services sector, the negative commodity balance is not compensated (Table 8). Among developed countries, only Japan, Germany, Italy, and South Korea have a positive trade balance of the industrial sector. The contribution of industry to the GDP of these countries is quite high — more than 20%.

It should be noted that in developed countries, the decline in manufacturing output is due to a reduction in the production of traditional products, the need for which is met through external procurement.

An important element of the balance of payments is the balance of operations carried out in the investment market, in assessing which it should be taken into account that two instruments are used — direct and portfolio investments. A positive balance in the case of direct investments indicates that investments in foreign projects realised abroad are more efficient than investments by residents in the economy. For example, in the 2019 US balance of payments, income from direct investment abroad is $ 580bn, while income from non-residents investing in the US economy — is $ 245.8bn. In the case of portfolio investment, US investors received $ 57bn less than foreign investors.[9] Thus, the US economy is not competitive enough in the investment market. This circumstance is one of the key factors of the crisis of the US financial system.

CONCLUSIONS

The study shows that in the period 2008–2019, there was a significant difference between the growth rates of the services sector and industry, which led to significant changes in the structure of national economies. The importance of China and India in the industrial sector of the world economy has increased. On the contrary, despite the high importance of the service sector in the structure of the US and Western European economies, their contribution to the service sector of the world economy decreased by more than 5%.

As a consequence of the above-mentioned dynamic processes, two centres of production of services of the world economy have emerged, while global manufacturing production has concentrated in the Asian region.

The results of the study of the dynamics of development of national economies leading in the ranking of GDP by PPP revealed common trends and peculiarities in different countries. Fourteen of the 15 countries (Italy is the exception) increased their GDP over the time period, but there is considerable variation in growth rates. Five Asian countries increased their GDP by more than 40 per cent, while 3 EU countries increased by around 11–15 per cent and Italy saw a fall of 3 per cent (*Table 1*).

In all countries, the services sector has a higher growth rate than the industrial sector (including manufacturing). As a result, the services sector has become a major contributor to GDP (contributing more than 50 per cent). The exception is Indonesia, with a contribution of 44 per cent (*Table 9*). The high rate of manufacturing development in South-East Asian countries and in Turkey has led to their

[9] U.S. Bureau of Economic Analysis. International Transactions, International Services, and International Investment Position Tables. URL: ttps://apps.bea.gov/iTable/iTable.cfm?reqid=62&step=2&isuri=1&6210=1#reqid=62&step=2&isuri=1&6210=1 (accessed on 16.04.2022).

leading role in the sector's output. Asian countries account for 62 per cent of the total (*Table 2*).

In addition to the outstripping development of the service sector, the second trend in the development of national economies in 2008–2019 is the increasing degree of integration of national economies into the global economy. In order to quantitatively characterise this indicator, a special parameter was introduced, which was used to classify the interaction and determine the models of adaptation of national economies to the global economy.

Eight countries in the manufacturing sector have a very high degree of integration of their national economies (γ more than 50 per cent) with the global economy. Three countries have integration index values in the range of high integration (range 40–50 per cent). For the remaining countries analysed, this indicator can be assessed as moderate and weak.

The paper introduces a special parameter that characterises different ways of adapting the national economy to the global economy. It allows us to determine whether an economy is import- or export-oriented. The results of the study show that China and South Korea have the highest degree of export orientation, while the United States has the highest degree of import orientation.

The excessive development of the service sector, primarily the financial sector, has led to the formation of negative balance of payments of national economies by increasing their dependence on the supply of products of the industrial sector. The need for industrial goods is ensured by the integration of national economies with the global economy, within the framework of which global production chains function. Increasing geopolitical tension negatively affects the stability of supply chains in the global market and leads to structural problems in national economies in case of shortage of imported components, which has been repeatedly written about by domestic[10] and foreign[11] experts, and clearly demonstrated in the global market of microelectronics in the period 2020–2023.[12]

With relatively low labour costs in developing countries, it seemed economically viable to invest in their industrial sector. The technological development of communications facilitated the cost-effective exchange of goods with developing countries. The post-industrial model of the economy, when integrated into the global economy, was expected to promote economic efficiency, lower costs, and higher profits.

However, the study has shown that under the current models of national economies there are negative dynamics of the balance of payments, increased dependence of developed economies on the products of the industrial sector and, accordingly, a decrease in the level of resilience of national economies to the impact of external factors.

In addition, it is found that almost all countries leading in the ranking of countries in terms of GDP by PPP with a population of more than 50 million people are able to meet service needs on their own, as the interaction

[10] Reshaping global production chains: from efficiency to sustainability. Analytical note. Bank of Russia. URL: https://www.cbr.ru/Content/Document/File/132380/analytic_note_20220125_dip.pdf (accessed on 23.05.2023); The domino effect: why global supply chains are collapsing and what the risks are. URL: https://www.forbes.ru/biznes/460163-effekt-domino-pocemu-rusatsa-global-nye-cepocki-postavok-i-cem-eto-grozit (accessed on 23.05.2023).

[11] Global Value Chain Development Report 2021: Beyond Production. URL: https://www.wto.org/english/res_e/booksp_e/00_gvc_dev_report_2021_e.pdf (accessed on 23.05.2023); Lieferketten-Probleme haben sich weiter verschärft. Lage insbesondere mittelständischer Industriebetriebe teils dramatisch. URL: https://www.dihk.de/de/aktuelles-und-presse/aktuelle-informationen/lieferketten-probleme-haben-sich-weiter-verschaerft-67866 (accessed on 23.05.2023).

[12] Semiconductor Chips Applications Markets and Impact of Shortages, 2022–2027 with 2021 as the Base Year. URL: https://www.businesswire.com/news/home/20230109005462/en/Semiconductor-Chips-Applications-Markets-and-Impact-of-Shortages-2022–2027-with-2021-as-the-Base-Year—-ResearchAndMarkets.com (accessed on 23.05.2023); When the chips are down: How the semiconductor industry is dealing with a worldwide shortage. The Word Economic Forum. URL: https://www.weforum.org/agenda/2022/02/semiconductor-chip-shortage-supply-chain/ (accessed on 23.05.2023).

of the global economy is less significant for the service sector of national economies.

In economies with a negative balance in international trade in manufactured goods, the needs of the domestic market are met at the expense of imports. In the economies of Western Europe and the United States, the deficit of energy resources on the world market, high inflation, and instability of the banking system have shown signs of recession. This indicates the fallacy of the assertion that the development of the national services sector will form a source of compensation for these losses. As the research data show, such a source has not been formed, despite the fact that in almost all developed countries the contribution of the service sector to GDP is from 65 to 80%. In order to maintain the sustainability of the national economy, the U.S. tightened the sanctions regime against Russia, which provoked the emergence of inflation, reduced growth of the economies of Western European countries, and a decline in their competitiveness. The U.S. government creates conditions that stimulate the transfer of industrial companies from Western European countries to the U.S. and thus increases the growth of its industrial production while it is declining in Western European countries.

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Islamic Financial Model: the Problems of Formation and the Demand for Development in Russia in the Current Political and Economic Situation

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ABSTRACT

In the current severe political and economic situation, Russia radically needs revising its development strategy, finding truly reliable and long-term partners. Among the most preferred counterparts for building long-term mutually beneficial relations are the Islamic states, which prefer to use a financial model complaint with their confessional principles. The Islamic financial model is relevant for Russia not only as a tool to attract Islamic investments, but also as a framework for building strong relations with most solid partners. Despite the fact that the Islamic financial model is criticized from the inside, and not devoid of certain shortcomings, the principles laid down in it will be able to ensure the even development of the economy and reduce social tensions through a fair redistribution of income. This article tells about the development of Islamic finance in the world and in Russia.

Keywords: Islamic financial model; partnership instruments; development problems; Islamic world; Islamic financial institutions; Russian economy

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INTRODUCTION

Due to the sharp imbalance in the foreign political and economic environment that began in 2014 and full-scale sanctions actions by the US and its allies (the EU, Japan, Australia and some other countries), especially tightened with the start of the SMO in February 2022, the Russian Federation has faced with the need for an urgent change of priorities in foreign policy and foreign economic cooperation, reorientation from the Western to the Eastern direction, search for new reliable strategic partners and the creation of conditions for comfortable and mutually beneficial cooperation. Currently, the world is divided into two parts: (1) the US and its allies blindly following the will of the "hegemon", often to the detriment of national interests, national economies and domestic producers, and (2) other countries that have seen a real opportunity to demonstrate the independence of their policies from the alleged "general line" pursued by the US, and take advantage of the situation to choose their own path that meets national interests, taking into account the confessional and ethical characteristics of the population. The BRICS countries (Brazil, Russia, India, China, South Africa) and the countries of the Organisation of Islamic Cooperation (OIC),[1] most of which have significant reserves of oil and other raw materials and are members of OPEC, act as a counterweight to the US. African and Latin American states have become active in world politics.

[1] An international organisation of leading Islamic countries. It was established in 1969 to strengthen ties between the states of the Islamic world. Until 2011, it was called the Organisation of the Islamic Conference (OIC), and then renamed the OIC. Now the permanent members are 57 states.

China and India were naturally the first candidates for the role of partners, and Russia began to increase the volume of trade transactions with them, while building joint collective security systems. However, we believe that it is still not worth limiting interaction only with these two countries (undoubtedly powerful in economic terms and representing the interests of almost 2.5 billion people). There are several reasons for this.

Firstly, China and India are trying to use Russia's difficult situation to their advantage as much as possible — having assumed obligations to increase oil purchases, they buy oil products with a solid discount, allowing them not only to use cheap energy resources profitably at home, but also to sell the surplus to other countries at market prices. Secondly, both countries have a strong multi-level bureaucratic system, which takes a long time for decision-making at urgent matters that are favourable for them. Third, India and China are not ready to intensify any of the areas of co-operation with Russia. They will neither stimulate investments, nor create joint projects, nor provide assistance to Russian companies to purchase Western products, as such actions are associated with additional operational, financial, and reputational risks for them, as both states do not stop maintaining normal relations with the US and the EU, whose markets are more significant and prioritised for them than the Russian one.

Russia should be apprehensive about building financially unfavourable relations with India and China, similar to those that have existed with Germany for many years. West Germany's industry was able to develop so quickly thanks to cheap gas and other raw materials from the USSR and then from Russia. According to the data of Credit Swiss experts, stated by the famous Russian economist M. Delyagin, the Russian Federation supplied raw materials worth 20 billion euros, but on the basis of these raw materials the West Germany's industry produced goods worth 2 trillion euros and sold them back to Russia. The ratio was1:100! [1, p. 3]. Now Russia sells oil to India and China with at a significant discount (25–30% of the average world market price) for tens of billions of US dollars, while Chinese and Indian companies produce goods based on it and sell them to Russia at a higher price, and to the EU and the US at a lower price, taking into account competition and price restrictions under contracts. In other words, Russian raw materials purchased at a discount are used to produce goods supplied to countries unfriendly to us, which save money on this and then use the saved finances against Russia. These arguments suggest that Russia should pay close attention to the Islamic world — the countries of the Middle East and Southeast Asia — and choose them as long-term partners.

Muslim states are ready to work with Russia; they perceive it as a continuation of the USSR, which helped them for a long time both in gaining independence and in economic recovery and development. The OIC states have about $ 500bn of excess liquidity, which is difficult to invest in their economies, and more than $ 2 trillion in reserves of public and private family royal funds, which have significant investment potential for our country [2, p. 3].

I believe that the Middle East vector is the most promising and preferable at present for Russia. But this does not mean that it is the easiest direction. The Middle East has its own mentality, its own specifics of doing business and making business decisions.

In addition, most potential investors and business partners prefer to use the Islamic financial model — both in servicing trade deals and in financial issues.

SO WHAT IS THE ISLAMIC FINANCIAL MODEL?

In modern historical terms, the Islamic financial model, based on the following of Islamic confessional prohibitions and created in opposition to the conventional model was restored in the 1940s. At that time, Islamic scholars were able

to combine theoretical Shariah principles with practice and create recommendations for the construction of the first financial instruments in accordance with Islamic law or Shariah.[2] They primarily proposed the use of financial products based on partnership (mudarabah and musharakah).[3]

The modern pioneer among Islamic scholars in the theory of Islamic finance was Anwal Iqbar Qureshi, who in his monograph "Islam and the Theory of Interest" in 1946 proposed to use the principle of partnership between investor and borrower, when losses and profits were shared between the parties according to prior mutual agreements. This idea was supported by Sheikh Mahmud Ahmad, who published a comprehensive work, The Economics of Islam, in 1947. Other authors, such as Mohammad Uzair (1955), Irshad (in 1964), and Al-Arabi (1966), also considered the partnership principle to be the most favourable in Islamic finance. Shariah-compliant Islamic financial products were further developed in 1968 by the renowned Pakistani scholar Siddiqi, who proposed to classify them as agency services performed for a commission; partnership investments based on profit and risk sharing; and non-reimbursable services with the possibility of voluntary compensation to the investor from the borrower. Chapra in 1985 had already theorised the concept of Islamic banks or Islamic financial institutions as investment companies serving the public interest, with social responsibility rather than seeking commercial results in any way possible.[4]

[2] Shariah (Arabic for "the right or correct way") — is a set of legal guidelines based on confessional Islamic principles. There is a distinction between ibadat, which regulates religious issues, and muamalat, which governs the problems of a Muslim's daily activities.

[3] Mudarabah — a partnership financing transaction where an investor invests in a project, bearing the risks of his investment, but the profit made is shared between the investor and the project realiser in pre-agreed proportions. Musharakah — a joint venture where all partners invest their financial resources, bearing the risks, but the profits are shared based on the arrangements made.

[4] Islamic banking: the history of development. URL: https://islam.ru/content/economica/46551 (accessed on 18.06.2023).

Islamic scholars have always separated the very concept of Islamic financial institution from its traditional "usurious" analogue, believing that the Islamic bank, although acting as an intermediary, but should be a true partner to its customers, solving socio-economic problems of great public importance, such as poverty alleviation, equalising distortions in the distribution of material resources, providing jobs, helping vulnerable segments of the population, popularising charity, etc. Despite the fact that theorists somewhat idealised the role of Islamic financial institution, the first founders of Islamic banks tried to adhere to the socio-ethical orientation of this concept [3, p. 2].

DEVELOPMENT OF ISLAMIC FINANCE IN THE WORLD

The theoretical developments provided the basis for the establishment of the first financial institutions — Mit Gamr Bank in Egypt and the Hajj Pilgrims Fund (Tabung Haji) in Malaysia in 1963. The Islamic Bank in Egypt was aimed at retail customers and started its operations by issuing small interest-free loans based on the mudarabah instrument using the principle of risk and profit sharing. The Pilgrims Fund in Malaysia provided an opportunity for those wishing to perform the Hajj in Mecca to save money in accordance with Shariah rules. For this purpose, the Malaysian Ministry of Finance opened a separate special account in which the depositors' money was accumulated.

This financial company became the first Islamic financial institution in Malaysia, and its activities and the active position of its participants contributed to the issuance of the first Islamic banking law in the world history in 1983 (Islamic Banking Act No. 276), which became the basis for the establishment of the dual financial system of the Kingdom of Malaysia, which is rightly considered as the flagship of Islamic finance in the world.

The Islamic financial model is based on the key confessional and ethical guidelines

contained in the holy Koran, the Sunnah (the words and heritage of the Prophet Muhammad) and other Islamic sources of the Shariah. The basic principles of muamalat are to avoid prohibitions and follow recommendations. Otherwise, a Muslim has freedom of action in his daily activities, which extends to the freedom to enter into contracts. All existing prohibitions (haram — Arabic) can be divided into four parts.

The first — the most important one — is the prohibition of any activity where there is a conditional lending interest, i.e., when the investor, providing monetary resources, demands to return the money to him with more than it is worth, with additional income determined in advance (Riba — Arabic). Islam considers it usury, illegitimate profit and does not recognise it at all.

The second one — is related to the presence of uncertainty (Gharar — Arabic), which extends to the quality and other characteristics of the product, the mechanism of income generation and other relationships.

The third one — is excessive risk (Maysir — Arabic), which accompanies any human activity, including business relations. Excessive risk is determined by special experts — Shariah advisors who test this element for compliance with the Shariah.

The fourth — applies to industries where it is forbidden to invest, earn income, or even interact: the production and trade of alcohol, tobacco, pork, casinos, nightclubs, adult entertainment, and the conventional financial system (banks, insurance companies, stock market operations, etc.).

In determining the prohibition of industries, Islam proceeds from their usefulness not only for the individual but also for society as a whole. Emerging new branches of human production activities are screened for compliance with the Shariah, mainly on the basis of their social utility, and then a consensus decision is made — whether to blacklist a certain industry or not.

At the end of the 20th century, Islamic finance began to develop actively in the Muslim countries of the Middle East, South-East Asia, North and Central Africa, gradually spreading to Europe, North and South America, and then to Australia and Oceania. Some Islamic states, such as Iran and Sudan, radically restructured their financial system, completely eliminating conventional usury finance. The remaining countries have constructed a dual financial system, including a sector of Islamic finance (banks, insurance takaful companies,[5] financial companies operating on stock markets) and a sector with conventional financial institutions operating under the supervision of a single regulator. The leaders in the development of Islamic finance are considered to be: Saudi Arabia, Kuwait, UAE, Malaysia, Iran. Islamic financial institutions are represented on all continents, even in those countries where there are few Muslims. Thus, the first Islamic financial fund in Europe with the participation of capital of the royal family from the UAE was opened in Luxembourg and Switzerland in 1978 and still exists today. In total, there are currently about 700 Islamic financial institutions operating in the world, which control assets of about $ 5 trillion. However, globally, this represents only 1.5 per cent of the total [4, p. 3].

PROBLEMS OF FORMATION OF ISLAMIC FINANCE IN THE WORLD

Rather rapid development of Islamic finance in the world (annually, according to leading experts, the Islamic financial industry grew by at least 15%) predetermined the emergence of certain problems, which both theorists and practitioners working in different segments of the Islamic financial system began to pay attention to.

Thus, Dr. Obiyathulla Ismath Bacha, Doctor of Islamic finance practice, professor of the leading centre of Islamic finance education in Malaysia INCEIF, believes that Islamic finance for 60

[5] Islamic insurance companies operating in the Islamic finance segment, mainly in the form of mutual insurance funds, where takaful policy holders are also shareholders in Islamic insurance companies.

years of its existence has managed to construct Shariah-compliant and consumer-demanding products in all areas of the financial system, spreading to countries where there is almost no Muslim population. In general, we can say that Islamic financial institutions are represented in the banking sector, insurance, and securities market. And the volume of assets controlled by the Islamic financial sector in the world is growing without reducing the initial rate of growth.

However, according to the Malaysian professor, the replication of products of conventional lending financial institutions, which was acceptable in the initial period of the emergence of the Islamic financial model in the world, continues at the present stage, which is wrong. Most new products are only slightly adapted and sent to Shariah auditors for evaluation.

What started as imitation products has evolved into replication of processes and systems and finally extended even to regulation. The initial Islamic financial products (mudarabah and musharakah), which were endorsed by the early theorists, are being used but not improved. The expert believes that there is a total lack of original thinking and innovation, leading to the fact that a non-specialist would hardly distinguish Islamic finance from conventional one.

Modern leaders often forget that the founders of the first Islamic banks believed that Islamic financial institutions would contribute to the fight against inequality and unfair distribution of income in the world, and would be able to reduce tensions in society through social responsibility and charitable programmes. The first theorists dreamed of building a financial system that would lead to a fair world order.

However, a number of Islamic financial institutions follow the path of least resistance and do not try to be creative in developing new instruments and products in line with Shariah values. Having started to develop the Islamic financial system a century later than the traditional one, the practitioners, without taking into account the mistakes of the latter, still copy the interest rate analogues available on the market, only slightly adjusting them to Shariah standards. The Islamic financial model now has serious gaps and inconsistencies. Many of them are to some extent the result of the fact that modern Islamic financial institutions are not able to compete properly and fight for customers.

The first obvious shortcoming is the unwillingness of Islamic finance companies to absorb global resources and use them to meet their own needs. For example, at least half of the world's 20 largest sovereign wealth funds (SWFs) are created from the capitals of Muslims in Islamic countries. Their total assets amount to about $ 3 trillion. However, the average market capitalisation of the 10 largest Islamic stock exchanges — is only US $ 208 bln, the total value of sukuk issued in circulation[6] — is US $ 320 bln., and Islamic investment funds — are worth US $ 56bln. [5, p. 3].

Obviously, the money of Muslim sovereign funds has not flowed into any of these sectors of the Islamic financial system. The total assets of the Islamic banking sector in the world amount to just over $ 3 trillion. Seems like a fairly respectable amount?! But only during the global financial crisis of 2007–2009, the US Federal Reserve distributed credit resources on favourable terms for USD 16 trillion. At the same time, the two largest loans received by Citigroup ($ 2.5 trillion) and Morgan Stanley ($ 2.04 trillion) are almost one and a half times greater than the total assets of Islamic banks in the world [2, 6].

Given that the conditions for depositors in an Islamic bank and in a conventional sovereign

[6] Sukuk (pl. from Arabic saqq — cheque) — a certificate of share value, a Shariah-compliant security, an Islamic quasi-analogue of traditional bonds. Holders of sukuk are co-owners of the assets of a specially created issuing company and are entitled to regular payments from the profits generated by these assets. Sukuk can be private or sovereign, depending on the issuer. The leading issuer of sukuk is Malaysia.

fund are similar, the financial resources of Muslims could be channelled into Islamic bank deposits as well. Therefore, it is an obvious conclusion that excessive liquidity from Islamic countries finds its way into the global loan markets through the financial centres of the West.

Large sovereign funds from Islamic states invest their resources in Western institutions, and Islamic companies in need of money have to borrow from Western banks. As a result, lending institutions in Western countries make money from Islamic clients in several ways: when they accept funds and underpay in income distribution (interest on deposits) and when they issue loans and charge high interest on them. And the possible profits that could be earned by Islamic financial institutions, by attracting funds from the population, corporate and public sector of their own countries, are received by Western lending institutions.

In addition, most Muslim states underestimate the need to utilise Islamic financial resources to finance development needs. Virtually every Muslim country is a developing economy and its financial needs are enormous. According to the World Bank's estimates, investment in development infrastructure should be at least $ 1 trillion per year. Consulting company McKinsey Global estimates the need at US $ 57 trillion by 2030. Most of these needs are in the Muslim world, but Islamic financial institutions have been less active in investing in development: of the approximately $ 320 billion of sukuk in circulation, less than 10 per cent has been used for development. Most sukuk have a maturity of five years or less and are mainly used for short-term financing, such as working capital. The situation is similar in the banking sector. Islamic banks use most of their funds for short-term retail loans, while long-term financing is mainly mortgages.

Islamic financial institutions are more vulnerable from a risk management perspective as they are functionally limited in their choice of hedging instruments. While conventional loan fund managers have a wide range of available hedging instruments, index options, index futures and portfolio insurance strategies, etc., Islamic funds have very few such Shariah-compliant instruments. Many effective hedging instruments (swaps or index derivatives) are prohibited in Islamic finance companies. This is a serious problem and requires significant efforts by practitioners and regulators to find hedging (risk mitigation) instruments that could be offered for use by Islamic banks, funds, takaful companies.

Another contemporary problem of Islamic finance in different countries is the significant gap between partnership financing instruments (mudarabah and musharakah), which involve risk and profit sharing between the parties, towards instruments based on the sale of debt and trade transactions (murabahah).[7] Experts estimate that 80% of all Islamic financial instruments used are based on murabahah, which is not recognised as legitimate by some representatives of conservative Islamic legal schools (maskhabs — Arabic).[8] Thus, of all types of sukuk, only 15–20% are securitised on the basis of partnership financing.

Overall, despite the different and more equitable principles of the Islamic financial system, which imply the maintenance of better stability through a special attitude to risk and dual control of all transactions, the practical implementation of the Islamic financial model is unfortunately currently fraught with problems.

[7] Murabaha — is an Islamic financial instrument based on a trade transaction where an investor provides funds through the purchase and subsequent sale with a trade mark-up of an asset. In this case, the borrower can pay for the goods (return the monetary resources) in instalments.

[8] Maskhabs — are schools of law in Islam, whose representatives have different approaches to the interpretation of the Koran, Sunnah and Sharia law. There are five maskhabs — 4 Sunni and 1 Shiite. Of the Sunni maskhabs, half of the maskhabs adhere to conservative positions of fundamental Islam, while others take a more flexible position.

If overlooked, Islamic financial institutions may move away from the fundamental principles — on which the industry's pioneers started — and lose customers. Confessional-focused clients will doubt the canonical purity of the business; those pursuing business goals may be disappointed with the variety and quality of services provided and the level of profitability of Islamic instruments. All this can lead to the fading of the Islamic financial idea and the closure of Islamic financial institutions around the world.

Despite its impressive growth and global presence, the Islamic financial system as a whole is still in a niche position; it has not yet been able to create a worthy competition to the conventional "usury" system and has not had the impact on global financial and monetary relations that was expected of it. This is largely due to the fact that the creation of Islamic financial instruments, the choice of methods of risk management, regulation, supervision, determination of norms used analogues from the traditional financial system. It can be assumed that if a unique way, its own regulatory and supervisory mechanisms, internal control, and accounting procedures had been developed from the very beginning, the Islamic financial model would probably show better results today.

But now everything depends on coordinated joint efforts of Shariah scholars, practitioners of Islamic finance, retail and corporate customers, government authorities of different countries. It is necessary to develop unified standards of Islamic finance, mandatory for application throughout the world, to find options for resolving problem situations, even, perhaps, to create a common global plan (road map) for the development of Islamic finance in order for the Islamic financial model to acquire all the necessary qualities that will allow it to gradually replace the outdated loan and usury model, which only hinders the development of the world economy, spreading unpredictability and turbulence in global and national markets.

ISLAMIC FINANCE IN RUSSIA

In Russia, the Islamic financial model began to develop in the early 1990s. Badr-Forte Bank was the first Russian bank that operated under a licence from the Bank of Russia as a traditional banking institution but began to conduct operations according to Islamic financial principles. It tried to design financial products that would both comply with Islamic principles and fit into the legal framework of the Russian Federation. Promissory note circulation was used as a basis. The first insurance takaful company was "Itil", established by R. Bekkin in Kazan in 2005. And the first Islamic institute offering services on the stock market was the "Halal" mutual investment fund, organised by the company BKS in 2007.

There was renewed interest in the Islamic financial model in the second decade of the 21st century. Conventional banks in Bashkiria, Nizhny Novgorod region, Dagestan, and Tatarstan began to actively study Islamic financial instruments and offer the simplest of them (mainly debit interest-free cards or financial leasing) to their customers. Sberbank conducted several Islamic principles transactions with financial leasing. Ak Bars Bank was the first to be able to raise USD 160 million from Islamic Development Bank structures in two transactions: in 2011 (USD 60 million) and 2014 (USD 100 million), using exchange-traded Murabahah (commodity Murabahah).[9]

Bank "Express" from the Republic of Dagestan went the furthest in the development of Islamic financial transactions. Its specialists developed and issued tens of thousands of plastic halal[10] debit cards and even credit cards compliant with Shariah.

[9] Ak Bars Bank attracted financing to the economy of Tatarstan on the principles of Shariah law. URL: https://tatcenter.ru/news/quot-ak-bars-quot-bank-privlek-finansirovanie-v-ekonomiku-tatarstana-na-printsipah-shariata/ (accessed on 27.06.2023).

[10] Halal — (correct, pious, recommended — Arabic). That is what a Muslim is recommended to do.

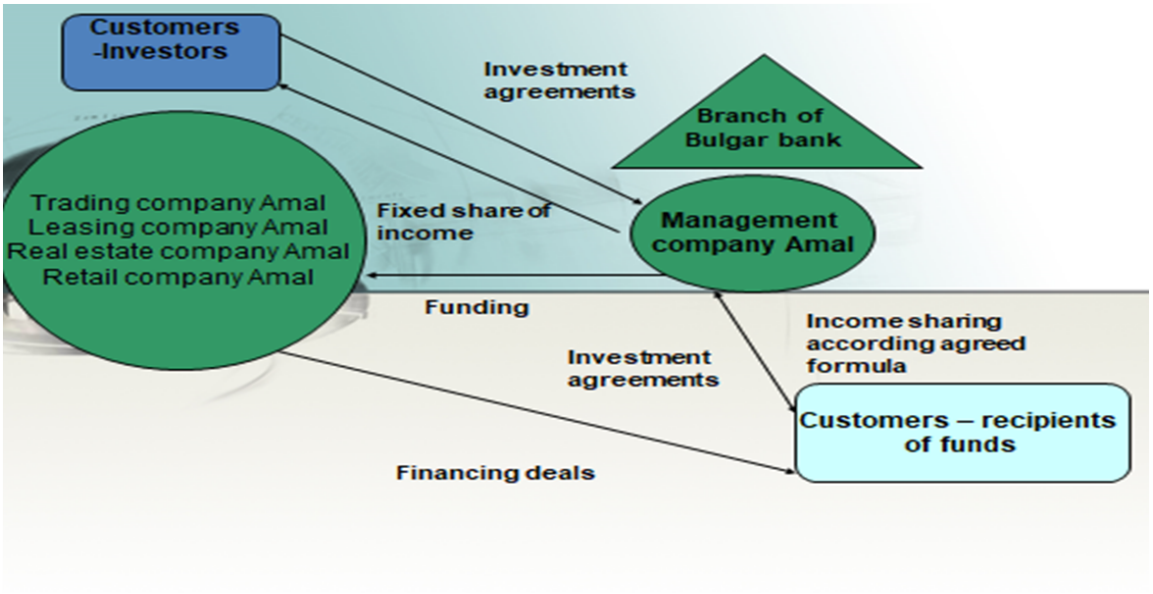

Fig. **The Structure of Financial House "Amal" (Kazan)**

Source: compiled by the author.

But the bank was artificially bankrupted and ceased to exist in 2012.

In 2011, the former head of the Islamic Finance Department of Bank "Express", M. Aliskerov, established a comradeship "La Riba Finance", a microfinance Islamic company in the form of a limited partnership. Currently, it holds a leading position among Islamic financial institutions in terms of the number of Islamic financial products developed and offered to the population and entrepreneurs.

"Amal" Financial House was founded in the Republic of Tatarstan in 2010. This company has chosen a different form: the managing structure is a consumer society interacting with the Islamic branch of a traditional bank, and the services are performed by a group of affiliated structures — leasing, trading, retail, real estate, and other companies, depending on the required profile (see *Figure*).

Several Islamic financial institutions operate in Chechnya and Bashkiria, but unfortunately there are no more than eight active Islamic financial structures in our country. This is very little, given that the indigenous Islamic population is 22 million people (14.5% of the country's population),[11] and 7–10 million Muslim labour migrants have been living in Russia for at least a year.[12]

But such a low level of development of Islamic finance in Russia is quite understandable — until July 2023, they had no legislative framework. Only on 19 July 2023, the State Duma of the Federal Assembly of the Russian Federation approved the draft law No. 198584–8, which launched an experiment to establish special regulation to create the necessary conditions for partnership (Islamic) finance activities in four regions of Russia with predominantly Muslim populations (Tatarstan, Bashkiria, Dagestan, and Chechnya). During this pilot project, from 1 September 2023 to 1 September 2025, the Islamic financial model will be tested in these regions, and then it is planned to determine the need to extend it to other regions. The Bank of

[11] How many Muslims there will be in 2023: forecast and statistics. URL: https://usemake.ru/svezhie-novosti/skolko-musulman-budet-v-rossii-k-2023-godu-prognoz-i-statistika (accessed on 27.06.2023).

[12] The Ministry of Internal Affairs of the Russian Federation disclosed the statistics of migrants' stay in the country. URL: https://tj.sputniknews.ru/20230622/mvd-russia-statistika-prebyvaniye-migranty-strana-1057847290.html (accessed on 27.06.2023).

Russia is appointed as the regulator, which will be responsible for issuing licences, maintaining the state register, developing accounting and reporting rules, methodological support, as well as for supervising the activities of Islamic financial institutions.

It can be assumed that the availability of legal frameworks will allow intensifying the development of Islamic financial infrastructure not only in the field of Islamic banking, but also takaful insurance, stock market operations, which will help to intensify the process of attracting Islamic foreign investment in the Russian economy. However, the issue of training qualified personnel, Shariah auditors and advisors remains open, which is currently clearly insufficient, and the demand for them will only grow. Russian universities have only just started to train Islamic finance specialists and so far only through advanced training programmes. Only Kazan (Volga Region) Federal University has managed to develop and implement a master programme in Islamic finance. Much remains to be done in the field of human resources for the Islamic finance industry in Russia: to approve "Islamic finance" as a speciality for economists in Russia, as well as to develop and implement appropriate educational profiles for bachelors, specialists and masters in the economic universities.

Russian government structures need to carry out extensive work to create a reliable mechanism for attracting Islamic capital.

Firstly, despite the adoption of the above draft law, it will still be necessary to improve the legal and regulatory framework of Islamic finance in Russia.

Secondly, the state needs to take an active position in the formation and improvement of Islamic financial infrastructure: Islamic banks, takaful companies, funds, brokers, etc.

Thirdly, a sufficient number of experts in the field of Islamic finance and Islamic law should be trained, as currently Russia has no more than 50 experts certified mainly in foreign educational centres and universities.

Fourthly, the system of protection of foreign investors' rights should be strengthened — for the first time the state can provide them with special guarantees.

If desired, all the necessary measures can be carried out quickly and efficiently. As a result, Russia will create long-term stable and promising financial investment and trade relations with a group of influential Islamic states, and will acquire a collective reliable and wealthy partner for many years, while developing a socially oriented and publically significant Islamic financial model.

CONCLUSIONS

The Islamic finance model appears more attractive to the borrower compared to the conventional interest and loan model, because the Islamic investor bears equal risks for the investment project, having no right to demand his funds back and to charge fines, penalties and interest. Islamic financier is interested in the stability of development and profitability of the investment project, because the principle of profit sharing between the investor and the recipient of funds on the basis of partnership contractual relations is the most recognised and recommended instrument of Islamic finance. In addition, businessmen from Islamic countries are characterised by conservatism and constancy in choosing a partner — if the latter has shown himself with the best side and the joint project has brought profit, the next time the Islamic investor will again work with him.

According to diplomatic orientalists, the states of the Middle East, Southeast Asia and North Africa can play a significant role in the near future on a global scale [7, p. 222]. Position of these countries is vitally important and has great influence to the overcoming of the current political crisis, and also impacts to the development of the global economic and political situation for long term period. Therefore, the strategic vector of Russia's political and economic efforts

should be the intensification of bilateral and multilateral relations with Islamic countries. And the success of such efforts will largely depend on how Russia will be able to integrate into the Islamic financial model offered by them. Therefore, the consistent, comprehensive and intensive development of Islamic finance in Russia is the key goal for the close period, the achievement of which will determine the future of our country and the configuration of the world order on a planetary scale.

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Change of Organizational and Production Paradigms in the IT Industry: Research 2020–2023

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ABSTRACT

The experience of creating successful geographically distributed engineering teams and the COVID pandemic have made a significant contribution to the dynamics of changing the organizational and production paradigm in the IT industry from the traditional 40-hour office work to a "hybrid" work week and even to completely remote software and IT-services development. In this study, the scientific task of determining the nature of the process of paradigm shift is set and a set of scientific hypotheses is set to identify fully remote work as an established practice for a significant number of leading IT companies in Europe. To test these hypotheses, thematic industry studies of 2020–2023 were analyzed, which convincingly proved that the forced transition to completely remote development during lockdown periods and after reducing the impact of pandemic risks becomes a conscious choice: in demand, economically rational, supported by a significant number of engineers and managers in the industry. At the same time, a "hybrid" work week, combining part of the days in the office and part outside it, has also remained a popular option for organizing work in IT companies and organizations with large teams for internal automation.

Keywords: fully remote mode; geographically distributed teams; IT industry; organizational paradigm

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STATEMENT OF THE RESEARCH PROBLEM AND THE HYPOTHESIS OF THE STUDY

The IT industry is the engine of digitalisation of the global economy, outpacing many other industries in terms of annual development rates[1] due to timely management of necessary changes in the organisation of production and business processes. The efficiency of production paradigms used in software development plays a key role in the competitiveness of IT companies. Such paradigm shifts (in favour of increasing the efficiency of software production under the influence of favourable market factors) in the IT-industry occur within 10–20 years and can be easily traced on many examples: from the change of dominance of the "waterfall" model to RUP and then to Agile [1] to the standardisation of the industry, which with the same periodicity complicated its CMMI model [according to the Software Engineering Institute (SEI)] [2].

The paradigm shift described in this paper is based on economically feasible processes of outsourcing and geographically distributed teams [3]. Russian IT-companies (Luxoft, Epam, Auriga, E-style) have been leading in Europe for a long time and actively developed geographically distributed software development teams together with global corporations [4]. These trends were supported during the COVID-19 pandemic and subsequent waves of social exclusion (lockdowns) by rapid organisational changes that ensured the IT industry's transition to the paradigm of fully remote software development and service delivery [5]. Such an organisational and production paradigm — fully remote software development (FRD) — was mandatory during the 2020 lockdowns in many regions of Europe. The initial formalisation of FRD in the context of lockdowns was the subject of an author's study [6], whose main focus is to investigate early adaptation to the pandemic (March-April 2020) in the IT industry and the medium-term impact of pandemic risks on the success of remote software development

[1] URL: https://www.it-world.ru/it-news/reviews/190552.html

activities (September-October 2020). The study covered the experiences of 26 software development and IT support teams for digital services in companies headquartered in Russia, the EU and the US, including: Alphabet (Google), Amazon, BSC Group, Custis, Deutsche Bank, Evernote, Exness Global, Positive Technologies, PromSvyazBank, Sber, VTB, and Yandex. The research method chosen was a two-stage questionnaire survey using the Google. Forms tool and personal interviews with experts to discuss the findings. The study showed that Russian, global and European IT leaders have quite easily moved to the practices of fully remote off-site software development, using the accumulated experience of geographically distributed teams, appropriate to the automation of work processes.

Mature workflow virtualisation practices that have become part of modern approaches in software quality management have also played a significant positive role in this. These include: version control, continuous integration and delivery, and requirements management.

The following hypotheses were put forward in this study:

The fully remote development paradigm is the current organisational standard of the IT industry, even after the pandemic, a significant proportion of IT companies retain fully remote software development practices or hybrid models.

The paradigm of fully remote development is already reflected in all production processes: from the interaction within project teams to task and process management. All necessary changes have been implemented and production processes have been optimised to a sufficient level.

The social impact of this paradigm is significant. By 2023, IT companies have adapted to negative factors (such as, for example, de-socialisation of engineers, decreased motivation, destruction of personal ties, etc.).

In order to test these hypotheses, the method chosen is to summarise the results of industry studies conducted between 2020 and 2023, which investigated organisational production problems and the short- and medium-term impact of the COVID-19 pandemic on the IT industry. These studies covered a total of about one hundred software development teams mainly in Central and Eastern Europe.

KEY FINDINGS

During the 2020 lockdowns, IT companies switched to fully remote working without much difficulty, taking one to three weeks to adapt [6]. It should be said that this was a forced measure for many regions of Europe, so it is important to note that after the transition to fully remote working mode by the summer of 2020 for 54% of teams productivity in creating new software releases remained at the same level, and for 23% — increased. According to the researchers, this was due to: increased personal motivation of engineers; use of new communication tools; proper planning of working hours and flexible schedules. Productivity decreased in 23% of teams.

Commenting on these indicators, it should be noted that these are only the first results of rapid adaptation related to 2020. In the future, they have been changing with the increasing adaptation of IT companies to fully remote working.

93% of teams confirmed that after the transition to fully remote working, the software developed and the digital services supported have lost nothing in terms of long-term quality. That is, there is no strong link here to the personal presence of engineers in the offices.

The following factors were identified by experts as reasons for quick adaptation to remote work that allowed teams to maintain productivity and the current level of software quality [6]:

- remote working experience even before the COVID crisis (85% of teams);
- formal transformation plan, projects, leadership efforts (38% of teams).

At the heart of high productivity in software development is the motivation of engineers. About half of the surveyed teams did not confirm that “fully remote work reduces motivation in common goals and projects” [6]. Moreover, about 40% of teams in 2020 have made additional efforts to increase engineers’ motivation in the form of special events, such as:

- team building activities over the Internet;
- simplification of non-production business processes in which engineers are involved;
- development of centralised motivation programmes for developers under new conditions.

According to the experts' generalised conclusions obtained in personal interviews, fully remote work was more likely to have a positive impact on the motivation of teams during the early adaptation period in 2020. In general, the question of motivation is a key issue in the study of this scientific task: in the unscientific public space, supporters, and opponents of "working day in the office" (without special references to scientific studies) always and unconditionally link office/remote work with motivation and productivity of employees. The multi-year studies described in this paper show the evolution of this factor in 2020–2023 in the context of organisational and production paradigms.

Despite the social risks of loneliness and additional "psychological difficulties in the new remote reality" discussed by experts [7], the software industry in 2020 did not overestimate the scale of the problem of mixing personal life and career of employees. Experts did not note the materiality of the threats — increased social isolation, blending of personal and work time/space, etc. in a work-from-home environment. For 53% of teams, the problem does not exist at all — each employee can manage this aspect independently, and 47% have prepared basic corporate rules to mitigate any additional psychological and social features of FRD by summer 2020.

To summarise the survey results, by the time lockdowns were fully phased out and covid restrictions were relaxed for 31% of teams, fully remote software development had become the new standard in their organisation, i.e. companies had definitively restructured their work, with no intention of bringing engineers back to the office in the short to medium term. 61% of teams reported developing hybrid models and associated corporate rules and policies. Most experts believed that fully or partially remote software development and support was becoming a long-term paradigm, and that there would be no return to five-day work in offices. At the same time, negative aspects of FRD were highlighted — company disintegration, issues of long-term motivation and socialisation of engineers in teams, knowledge transfer between employees.

In 2020–2021, the hybrid work format gained significant popularity in the IT industry [8], also raising issues related to the long-term motivation of engineers and their involvement in project and corporate issues [9, 10]. The following study, conducted in 2021. [11], made it possible to determine the demand for fully remote work in the IT industry in Russia and new effective ways to combat the negative aspects of this production and organisational paradigm. Remote interviews with a mandatory set of open-ended questions were chosen as the research method. After their completion, the experts were sent the generalised results, which could be supplemented and commented on. In total, more than 20 experts from all federal districts of Russia participated in the research in January-February 2021, presenting their experience of software development in 2020 in Russian IT companies, banks, digital advertising agencies (including VTB, Yandex, SberTech). The roles/positions of the experts (in descending order of specific percentage) that they hold in their companies should also be specified: project manager, engineering team leader (team leader), technical director, engineer.

The focus of the research on studying the processes of FRD entrenchment and possibilities of overcoming the identified negative aspects is related to the removal of strict restrictions in Russia imposed due to the pandemic, which made it possible to compare fully remote development with the usual work in the office, provided that the obvious difficulties are overcome, since:

- radical reduction of informal communication in the team negatively affects engineers' involvement in solving business needs of customers and software users, hampers the usual models of professional growth related to mentoring and experience sharing;
- Transferring the most important work processes to the online format in any software development

paradigm (Scrum, RUP, MSF) forces the company (and project) management to reconsider the methods of long-term motivation of engineers and change the principles of production organisation.

The 2021 study confirmed that despite the efforts of individual managers and team leaders, Russian technology companies did not pay enough attention and spent minimal effort and investment for their deeper adaptation to working in remote environments [11]. On the one hand, the problems of infrastructure and Internet accessibility were successfully solved in the companies of all experts participating in the study, and on the other hand, in Russia only some managers made additional efforts and incurred excessive costs to ensure short-term and long-term motivation of engineers. Such activities were (in descending order of prevalence) as follows:

Introducing the practice of online team building and online corporate events.

Centralised implementation of the practice of increasing engineers' knowledge of working remotely, including advice, instructions, and exchange of views on current issues.

One-off or regular engagement of specialists outside the staff (outsourcing, freelancing, etc.).

The issue of engineers' motivation in the Russian IT-industry has remained unresolved since 2021. The research has shown that the identified arsenal of methods to increase motivation is rather scarce; it did not require significant efforts and costs from the companies employing experts and included:

- using the very fact of remote work as a motivation for engineers;
- drawing attention to various distance learning courses and programmes (if the company has a centralised training function, such as a corporate university, for example).

A number of experts pointed out that social isolation is a key problem for IT teams in terms of providing comfortable conditions for professional growth, which is responsible for the observed decrease in opportunities for newcomers from 2020. A significant number of Russian companies are not taking special actions to address this problem. At the same time, experts confirmed the unconditional growth in the number and deepening of horizontal ties, the importance of electronic interaction and communication channels, and recorded the transition of the latter predominantly to electronic form even in organisations with a hybrid form of work.

In general, fully remote development by 2022 put significant pressure on process models in IT teams: on the one hand, complex bureaucratic aspects were temporarily (or permanently) simplified, on the other hand, formalisation of communications — both within the team and with customers and software users — increased. Nevertheless, the transition to fully remote software development was actively supported by engineers and managers, had a positive motivational effect, and was considered by all participants of the process as a new organisational standard even after the end of the pandemic [11].

In 2022, the Russian-Ukrainian geopolitical events (with the subsequent "technological embargo", IT specialists' migrations and increased demand for import substitution in the IT industry), reduction of pandemic risks and a relatively new trend towards the use of artificial intelligence (AI) in software engineering had a significant impact on the continuation of organisational and production paradigm shifts in the IT industry [12]. A number of major corporations (Apple, JPMorgan, MTS, Sber) have announced an effort to bring employees back to the offices on a full-time basis, but turbulent migrations of IT professionals have been observed in Eastern Europe. Moreover, previous studies indicated that the model of organising fully remote software development and IT services in European companies is already established and supported by engineering teams around the world.

The focus of the next 2023 study [13] aims to understand the level of entrenchment of fully remote development / hybrid format in the practice of European companies. The study was conducted from December 2022 to January 2023 and covered the experience of 48 teams headquartered in European countries: from Kazakhstan and Russia (Yandex, Sberbank, VTB, etc.) to Germany and

France (Deutsche Bank, ATOS IT, Finastra, etc.). The research method used: questionnaire survey with the help of Google.Forms tool, in some cases — remote interviews. Thus, more than 58% of the respondent teams in 2023 work remotely, and only less than 13% of the total number had to return to offices full-time after the pandemic threats diminished. More than 60% of experts did not note a direct correlation between the shift in the organisational and production paradigm of software development towards fully remote processes and the long-term quality level of software development, which confirms the conclusions of an earlier study [6]. At the same time, for 63% of teams from the 2023 study, the productivity level did not change when switching to a fully remote (and even hybrid) model, while in one in five teams it increased significantly. Thus, we observe a high increase in the demand for the organisational and production paradigm of fully remote work (from a conditional 31% in 2020 to a conditional 58% in 2023) and an increase in productivity for a stable part of companies, which confirms hypothesis No. 1 for solving the set research problem.

For a part of IT companies and banks with strong in-house development, the choice in favour of a hybrid model of work organisation remains significant — this is how about one third of the teams whose representatives took part in the survey work. Only in 20% of companies the top management of the organisation continues centralised improvement of processes of fully remote work of employees, in 2/3 all improvements were made earlier, and some details are being finalised. Approximately 70% of experts noted that they have already implemented all the necessary changes in communication with customers and partners in their companies. For about 30% of teams, the adjustment of these processes continued in 2022: interactions became more formal, special policies and regulations appeared, tools for electronic communication channels were adjusted and customised [13]. This indicates a high level of consolidation of these processes in the practice of IT-companies, which confirms the second hypothesis of the study.

As noted earlier, the fully remote manufacturing paradigm has not only an economic or production impact but also a social impact on the engineers involved. Earlier studies [6, 11] pointed out various problematic points:

- strict dependence of engineer's productivity on the provision of working conditions outside the office;
- reduced social activity of employees — both forced (during quarantine) and after the pandemic (when working remotely);
- confusion of working time and space with personal time and space.

The study [13] confirms the complex form of mixing personal and work time and space for employees (and their family members) when working fully remotely in the IT industry. More than 63% of the experts in the study indicated that despite the significant impact of the fully remote software development model on the balance of work/personal time and space of engineers, in their teams, employees deal with such emerging complexities on their own. Only 16% of IT companies in 2023 continued to use internal instructions and regulations to formalise the organisation of production processes in this aspect. Also, more than 80% of respondents reported that by 2023 their companies had already invested their efforts and resources in the significant development of fully remote software development processes, and in 20% of cases the investments fully justified the set objectives as early as 2020–2021. The experts also noted that fully remote working processes in IT companies have already become part of the corporate culture and are rapidly introducing various changes, such as:

- increasing complexity of basic rules of information security and authorisation, operation of work equipment, etc.;
- increase in the number of part-time employees in IT companies regardless of the type of company and the subject area being automated.

At the same time, more than 58% of experts indicated that the absolute majority of engineers in their teams are happy and motivated by the

introduction of fully remote working. At the same time, for some respondents, further efforts in the medium term to increase motivation within project teams (through joint online and offline meetings, informal communication models, "1–1" talks) are relevant.

Together with the results of the first study, this partially supports hypothesis No. 3, leaving the conclusions from the second study valid. Therefore, despite the lack of invested effort and resources for remote working on the part of some part of IT companies, in general engineering teams have found ways to overcome the negative aspects of FRD.

Let's consider the trends of 2022 that actively influence the dynamics of organisational and production paradigm shifts in the European IT industry:

- use of AI in software engineering;
- turbulence of migration flows in Europe;
- the "call to office" factor.

The application of artificial intelligence in software development is the integration of software engineers' efforts using specialised AI tools (e.g., large language neural models like ChatGPT or add-ons over software development environments like Copilot), which can be used to accelerate and simplify the development of key IT project artefacts — from user documentation to auto-tests. Significant positive dynamics have been observed in the growth of the ability of such AI tools to create software code and design various models [14]. Due to extensive media coverage, such tools have gained widespread visibility and validation in a large part of European IT companies by 2022. The cumulative positive impact from the use of AI tools leads to an increased cross-functionality of the engineer and at the same time to his/her ability to solve independently uncomplicated related tasks. Obviously, in the process of long-term change of organisational and production paradigms in the IT-industry, the factor of using AI in software engineering will have an impact at all levels:

- personal (need to update skills in working with AI);
- project (change in roles and areas of responsibility);
- corporate (change in core business processes as AI is implemented).

However, the influence of this factor currently remains uneven in European countries and is rather limited in the short term to quickly obtain undeniable competitive advantages in IT-business [15]. This is due to the overall high dynamics of processes in the IT industry and the constant "technological pressure" on IT companies: changing expectations of consumers, regulators, and partners. Increasing the role of working interaction of engineers with AI tools (rather than increasing the time of human communication on cross-functional tasks) contributes to the consolidation of fully remote working practices in the industry.

Migration turbulence in Europe in 2022–2023 also aims to consolidate the fully remote development paradigm. There are many reasons for this turbulence — it combines corporate-organised and independent movements of IT specialists between countries. The difference in managerial attempts to influence these processes is indicative: in Eastern Europe, large IT corporations (Sber, MTS) seek to forcibly return employees to their offices, while in Western Europe (Portugal, Spain, Italy, Germany, Norway) various government programmes are being developed to attract "digital nomads", i.e., IT specialists who consciously choose different countries to work and live in, but seek to avoid taxation errors [15].

To conclude the consideration of the current trends of 2022, which influence the dynamics of the change of organisational and production paradigms in the IT-industry, it is worth mentioning the factor of the "call to the office". This psychological phenomenon (because it is difficult to find economic reasons) is that in every pandemic year and after it, there are calls from large IT corporations, perfectly adapted back in 2020 to FRD, for employees to return to the office for a 40-hour working week. The reasons are many: from the "moral aspect" to "loss of a general sense of corporate culture", but they have nothing to do with economic performance and with the motivation of engineers, the problem of increasing which really hasn't found its solution

during 2020–2023. The factor of spontaneous "call to the office" on the part of senior managers will persist. The study of this psychological phenomenon in 2020–2023 research has not given a clear answer,— the most consolidated are the opinions of engineers and managers that a part of senior generation top managers in global corporations "do not know how to manage remote teams" [11] and "do not understand the significance of trust in the IT business" [6]. It is obvious that the "call to the office" factor does not reduce the level of support for fully remote development among engineers and managers, but simply reorganises the flows of specialists to different IT companies during the current paradigm shift [16].

CONCLUSIONS

The confirmation of all hypotheses proves that the paradigm of fully remote development is the current organisational standard of the IT industry. Even after the reduction of pandemic risks, a significant part of IT companies retains this practice or apply hybrid models of work organisation. Production and organisational processes in such companies are optimised and support this format in all significant aspects: from interaction within project teams to task management. At the same time, from 2020 onwards, this paradigm will continue to have a significant impact on social aspects: from desocialisation and reduction of long-term motivation of engineers to deterioration of the knowledge transfer procedure. A significant number of teams have managed to overcome some part of this negative impact, but centralised corporate investments in these processes and new technological tools remain in demand.

The following conclusions should be drawn with regard to the scientific problem of determining the nature of the process of changing organisational and production paradigms in software development:

1. The paradigm of fully remote development of software and IT services is in demand and relevant for a significant number of the world's leading IT companies, it has proven its production and economic efficiency and is increasingly less associated with the pandemic factor.
2. The demand for the hybrid form of working remains high. For a significant part of organisations, it is a managerial response to the inability to solve problems with long-term motivation and productivity of engineering teams, rather than a technical necessity.
3. The organisational and production paradigm shift in the IT industry continues, but its dynamics are not uniform across European regions or industry segments. The process is highly influenced by factors that are difficult to formalise (like "call to office" or geopolitical events), but the strong support for fully remote working among engineers and managers in the industry make its prospects robust.

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New Instruments for Investment Support of Technology Sovereignty Projects

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ABSTRACT

The growth of restrictive measures against the Russian Federation in the context of the high import dependence of the national economy calls for special attention to be paid to the country's achievement of technological sovereignty and the launching of a new sustainable investment cycle. This involves the task of dynamically increasing the creation of new medium- and high-technology industries, with a central role being given to the creation of a resource database of projects. Limited public budgets and the inaccessibility of external financial markets make it appropriate to consider domestic private and (or) resources as priority sources of financing debt, especially when the latter are not sufficiently involved in the investment process. In turn, it is unlikely to accumulate the funds of credit organizations and the business sector without the use of modern state support tools that would reduce the cost of capital for the implementation of investment projects and, thus, they redirected financial flows to the highest priority, albeit low-margin, of the real sector. Thus, the purpose of this article is to analyze new instruments of investment support of projects of ensuring technological sovereignty in the territory of the Russian Federation.

Keywords: technological sovereignty; investment support; instruments of stimulation; cluster investment platform; project finance factory; taxonomy of projects of technological sovereignty

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INTRODUCTION

The restructuring of the world economy on a new technological basis in connection with the achievements of the fourth industrial revolution and increasing external economic and political challenges prompts the Russian government authorities to pay more attention to the issues of achieving technological sovereignty. It is understood as the ability to master at a competitive level the basic and most important for the country's economic development technologies of modern and prospective technological modes. Obviously, the solution to this problem requires the implementation of a whole range of new medium- and high-tech projects that would ensure the production of a wide range of goods for intermediate and final production consumption. At the same time, it is advisable to focus on projects in knowledge-intensive industries of the real sector, which are characterised by a high degree of dependence on imports, up to 60–80% in a number of areas (radio-electronic complex, computer production, pharmaceuticals, etc.). [1, p. 54; 2, p. 10].

At the same time, the formation of technological sovereignty projects[1] from the organisational and managerial point of view seems quite realistic, taking into account the dynamics of development of the project-oriented approach in Russia. Thus, its application allows to implement up to 40 thousand investment projects annually.[2] However, the accumulated potential can hardly be fully utilised without additional resource support. We are talking about potential attraction of at least RUB 8.5 trillion to priority projects, taking into account the greatest

[1] These are projects of a full innovation cycle for the production of medium- and high-tech products on the basis of own development lines.

[2] URL: https://www.ng.ru/kartblansh/2023–04–13/3_8706_kb.html (accessed on 15.05.2023).

needs in such industries as: microelectronics — RUB 1.8 trillion, aviation industry — RUB 1.4 trillion, shipbuilding — RUB 1.3 trillion, automotive industry — RUB 2 trillion.[3]

Undoubtedly, investment support is one of the central issues of achieving technological sovereignty, including understanding the sources (resource base) of projects. In this regard, the closed external financial markets and limited public funds are objectively constraining factors, taking into account which it is hardly possible to do without reliance on domestic capital of private and/or debt nature. Moreover, in accordance with the world practice of development projects, the share of public financing together with subsidies in the gross volume of sources — is no more than 10 per cent, while the share of private financing — is 23 per cent and that of debt financing — 67 per cent [3].

At the same time, we cannot allow a sharp reduction in state financing, but it is important to make it more balanced, encouraging private project initiative, especially in view of the extremely high contribution of enterprises and organisations subordinated to the state to GDP production, which is characteristic of Russia, amounting to about 70%, while 35–40% is sufficient. On the other hand, the funds of the domestic banking sector, which, with total assets of about RUB 120 trillion (76% of the total assets of the country's financial market of RUB 157 trillion), allocates no more than RUB 2 trillion for investment loans, are virtually unused today. [4]. In fact, today banks act as a cash and settlement organisation for private business and are not interested in performing the investment function. This is especially noticeable in the most technologically advanced industries and is associated with a low level of profitability, for example, in manufacturing industries the value does not exceed 10–14%, and the average level of profitability of goods in the manufacture of computers, electronic and optical products is 12% on average [5]. At the same time, such investment projects are centred around the introduction of technological innovations, which means that they are long-term, do not have guaranteed results and are not oriented towards the exploitation of the raw materials complex. In this regard, it makes no sense for a credit institution to take on additional risk when the margins of initiatives are relatively low. As a result, the Russian economy is characterised by a low share of investments and expenditures on scientific and innovative activities in GDP, respectively — 13.5 and 1% of GDP in 2021.[4]

The low motivation of the banking sector to act as a lender to medium- and high-tech enterprises in the manufacturing sector of the Russian economy leads to the fact that private businesses are forced to modernise production and carry out innovation activities,[5] relying primarily on their own sources. Thus, in the total amount of innovation expenditures totalling several trillion roubles, about 55% were financed by companies' own funds.[6] However, solely in-house resources are not enough for firms, and research shows that more than half of organisations identify this barrier as the main obstacle to technology adoption and commercialisation.[7] The lack of resources makes it impossible to build a large-scale investment policy and leads to the key problem of domestic technology companies — chronic underfunding. In turn, the lack of investment support for innovation activity results in inevitable lagging behind and losing in the

[3] URL: https://www.rbc.ru/economics/27/04/2023/644a29c19a7947e5f0803d14 (accessed on 10.05.2023).

[4] Russian Statistical Yearbook 2022. Rosstat; 2022.

[5] It is important to remember that innovation is an integral part of technological sovereignty projects.

[6] Indicators of innovation activity: 2022. Statistical collection. Moscow: Scientific and research university HSE; 2022. 292 p.

[7] Analytical report of Scientific and research university HSE "What prevents Russian business from developing innovations?" URL: https://www.hse.ru/mirror/pubs/share/780631876.pdf (accessed on 15.06.2023); Report of the Russian Union of Industrialists and Entrepreneurs "On the State of the Business Climate in Russia in 2022". URL: https://rspp.ru/activity/analytics/ (accessed on 19.06.2023).

competition (primarily to foreign enterprises). A characteristic indicator is the level of innovation activity of organisations, which in the country is at an incomparably low level of 10–15%, while in the USA and Germany it is 60–65%; in France — 50–55%; in the Republic of Korea — 45–50%; in Japan — 40–45%; in China — 35–40%.[8]

It should be noted that over the last few decades the authorities have made attempts to reverse the situation and encourage private investors and the banking sector to invest in the creation of new technologies and innovation activities. In particular, in the 1990s, government support was directed towards financial assistance to small enterprises, for example, a specialised "Fund for Assistance to Small Innovative Enterprises in Science and Technology" was set up. However, it should be recognised that stimulus measures were generally non-systematic and non-transparent, which led to a situation in which the scientific and technological sector was on the verge of survival, did not produce innovations and, moreover, was not attractive for capital investment against the profitability of the fuel and energy sector or the financial sector.

The next stage, which lasts from the mid-2000s to the present day, saw a transformation of the government's approach to scientific and technological development towards a more systemic approach. The main goal was to integrate Russia into the global scientific partnership, to expand production and technology chains and supply chains, as well as to form advanced institutions and practices. Thus, to support project initiatives, a national innovation system was built, a number of development institutions were launched (Rosnano JSC, Skolkovo Foundation, etc.), preferential regimes (technology innovation zones, advanced development territories, etc.) were developed and implemented, and a wide range of instruments to support innovative firms was organised, the list of which covered about 200 units by 2023.[9]

Indeed, such actions have led to a positive result in the form of stopping the process of further degradation of the scientific and technological sphere, however, unfortunately, it has not yet been possible to solve the complex problem of inactivity of the business and banking sector in financing innovations and the insensitivity of big business to the latest developments through the tools created by the state. National medium- and high-tech companies, the key drivers of scientific and technological development, continued to leave Russia in search of additional investments and new points of growth, as a rule, in countries with developed financial and venture capital markets. Thus, over the last few decades, a model of "open innovation system" has been formed in our country. Its characteristic features, on the one hand, are the absence of ready domestic samples of innovative products in a number of industries and areas (while investment support for commercialisation and mass production is insufficient), and, on the other hand, the preference of private business to import foreign technologies and complex solutions instead of implementing Russian ones.[10]

Ultimately, this model led Russia to become critically dependent on foreign suppliers of microelectronics, bioengineering products, computer technology, etc., but it failed to become a beneficiary of intellectual rent, conducting fundamental and applied research without further advancement in the innovation and investment process.

[8] Indicators of innovation activity: 2022. Statistical collection. Moscow: Scientific and research university HSE; 2022. 292 p.

[9] Order of the Government of the Russian Federation No. 1315 dated 20.05.2023 "On Approval of the Concept of Technological Development for the Period until 2030". URL: http://static.government.ru/media/files/KlJ6A00A1K5t8Aw93NfRG6P8OIbBp18F.pdf. (accessed on 04.07.2023).

[10] Analytical Report of CICAP «Scientific and Technological Sovereignty: New Goals and Challenges». URL: http://www.forecast.ru/_ARCHIVE/Presentations/DBelousov/2022–12–14Inno.pdf. (accessed on 15.06.2023).

However, the situation has been significantly complicated by the avalanche of restrictive measures imposed on Russia in 2022–2023, which made it difficult or impossible to supply knowledge-intensive products from some developed countries. Moreover, technological Western companies that had a significant share of the domestic market (if we are talking about the sale of products with high technological components) left us, and friendly countries proved unable to fully replace Western corporations without losses in terms of price/quality ratio. At the same time, it is important to take into account that even if the substitution had been possible, it would have led to a decrease in diversification and strengthened Russia's dependence on the above-mentioned countries, and would have only contributed to the emergence of new risks. Thus, the country has found itself in a new reality in which the use of the existing model of "open innovation system" is becoming less and less relevant.

Under such conditions, the most promising is the transition not only to a new model, but also to a new stage of scientific and technological development of the country, and its main content is the achievement of technological sovereignty. Obviously, it is impossible to make a qualitative transition in the absence of a full-cycle innovation system with a high share of domestic private medium- and high-tech enterprises. Consequently, it is necessary to change the priorities of the management system, as well as to transform the existing support instruments, including because "it is time to take stock of them (instruments) from the point of view of efficiency and effectiveness and then reassemble them in order to eliminate duplication, consolidation and focus on cross-cutting technological priorities".[11] Moreover, it is important to focus the instruments on increasing the interest of banking organisations in lending to project initiatives that strengthen technological sovereignty and to pay more attention to aspects of stimulating investment activity of private companies. This would not only help to attract the required amount of capital investment in investment projects, but would address the key problem of underfunding of organisations with an innovation component in a low profitability environment discussed earlier.

Accordingly, under the new conditions, a more serious scientific and methodological substantiation of the aspects of investment support for technological sovereignty projects should be formed, new mechanisms, forms and practices should be proposed, and existing ones should be strengthened, which would more actively involve the participants of the corporate sector in the reproduction process. Especially since for a long-time the researchers have focused their efforts on the issues of instrumental support for export [6, 7], projects in the field of import substitution and industrial policy [8, 9], small and medium-sized enterprises [10, 11], as well as innovative development in general [12, 13]. Of course, it cannot be said that they (instruments) were not touched upon by the authors at all[12] [14–16], but it happened most likely in an indirect form, and the works dealt largely with theoretical and general outlines, which means that the subject area remained not fully explored. In addition, it is worthwhile to dwell on the issues of instrumental support because over the past few years the Russian Government has been engaged in the organisation of new and/or modernisation of existing instruments for stimulating investment projects with the aim of strengthening

[11] Order of the Government of the Russian Federation No. 1315 dated 20.05.2023 "On Approval of the Concept of Technological Development for the Period until 2030". URL: http://static.government.ru/media/files/KlJ6A00A1K5t8Aw93NfRG6P8OIbBp18F.pdf. (accessed on 20.07.2023).

[12] Interview with Elena Alexandrovna Antipina, Director General of the Institute for Public-Private Planning. URL: https://cyberleninka.ru/article/n/nauchno-promyshlennye-klastery-dvoynogo-naznacheniya-kak-mehanizm-ukrepleniya-tehnologicheskogo-suvereniteta-rossiyskoy-federatsii/viewer

technological sovereignty. The key objective was to increase the interest of the corporate segment. This was achieved by reducing the cost of financial resources in the implementation of medium- and high-tech projects, in particular instruments of preferential lending, project financing and specialised taxonomies.

Undoubtedly, these instruments are characterised by differences in terms of structure, processes, and ways of functioning (limitations in terms of sources and volumes of funds, level of concessional interest rate, support measures, implementation timeframe and co-financing potential, possibility of using information environments, etc.). However, at the same time, their (instruments) similarity lies in their general orientation, while they were created and (or) finalised to address specific new tasks. It is a question of counteracting the additional limitations of the Russian economy arising in 2022–2023, which occurs in the context of profound technological shifts associated with the results of the fourth industrial revolution and the transition to the sixth technological mode. In this respect, these instruments are aimed at solving the set tasks by stimulating private initiative in the implementation of new investment projects in the most vulnerable and import-dependent domestic innovation sectors of the economy. This prompts us to dwell on the instruments in more detail.

At the same time, it is important to note that a large-scale increase in investment support for innovation activity can be carried out in conditions of a general revival of the investment process in the Russian economy, the formation of a new dynamic long-term investment cycle based on a large-scale growth (up to 25–30% of GDP) of domestic demand for investment and the development of effective tools for interaction between the investment and innovation circuits of the national economy. As for the revival of investment activity, it appears that the Government of the Russian Federation associates this process with the implementation of the provisions of the adopted Federal Law No. 69-FL of 01.04.2020 "On the Protection and Promotion of Capital Investments in the Russian Federation", where Article 15 stipulates that within the framework of agreements on the protection and promotion of investments between the investor and state authorities at the federal and regional (constituent entities of the Federation) levels, as well as at the municipal level, organisations implementing investment projects may be provided with the following benefits: state support measures providing for reimbursement of costs in accordance with the budget legislation of the Russian Federation and (or) a tax deduction in accordance with the legislation of the Russian Federation on taxes and levies.[13]

THE PROJECT FINANCE FACTORY

One of the first instruments of the "new wave", which makes it possible to obtain financing on favourable terms for the implementation of large investment projects, is the Project Finance Factory (hereinafter — PFF) launched by the state corporation VEB.RF in 2018 and subsequently finalised in November 2022. The decision on its formation was made by Resolution of the Government of the Russian Federation No. 158 dated 15.02.2018 "On the Project Finance Factory programme".[14] The reason for setting up the Factory was that neither the implementation of specialised project finance companies, nor the development of the first state programme to support investment projects implemented in Russia on the basis of project finance,[15] were able to ensure the planned growth in lending to investment projects by 2017, and proved insufficiently effective in terms of expanding the use of this incentive tool. [17, 18].

[13] Federal Law No. 69-FL dated 01.04.2020 "On Protection and Promotion of Capital Investments in the Russian Federation". URL: http://www.kremlin.ru/acts/bank/45357

[14] It is this regulation that will be used as the main source of information in future PFF analyses.

[15] This refers to Resolution of the Government of the Russian Federation No. 1044 dated 11.10.2014 "On Approval of the Programme for Supporting Investment Projects Implemented in the Russian Federation on the Basis of Project Finance".

Table 1

Organizational model of project finance factory

Participant	Role, place and/or function
VEB.RF	The Corporation acts as the operator of the Factory and credit manager in the syndicate, conducts project selection and appraisal and is the recipient of the government subsidy, and has the obligation to repurchase or replace distressed SPFC PFF assets
SPFC PFF	It is a wholly owned subsidiary of VEB.RF, issues state-guaranteed bonds and acts as a lender under Tranche A
Ministry of Economic Development of Russia	Acts as the supervisor of the Factory and acts as the chief administrator of government grants
Russian Ministry of Finance	Provides state support measures (interest rate subsidies to lenders within the syndicate and a state guarantee for the PFF bonds)
Central Bank of the Russian Federation	Conducts special regulation of commercial banks in terms of lending to PFF projects
PFF participants, including lenders, project proponents, special project company (SPC — hereinafter)	Participate in investment financing of projects (commercial banks and international financial organisations), provide the required documentation (initiators), implement the initiative (project company)

Source: Resolution of the Government of the Russian Federation dated 15.02.2018. No. 158 "About the program "Project Finance Factory".

On the other hand, the creation of the Factory was associated with the reform of the state corporation VEB.RF, which involved clarification and reorganisation of the company's business processes, restructuring of the functional management model and adoption of a new development strategy until 2021. In the updated design, the tool was supposed to improve the "quality" of project financing, while the reform was associated with the fact that as of 2016 the corporation was in a situation close to default due to significant losses and a high debt load. The situation was further complicated by the introduction of external restrictive measures concerning the financial sector of the Russian economy.[16]

Thus, the PFF is a tool for financing investment projects in priority sectors of the Russian economy. The Facility involves the provision of funds to borrowers on the basis of syndicated credit (loan) agreements, contributing to an increase in the volume of lending to organisations implementing investment projects. Meanwhile, certain government support measures are applied within the framework of the instrument, including subsidies from the federal budget to reimburse expenses in connection with the provision of loans and credits within the framework of the Project Finance Factory instrument, as well as a Russian state guarantee for bond loans raised by a specialised project finance company.

It is important to take into account that the organisational model of the Factory is quite multidimensional and involves a wide range of participants and stakeholders (*Table 1*),

[16] URL: https://www.vedomosti.ru/finance/news/2016/03/03/632408-sanktsii-veba (accessed on 10.05.2023).

Table 2

Main changes in the instrument of the FPF

Characteristics	Terms and conditions until 09.11.2022	Terms and conditions after 09.11.2022
Total volume of tranches "A" (Factory limit)	Up to RUB 294 bln.	Up to RUB 500 bln.
Initiator participation	Above 20% of the investment project value	Above 20 per cent of the investment project value or above 15 per cent – if the project is approved in the period 2022–2023 with limited participation of VEB.RF: tranche "A" – not more than 10 per cent of the project value; the corporation's participation in financing the project as a whole not more than 25 per cent of the value
Requirement to the borrower	Special Project Company (SPC)	Special Project Company. In the case of investment projects implemented by existing borrowers, it is possible to build second stages or expand production facilities without forming an SPC
"Re-lending" (refinancing)	Support financing ("bridge loan") up to 3 years; credits (loans) up to 15% of the investment project cost by decision of the Supervisory Board of the Group of Companies	Support financing ("bridge loan") up to 3 years; credits (loans) up to 15% of the investment project cost by decision of the Supervisory Board of the Group of Companies; credits (loans) to finance expenses incurred during the pre-investment phase for projects approved in 2022–2023

Source: Resolution of the Government of the Russian Federation dated 15.02.2018. No. 158 "About the program "Project Finance Factory".

including federal government agencies, the Bank of Russia, VEB.RF, the Specialised Project Finance Company Project Finance Factory (hereinafter referred to as SPFC PFF).

Many stakeholders envisage the formation of an extended benefits circuit.

From this point of view of the state, the Factory is one of the ways to achieve the national development goals of the Russian Federation (ensuring GDP growth rates above the world average, growth of investment in fixed capital up to 25% of GDP, growth of exports of non-resource non-energy goods by more than USD 250 billion, etc.), optimal spending of budget subsidies, the multiplier effect of state support, the necessary quality of selection of investment projects and improvement of expertise.

In turn, as for project initiators, it is in their interests to increase the terms and volumes of lending at a floating interest rate, hedge the growth of the key rate thanks to government subsidies for the entire period of lending, tranche "C" to pay interest on tranches "A" and "B" at the investment stage, and standardise approaches to project finance in the country.

In the interests of partner commercial banks, risks are shared in financing, interest rate risks are reduced through interest rate subsidies, and the capital burden is reduced due to the special procedure for calculating capital adequacy and provisioning for loans and borrowings provided under the PFF.

However, in order to receive the above preferences, it is necessary for an investment project to meet certain criteria, the main ones being: a minimum cost of RUB 3 billion, a maximum payback period of 30 years, with a financing term of no more than 20 years, taking into account the amount of the borrower's own funds of no less than 20% of the total cost.[17]

[17] Resolution of the Government of the Russian Federation No. 158 of 15.02.2018 On the Project Finance Factory Programme (accessed on 13.05.2023).

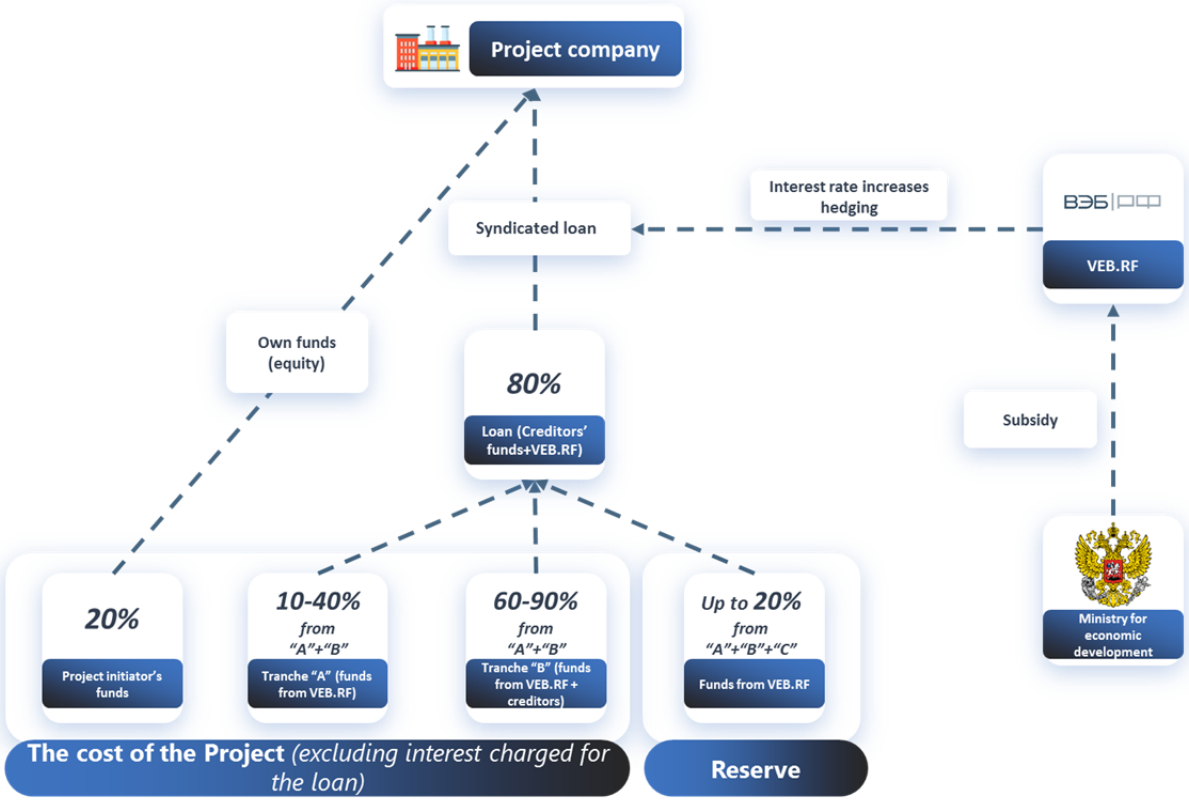

Fig. 1. **Structure of the FPF instrument**

Source: Resolution of the Government of the Russian Federation dated 15.02.2018. No. 158 "About the program "Project Finance Factory".

At the same time, due to the introduction of a new wave of restrictive measures against Russia in the first half of 2022, the PFF instrument was significantly modified and supplemented in terms of some conditions already in November 2022. Meanwhile, the above-mentioned criteria have also been innovated. The main changes to the PFF instrument are reflected in *Table 2*.

In general, such changes should be characterised as positive and adding flexibility to the instrument, which is due, among other things, to an increase in the instrument's limits by RUB 200 billion, while reducing the level of the initiator's own participation by 5 p.p. This makes it possible to more actively involve companies that have problems with initial capital, which is particularly important given the key criterion for project selection in the form of minimum cost.

In addition, the instrument was further refined in May 2023 due to an initiative to create specialised equity funds aimed at financing projects with insufficient resources of the initiators.[18] The alterations, in particular, stipulate that the amount of own funds formed at the expense of the funds should be no more than 50 per cent of the required own funds and no more than 10 per cent of the project cost. In turn, the share of own funds formed at the expense of the project initiator should be not less than 10% of the project cost. In addition, a possibility was worked out to replace tranche "A" financing with guarantees provided by VEB.

[18] The sources of funds are VEB.RF and commercial banks. The target volume of the funds is up to RUB 200bn, with the size of each fund not exceeding RUB 50bn and VEB.RF's participation not exceeding 1/3. The launch of the funds will ensure financing of projects lacking funds of the initiators for the amount of RUB 2 trillion or more.

Table 3

Subsidizing Growth at a Key Rate

Calculation of the subsidy	December 2018	December 2020	March 2022	October 2022
Introductory data	The loan rate is the amount of the key rate of the Bank of Russia + 2.5%; target consumer price index — 4%, federal loan bond-with indexed denomination (fixed in 2018) — 2.92%			
CAP*	6.92%			
Key rate of the Central Bank	7.5%	4.25%	20%	7.5%
Full interest rate on the loan	10%	6.75%	22.5%	10%
Subsidy**	0.58%	0%	13.08%	0.58%
Effective interest rate for the client including subsidy	9.42%	6.75%	9.42%	9.42%

Source: compiled by the authors on: URL: https://xn-90ab5f.xn—p1ai/biznesu/fabrika-ektnogo-finansirovaniya
Note: * — Calculated as the sum of the "CPI" and "OFZ" indicators; ** — Calculated as the difference between the Bank of Russia Key Rate and "CAP".

RF to commercial banks that provided tranche financing.[19]

Thus, understanding of the stakeholders, criteria and conditions of the Factory allows formalising the structure of the instrument in *Fig. 1*. Meanwhile, one should keep in mind the option of changing the conditions described in *Table 2,*[20] *as well as the possibility of financing tranche "A" by banks with VEB.RF providing a guarantee for this tranche.*

Based on the structure of the instrument, it is worthwhile to dwell in more detail on the level of interest rates on loans under investment projects, as this is one of the most attractive advantages of the Factory. Thus, for transactions approved in Q3 and Q4 2022, the CAP[21] amounted to 7.56 and 7.15% respectively.[22] An example of subsidising the key rate of the Bank of Russia for an investment transaction under long-term planning, dated December 2018, is given in *Table 3*.

In turn, in terms of procedures and processes for using the Factory tool, it is worth noting that a unified information system "DataRoom" (hereinafter — UIS "DataRoom") is used for the purposes of interaction between the parties, which provides access to information on investment projects for the participants and the Ministry of Economic Development of the

[19] Resolution of the Government of the Russian Federation No. 158 dated 15.02.2018 "On the Project Finance Factory Programme".

[20] First of all, it means that for investment projects approved in the period 2022–2024, the share of the initiator's own funds may be from 15% of the project cost, with limited participation of VEB.RF: tranche A — not more than 10% of the project cost; total participation of VEB in financing — not more than 25% of the project cost.

[21] "CAP" — the maximum level of interest rate.

[22] Information and analytical materials of VEB.RF. URL: https://xn-90ab5f.xn — p1ai/biznesu/fabrika-proektnogo-finansirovaniya/ (accessed on 05.05.2023).

country. In addition, a certain selection process has been formalised, consisting of three key stages:

1. Selection of investment projects for the Factory. As part of the stage, VEB.RF checks each specific project for compliance with the instrument's criteria, and the borrower gives his consent to include the project in the PFF. Next, the state corporation decides on the potential for this inclusion, while lending organisations express interest in providing financing. As a result, a register of potential PFF projects is created.

2. Structuring. In the current iteration, VEB.RF provides a unified information space through the use of UIS "DataRoom". In turn, the interested parties jointly structure financing taking into account the application of state support. As a result, a syndicated loan agreement is concluded and a register of investment projects of the Factory is formed.

3. Financing, monitoring and control. In the context of the third stage, the investment project is financed, where VEB.RF acts as a credit manager, and subsidies and state guarantees are obtained. Lenders get access to information resources on the implementation of the investment project. The stage results in monitoring and control of the project at all stages of its life cycle.[23]

To summarise the discussion of the PFF, it should be noted that the practical implementation of the instrument as of the end of 2022 has ensured the signing of 17 investment projects worth about RUB 1.1 trillion, with 18 projects approved for RUB 537 billion. An example of a specific project in the area of technological sovereignty is the construction of an ammonia and urea (carbamide) plant. The investment volume amounted to USD 1.7 billion, with a production potential of 1.1 million tonnes of ammonia and 1.4 million tonnes of urea (carbamide) per year.[24]

CLUSTERED INVESTMENT PLATFORM

The creation of the "Cluster Investment Platform" (CIP — hereinafter) tool was announced in December 2022 as part of one of the reports at the meeting of the Presidential Council on Strategic Development and National Projects.[25] According to the authors' idea, the new support instrument was supposed to stimulate investment activity in manufacturing industries, become the main instrument for the country to achieve technological sovereignty and competitiveness, and ensure the acceleration of economic growth. It was supposed to be available not only for profitable but also for low-margin projects. In the case of the latter, this meant initiatives aimed at creating priority high-value-added products, for example, in the food, energy, biosecurity, and transport sectors. In general, the main contours of the CIP at the preliminary stage are presented in *Table 4*.

In terms of quantitative indicators, 164 investment projects worth RUB 5.2 trillion have been pre-selected within the Cluster Platform, of which an estimated RUB 2.9 trillion will be provided by investors, while RUB 2.3 trillion will be financed through concessional loans (at preferential rate). At the same time, at the initial stage, the budget envisages RUB 5 billion for the implementation of the instrument in 2023, taking into account the possibility to apply for additional allocations as needed. According to the Russian Government's plan, one of the results of the CIP should be the attraction of up to RUB 10 trillion to the industrial sector.

As a result, in February 2023, after specifying a number of key characteristics and parameters and developing the procedure for concluding a loan agreement (contract), a regulatory decree of the Government of the Russian Federation No. 295 dated 22.02.2023 "On state support

[23] Ibidem.

[24] Ministry of Economic Development of Russia. URL: https://www.economy.gov.ru/material/file/650131761432617b4ed43efa51431cd8/klyuchevye_itogi_deyatelnosti_minekonomrazvitiya_rossii_za_2022_god_i_zadachi_na_2023_god.pdf (accessed on 07.05.2023).

[25] Administration of the President of the Russian Federation: official website. URL: http://kremlin.ru/events/president/news/70086 (accessed on 04.04.2023).

Table 4

The main outlines of the CIP during the preliminary phase

Characteristics	Contents
Loan amount	Volume — Up to 100 billion roubles
Interest rate	The preferential interest rate was to be set at 30 per cent of the key rate of the Bank of Russia + 3 per cent, with separate decisions of the Russian Government allowing for a reduction of the interest rate for certain projects
Preferential rate period	At the stage of capital investments and 2 years after the production run
Fiscal benefits	For the benefit of companies implementing SPIC 1.0 (Special Investment Contract), in the form of a reduction of profit tax to 0% and insurance contributions to 7.6%
Disclaimer on low-margin projects	If the project is low-margin but strategically significant, it was proposed to introduce the possibility of receiving a repayment of 25% of the investment component of the loan within three years after going into production, but with a ceiling of no more than 50% of revenue*
Support measures	Ensuring long-term guaranteed demand in public procurement, as well as in the procurement of individual legal entities**. Implementation through special and offset contracts, public-private partnership agreements and life cycle contracts At the development stage — identification of anchor customers from among monopolies, corporations, industry leaders (RZhD, Rosatom, OSK, Gazprom, etc.). Reduction of control measures and inspections, as well as application of tax and customs monitoring procedures

Source: compiled by the authors on: URL: http://kremlin.ru/events/president/news/70086
Note: * — The subsidy was planned to be selective and provided on the basis of a competition; ** — This refers to the Federal Law "On the procurement of goods, works, services by certain types of legal entities" dated 18.07.2011 No. 223-FZ.

for organisations implementing investment projects aimed at the production of priority products" was adopted. The regulatory legal act approved a new support tool, the effect of which is in line with the state programme "Development of Industry and Enhancement of its Competitiveness", and the Russian Government allocated RUB 1 billion from the federal budget for this purpose.[26] The Industrial Development Fund (hereinafter referred to as the "IDF") acts as the operator of the CIP.

Thus, the "Cluster Investment Platform" is an instrument of preferential lending to organisations implementing investment projects aimed at the production of priority industrial products. At the same time, despite the name, companies intending to use the tool do not need to be part of a technological cluster. In turn, it is fundamental that the products are included in the list of priority products, which is approved by the Interdepartmental Commission of the Ministry of Industry and Trade of Russia.[27]

In order for products to be included in the above list, the borrower should apply to the sectoral department of the country's Ministry of Industry and Trade with a proposal for their inclusion. The key criteria for identifying priority products are their compliance with the section "C — Manufacturing Products" of OKPD (Russian Classification of Products by Economic

[26] Order of the Government of the Russian Federation No. 449-o dated 22.02.2023. URL: http://publication.pravo.gov.ru/document/0001202302270038?ysclid=lnsliaueok744565916

[27] As of April 2023, the List adopted on 23.03.2023 is up to date. URL: https://gisp.gov.ru/documents/16848559/ (accessed on 22.04.2023).

Table 5

Main aspect of concessional lending under the CIP

Characteristics	Content
Volume of lending to participants	The loan amount is from RUB 5 billion to RUB 100 billion.— intended for the implementation of investment projects under which long-term contracts for the supply of priority products have been concluded (term of at least 5 years and amount of at least RUB 10 billion)
	The loan amount — from 1 to 100 billion RUB.— is intended for the implementation of investment projects involving the production of medicines and materials used for medical purposes
	The loan amount ranges from RUB 1 to 100 billion.— is intended for the implementation of investment projects envisaged by agreements of intent between the Russian Government and interested organisations in the interests of developing high-tech industries
	The loan amount — from 2 to 100 billion RUB.— Generally intended for the implementation of investment projects
Period of preferential lending	Period — from the date of conclusion of the loan contract (agreement) until the expiry of 2 years after the date of completion of the investment phase
Amount of preferential rate	The amount is 3% + key rate of the Central Bank of the Russian Federation * 0.3
Subsidy to the bank for compensation of income shortfalls	Calculated in the amount of 90% of the key rate of the Bank of Russia
Co-financing	Available. In this case, the amount of the preferential loan may not exceed 80% of the total cost of the investment project

Source: Resolution of the Government of the Russian Federation from 22.02.2023 No. 295 "On the state-granted support of organizations implementing investment projects aimed at production of priority products".

Activities)[28] 2[29] on the one hand, and with one of the following lists on the other hand:

- sectoral import substitution plans[30] provided that the level of consumption of domestically manufactured products in the total volume of Russian consumption is less than 40% (in case there is manufacturing of products in the country);
- critical components;
- vital and essential medicines for medical use;
- strategically important medicines, the production of which must be ensured in Russia.[31]

Obtaining a favourable loan requires that the investment project has a certain sectoral affiliation and corresponds to one of the 20 main areas, among which are: aviation, medical, machine-tool industry, shipbuilding. At the same time, the borrower is required to allocate the funds in targeted areas, such as: development of project documentation, design, survey and development works, creation and acquisition of property, plant, and equipment.

The main characteristics of the instrument in terms of co-financing, size and terms of lending, including the period of concessional lending, are presented in *Table 5*, but in accordance with the order of the Government of Russia these parameters can be changed, and special conditions of support can be used.

In order to obtain financing, investors have the opportunity to independently choose credit organisations with which the issue

[28] All-Russian Classifier of Products by Types of Economic Activities.

[29] Excluding classes "10", "11", "12", "14", "15", "16", "31" OKPD 2.

[30] These are sectoral plans of the Ministry of Industry and Trade of Russia.

[31] Order of the Ministry of Industry and Trade of the Russian Federation No. 833 dated 14.03.2023 "On Approval of the Methodology for Determining the List of Priority Products".

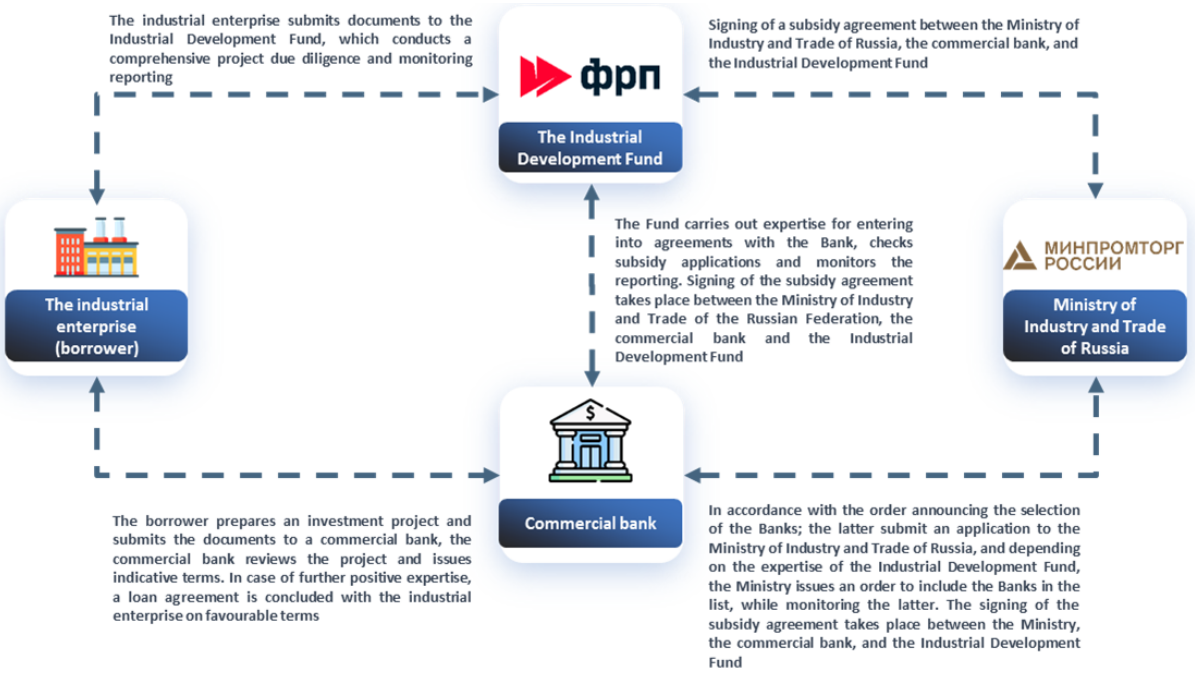

Fig. 2. **Model for interaction between CIS participants**

Source: Resolution of the Government of the Russian Federation from 22.02.2023 No. 295 "On the state-granted support of organizations implementing investment projects aimed at production of priority products".

of providing funds is being worked out. As for the latter, they have a specific procedure for selecting and receiving a subsidy. An important place in these processes is occupied by the Industrial Development Fund, which considers the applications received and prepares materials on the possibility of concluding an agreement (granting a subsidy) or notifies credit organisations of the need for revision. In addition, the Industrial Development Fund, which is vested with the functions of the Platform operator, advises borrowers, and carries out comprehensive expertise and monitoring of projects.

In general, there are four parties involved in the provision of concessional financing under the CIP instrument, including: the industrial enterprise (borrower), the Industrial Development Fund, the lending institution and the Ministry of Industry and Trade. (*Fig. 2*).

In addition, the Industrial Development Fund, acting as a one-stop shop and receiving documents from the borrower, is able to provide, together with the CIP instrument, other support measures, which include: fiscal benefits through preferential regimes (special investment contracts, special economic zones, territories of advanced socio-economic development, etc.), subsidy programmes (R&D subsidies, pilot batches of products, etc.), simplifications of administrative supervision and control (exemption from inspections, tax and customs monitors), etc.

Other measures include the possibility to obtain a loan from the Industrial Development Fund under special conditions. However, it is possible to combine preferential lending using the Platform and loans from the Industrial Development Fund if they are for different investment projects or if the borrower repays the loan from the Fund within 12 months from the date of the CIP loan agreement. The right to use the proceeds of the received loan for the purpose of repayment of the loan is available.

Applications for granting the support tool are supposed to be accepted at least once a year,

and the first submission was made in the period from 29.03.2023 to 14.04.2023. Meanwhile, after the end of the date of acceptance, it was decided to extend it until 1 October 2023 in the interest of increasing the number of recipients of the CIP tool. It is planned to select investment projects at least once a month as they are ready for consideration by the Interdepartmental Commission.

Summing up the discussion of the Platform, it is important to take into account that even a relatively short practical application of the CIP instrument, which reduces the interest rate for real sector companies to 5.25%, has led to an increase in the number of new projects and financing volumes at a relatively low budgetary cost of RUB 1 billion,[32] with a prospect of RUB 5 billion by the end of 2023. In addition, by the end of the first wave of applications, 46 projects with a total value of RUB 1.2 trillion were in a high state of readiness.[33]

TAXONOMY OF TECHNOLOGICAL SOVEREIGNTY PROJECTS

The above tools of the Project Finance Factory and the Cluster Investment Platform are similar in terms of content from the point of view of solving the problem of investment support for the implementation of priority projects, but the potential for supporting investment projects in the field of technological sovereignty is not limited to them. In particular, it is worth noting another tool for stimulating technological development, the initiative to create which was put forward by the Bank of Russia,[34] — a taxonomy. This tool, although it has been used previously in other areas, for example, in the interests of implementation of projects in the field of sustainable development [19, 20], but before the Central Bank's proposal it was not associated with Russia's technological sovereignty. Given that the financing of projects with a high technological component implies increased risk for the investor, according to the authors of the report, the instrument should establish risk-sensitive incentive regulation for investment projects according to the relevant taxonomy of the Government of the country.

In general, the initiative of the Central Bank of Russia was favourably assessed by the Government. In particular, it was concluded that the new instrument will make it possible, through regulatory relief, to increase the volume of investment in priority projects to RUB 10 trillion[35] and to increase the share of initiatives, for example in the manufacturing industry in the corporate loan portfolio of banks, from about 12–15 to 25–30 per cent.[36]

It is important to take into account that the taxonomy envisages the formation of transparent standards and criteria, and its key advantage is that credit institutions will be able to finance technological sovereignty projects with a reduced capital burden. Moreover, the lower the level of risk and the higher the significance of the investment project, the higher the downward evaluation coefficient. Certainly, a complete reduction of regulatory conditions is not expected; rather, we should talk about the application of a risk-sensitive approach with the possibility of using reduced risk weights depending on the stability of credit organisations and the quality of risk management. The approach will result in a reduction of the interest rate on loans in priority areas in accordance with the criteria (taxonomy) from 0.5 to 1% compared to the market level.[37]

[32] As of April 2023, the data are.

[33] Federation Council of the Federal Assembly: official website. URL: http://council.gov.ru/events/news/144128/ (accessed on 30.05.2023).

[34] Analytical Report of the Bank of Russia "Prospective Areas of Development of Banking Regulation and Supervision". URL: https://www.cbr.ru/Content/Document/File/143838/dbra_20221227.pdf (accessed on 05.05.2023).

[35] Government of the Russian Federation: official website. URL: http://government.ru/news/48256/ (accessed on 27.05.2023).

[36] By authority of technological sovereignty. URL: https://www.kommersant.ru/doc/5954450 (accessed on 01.05.2023).

[37] Ibidem.

In turn, the Russian Government has prioritised two groups of projects: technological sovereignty and structural adaptation of the economy. Focusing on the first category, it should be noted that 13 industries were selected, including agricultural and specialised machine building, machine-tool and aviation industries, pharmaceuticals, and electronics. These are mainly areas with a production localisation level of less than 50%.[38] However, despite the development of priority areas, it will not be until the second half of 2023 that the organisation will be able to take full advantage of the tool in practice.

However, the market character of the taxonomy should already be noted. This is due to the fact that the instrument makes it possible to solve state tasks not by strictly directive methods using budgetary resources, but through the formation of favourable conditions in the form of lower interest rates. At the same time, the credit institution independently develops the terms of lending taking into account capital saving, which facilitates its flow into priority areas without substituting the market mechanism.

On the other hand, the possibility of using the tool together with certain measures of state support, which is planned to be fixed and implemented by the state authorities, seems to be significant. First of all, we mean the potential interaction of the taxonomy with the above-mentioned cluster investment platform and project finance factory. Building interaction with other tools actually makes the taxonomy of technological sovereignty projects a system-forming stimulus tool, into the contours of which other initiatives and measures of state support can be gradually built. In other words, the taxonomy is used to create a holistic system of support tools in the area under consideration.

[38] URL: http://publication.pravo.gov.ru/Document/View/0001202304170025?ysclid=lnsmuna286235023999&index=1

CONCLUSIONS

Thus, the analysis allows us to conclude that Project Finance Factory, Cluster Investment Platform, and taxonomy can potentially become effective credit and financial instruments to increase capital investment in new medium- and high-tech investment projects in key areas of structural transformation of the Russian economy. The proposed instruments are associated with the goals of achieving technological sovereignty of the Russian Federation, transition to innovation-oriented economic growth and technological support of sustainable development of production systems. Among their main advantages are the reduction of the cost of credit funds in the implementation of investment projects in the relevant sectors and the active involvement of private investors and banking sector organisations in the process of restarting the investment cycle.

At the same time, despite their practical effectiveness, the instruments have a number of specific and general disadvantages.

If we talk about the project finance factory, it requires a large amount of initial investment on the part of the project initiator, and even a reduction in requirements seems insufficient for projects exceeding several tens of billion roubles, which may be of strategic sectoral and/or regional importance.

The Cluster Investment Platform implies a rather significant limitation in the receipt of applications in terms of time, which means that when implementing a multi-stage and complex project with a large number of actors, the investor may not have time to prepare design and estimate documentation within the established period. Another important negative aspect is the rather low volume of financing in the amount of RUB 5 billion and the lack of coordination with other complementary support instruments that are not under the jurisdiction of the Ministry of Industry and Trade of the country.

When it comes to taxonomy, it is not possible to fully assess the effectiveness of this tool

at this stage. Moreover, there are no publicly available materials according to which the regulatory reliefs are supposed to be developed. As a consequence, it is quite likely that there will be a risk that they turn out to be insufficient and the resulting interest rate reduction is not significant enough to contribute to the attraction of investor funds in the planned volume.

In general, the instruments are not yet expected to fully interact with each other. Moreover, there is no interrelation with other tools for supporting investment projects, including contractual and fiscal ones. The attempt to link the taxonomy with the Cluster Investment Platform and Project Finance Factory — is a correct step from the point of view of building a unified system of tools to support investment projects of technological sovereignty, as well as the fact that the Cluster Investment Platform assumes packaging of the product with specific measures, but it can hardly be considered sufficient.

In addition, the lack of transparency and accountability of the functioning of investment support instruments at the stage of project selection should be noted. Thus, despite the interaction with the tools through information systems (GIS "Industry", UIS "DataRoom"), no list of funded projects is freely available, and it is impossible to assess their regional, sectoral and industry affiliation, as well as the contribution of each of them to the achievement of technological sovereignty.

To a large extent, these shortcomings are caused by the fact that the system is oriented towards the formation of a package of innovation projects that are built "from below",— based on the proposals of interested innovators outside the system of technological priorities for the development of specific sectors of the national economy and industry within the framework of the long-term strategy of technological development of the country.

The following measures could contribute to overcoming the above-mentioned and other negative aspects:

1. Formation of an updated long-term strategy for technological development of the country, which would outline specific areas of technological development (a list of promising technologies) for specific sectors and industries of the national economy on the basis of a technological audit as a basis for the creation and selection of technological projects for investment support.

2. Formation of an open register of investment projects of technological sovereignty, which would reflect the main investment, fiscal and social indicators. It is important to make the register available to stakeholders, including potential contractors, which will stimulate the possibility of technological co-operation and the creation of new supply chains.

3. Expanding opportunities for borrowers to apply support measures of the Industrial Development Fund and (or) the Ministry of Industry and Trade not only within the framework of the Platform, but also in the context of the Project Finance Factory and taxonomy, and at the next step — together with support measures of other authorities and (or) development institutions to build a single "seamless" system of investment support instruments for technological sovereignty. This could involve, for example, joint co-operation with instruments such as the "Agreement on the Protection and Promotion of Capital Investment" or the "Industrial Mortgage Agreement".

4. Creation of a single information space for investors through the integration of GIS "Industry", UIS "DataRoom" with other state information systems (GAS "Management", GIS "Capital Investment", etc.), which is an important action to accelerate data exchange, reduce transaction costs, as well as a necessary solution for the implementation of the previous point.

5. Provision within the Cluster Investment Platform of an extension of the application

deadline by one calendar year at the monthly meeting of the interdepartmental commission in order to provide applicant companies with a longer period of time to prepare project documentation (business plan, investment plan, financial model, etc.). This would be important for organisations to structure investment projects on their own without incurring additional costs in the form of engaging consulting and investment companies due to the short timeframe for submitting an application for a support tool.

6. In the interests of investors with an acceptable level of own funds (about 5–7.5 per cent), but implementing priority investment projects in the field of technological sovereignty, it is advisable to give them the opportunity to use the equity funds being created, which could compensate for the lack of the initiator's funds for participation in the Project Finance Factory.

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Sustainable and Precarious Employment in the Russian Federation

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ABSTRACT

The subject of the present study is the relationship between sustainable and precarious employment and their scale in the Russian economy. The topic of the article is "Sustainable and precarious employment in the Russian Federation". The aim of the study is to consider the characteristics of sustainable and precarious employment through the prism of the extended and traditional concepts of the labour force and to determine their scale in the whole of the Russian Federation and in individual sectors of employment on the basis of objective indicators of precarious employment substantiated and verified by the authors. The research methodology is based on a qualitative and quantitative analysis and synthesis of the characteristics of sustainable and precarious employment, including consideration of the extended and traditional concepts of the labour force, the classification of modern employment, as well as the verification of its indicators and their variable application. The scope of the research results is to develop consensus methodological approaches to the study of sustainable and precarious employment, as well as their regulation by government authorities. The authors concluded that precarious employment in the Russian Federation is widespread, which reduces the quality of employment and requires legislative and practical restrictions.

Keywords: sustainable employment; precarious employment; extended labour force concept; traditional labour force concept; ways of classifying employment; objective indicators of precarious employment; subjective indicators of precarious employment; concentration of precarious employment indicators; scale of sustainable and precarious employment

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INTRODUCTION

Employment has always been one of the central topics of research of economists, sociologists, lawyers, and representatives of other sciences, as it is the key to the characteristic of socio-economic and other relations that characterise the social and labour sphere. With the development of non-standard employment, interest in the study of this sphere has grown significantly due to the need to identify the features and compare its organisational, technical, and socio-economic characteristics with standard employment. It has been established that the socio-economic characteristics of non-standard employment identify a significant part of it as precarious employment. The authors of this publication were among the first in the Russian Federation to draw attention to this problematic and to present to the scientific community an overview of its development in foreign and domestic studies, as well as to identify the features of its manifestation in capitalist Russia [1–5].

In the period since 2018, interest in the study of precarious employment in the Russian Federation has grown significantly. Fundamental monographs [6–11] and a number of topical articles in periodicals [12–15], etc. have been published. With the expansion of research on precarious employment, a number of Russian and foreign publications have provided different estimates of its scale[1] [16–22]. This actualised the need to develop consensus approaches to assessing the involvement of workers in precarious employment and served as an impetus for this study.

[1] The Precarity Penalty. The impact of employment precarity on individuals, households and communities — and what to do about it. PEPSO. 2015. URL: https://pepso.ca/documents/precaritypenalty.pdf (accessed on 11.08.2023).

Purpose of the study: to examine the characteristics of sustainable and precarious employment through the prism of the expanded and traditional concepts of the labour force and to determine their scale in the Russian Federation as a whole and in individual employment sectors on the basis of objective indicators of precarious employment substantiated by the authors [23].

Object of the study: the labour force of the Russian Federation, including its potential contingent. *Subject* of the study: relations of sustainable and precarious employment and their scale in the Russian economy. *Hypothesis* of the study: the objective characteristics of sustainable and precarious employment and their scale depend on the "framework" of the concept of labour force, ways of classification (structuring) of employment, as well as on the indicators that characterize it (indicators and indices).

TOWARDS A THEORY AND METHODOLOGY OF THE PROBLEM

We refer to sustainable employment (SE) as work based on an open-ended labour contract, with standard working hours (full-time, normal working week), with labour and social guarantees provided by the Labour Code of the Russian Federation (protection from dismissal, stable earnings, etc.). [24].

In contrast to sustainable employment, precarious employment (PE) is a forced production relationship for the employee, which is accompanied by partial or complete loss of labour and social guarantees provided by sustainable employment. This phenomenon is widespread in the modern world. The theoretical framework for defining and measuring precarious employment is set by the International Labour Organization (ILO) (*Table 1*).

In practice, the ILO's theoretical model of precarious employment is adapted to the specifics of a particular country. An increase in precarious employment indicates a decline in the quality of employment.

Sustainable employment and precarious employment should not be identified, respectively, with standard and non-standard employment [25]. In modern conditions, there is a corrosion of the classical model of standard employment, which by definition was initially sustainable. Part of it, as precarious employment expanded, absorbed elements of precarious labour relations [26].

The characteristics of sustainable employment and precarious employment depend on the concept of the labour force, on the ways of its classification (structuring), as well as on the indicators (indicators, indices). In general, a three-dimensional representation of the space of employment characteristics is presented in *Fig. 1*. It follows that employment at each point can be identified by belonging to one or another component of the concept of labour force, by a variety of its classification and certain indicators (indicators, indices) that have quantitative definiteness.

There is a distinction between expanded and traditional labour force concepts. The expanded labour force concept includes three components: employed (I), unemployed (II) and potential labour force (III).

Component I — *employed,* persons who carry out the labour process: IA — in organisations (legal entities) and IB — in the informal sector (in the sphere of entrepreneurial activity without legal entity).[2] Component IA is the wage employment, which is the main job. Employees must be officially registered (under a labour agreement). In practice, part of employment in organisations is not formalised, and workers are engaged in shadow employment. Component IB is the work in the informal employment sector, which characterises the main employment of individuals. In practice, some self-employed and individual entrepreneurs are not registered with the tax authority. In this case, they carry out shadow employment.

[2] Informal employment sector and informal employment are not identical concepts. The latter, in our opinion, represents shadow employment in the formal (organisations) and informal (individuals) sectors of the economy, among the unemployed and potential labour force.

Table 1

The theoretical framework for the definition of precarious employment according to the ILO

Precarious employment		
I. Contractual arrangements	**II. Precarious conditions**	
1.1. Limited duration of contract (fixed-term, short-term, temporary, seasonal, day-labour and casual labour)	2.1. Low wage	2.2. Poor protection from termination of employment
1.2. Nature of employment relationship (triangular and disguised employment relationships, bogus self-employment, subcontracting and agency contracts)	2.3. Lack of access to social protection and benefits usually associated with full-time standard employment	2.4. Lack of or limited access of workers to exercise their rights at work

Source: compiled by the authors based on: URL: https://www.ilo.org/wcmsp5/groups/public/--ed_dialogue/--actrav/documents/meetingdocument/wcms_179787.pdf

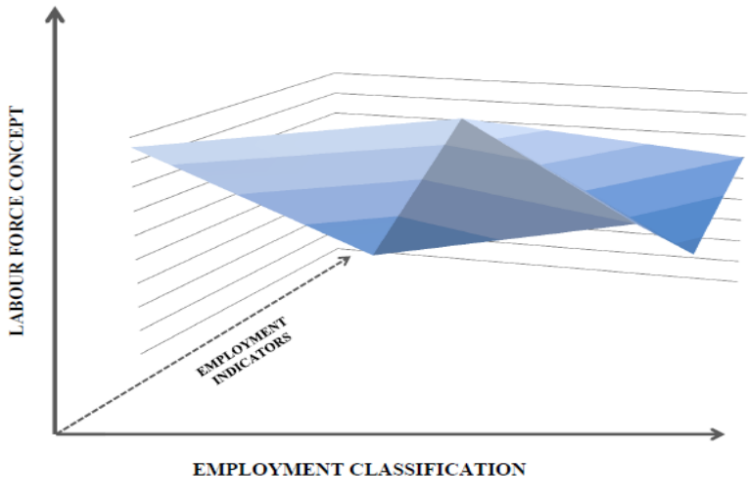

Fig. 1. **The space of employment characteristics**

Source: developed by the authors.

Component II is the *unemployed*. They are the temporarily unemployed and are defined by ILO methodology. The unemployed are divided into two groups: IIa — self-employed jobseekers; IIb — those registered with employment centres that assist in finding employment.

Component III — *the potential labour force* — consists of persons of working age who have either taken action to look for work but are not ready to start work at the moment but will be ready to do so within a short follow-up period determined by national circumstances (i.e., job seekers not ready to start work); or have not taken action to look for work but want to work and are ready to start work at the moment (i.e., not looking for work, potentially ready to start work). Component III also includes persons of working age who have not expressed a desire to work and who are not full-time students, pensioners, or homemakers [27]. In contrast to the expanded concept, the traditional concept does not include the potential labour force.

For the purposes of our study, the classification of employment presented in *Fig. 2* is used. It considers modern employment in the totality of its three paradigmatic paired characteristics, namely: Standard — Non-standard (atypical) employment; Formal sector — Informal sector of employment; Sustainable — Precarious employment. Their

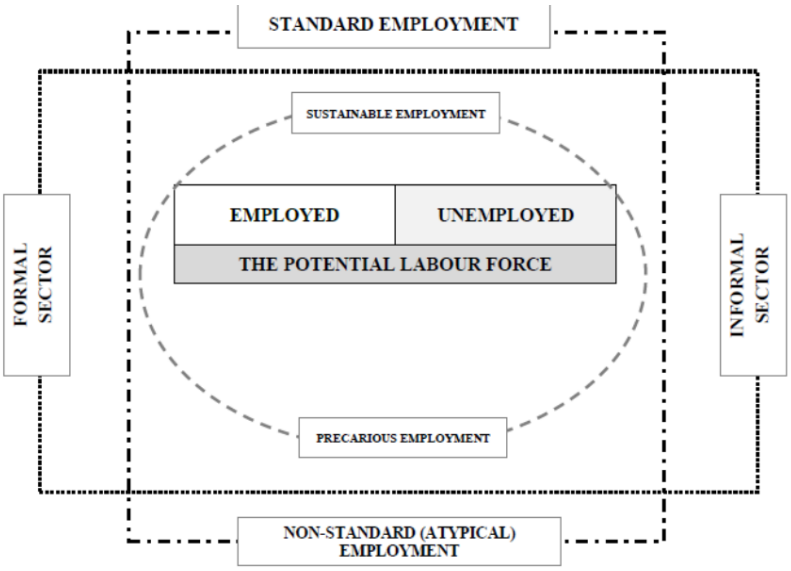

Fig. 2. **Extended concept of labor force and classification of employment**

Source: developed by the authors.

aggregate consideration was first applied by us in the study [28] and allows us to describe the qualitative and quantitative characteristics of sustainable and precarious employment.

Let us consider the qualitative and quantitative characteristics of sustainable employment and precarious employment sequentially, first within the framework of the traditional and then within the framework of the expanded labour force concept. It is important for us to identify their indicators and assess the extent of sustainable employment and precarious employment, both for the country as a whole and for its individual sectors.

The identification of sustainable and precarious standard and non-standard employment in the formal and informal sectors of the labour force is schematised in *Fig. 3*.

Considering them separately or jointly (objects are quadrants[3] within the circle) leads to different results, with significantly different qualitative and quantitative characteristics of employment. In this methodological approach, sustainable employment and precarious employment have clear objects and the results of their study identified with them.

Component I (employed), presented in *Fig. 3*, includes employment in the formal (IA — left area of the circle) and informal (IB — right area of the circle) sectors. Part of employment is standard and part is non-standard. Inside the dashed line highlighted in red are the precarious parts of employment, which include: 1) the part of employment in the formal sector — formal and hidden employment in organisations (IAa); 2) the part of employment in the informal sector, which includes formal and hidden employment (IBb). Each of these parts will be characterised by its qualitative and quantitative characteristics of employment, which are conditioned by its specifics (attributes, etc.) and the scale of formal PE and hidden (unformalised) employment.

The traditional labour force concept includes *component* II (unemployment), which fully represents the most acute form of precarious employment, defined by temporary unemployment and, consequently, lack of income [29]. When it is taken into account, the scope of precarious employment in the traditional labour force concept includes precarious employment in component I, representing part of the formal and informal employment sectors, and all employment in component II.

[3] A quadrant is one-fourth of the area of a circle.

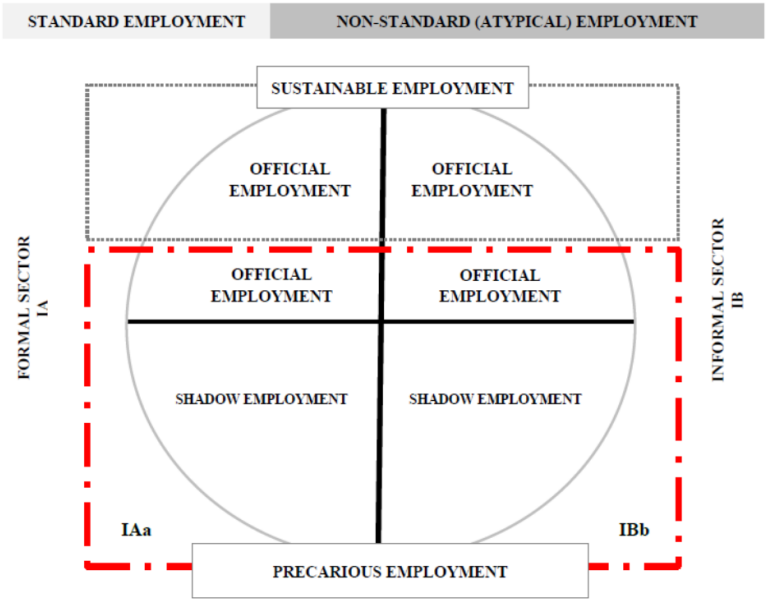

Fig. 3. **Stable and precarious standard and non-standard employment in the formal and informal sectors**

Source: developed by the authors.

To estimate precarious employment under an expanded labour force concept, the characteristics and extent of precarious employment in components I and II need to be added to characteristics and extent of shadow employment in *component* III.

In order to qualitatively and quantitatively characterise those with precarious employment, its indicators need to be identified. Their identification, as well as the characterisation of labour force components and classification of employment, is an integral part of the theoretical and methodological toolkit of the study. Such work was carried out by the authors earlier [30]. A total of 16 indicators were identified, including 13 objective and 3 subjective indicators.[4] Among the objective indicators of precarious employment, 5 are defined as the key ones and 8 as non-key indicators.

The key indicators of precarious employment are: (1) Employment on the basis of verbal agreement without documentation; (2) The level of income from primary employment that does not ensure the sustainability of the financial situation of households (less than 3.9 minimum subsistence level of the working population); (3) Forced unpaid leave at the initiative of the employer; (4) Absence of paid leave; and (5) Reduction of wages or hours of work by the employer.

Non-key objective and subjective indicators of precarious employment are: (6) Employment on the basis of a civil law contract; (7) Employment on the basis of an employment contract (service contract) for a fixed term (1 year or less); (8) Unofficial employment without registration or documentation; (9) Unofficial employment in the informal sector; (10) Self-employment; (11) Wage arrears; (12) Unofficial (partially or fully) income from employment; (13) Working hours deviating from standard: Working week of more than 40 hours or not more than 30 hours (in the main job); (14) Presence of dissatisfaction with pay; (15) Presence of dissatisfaction with working conditions; (16) Workers' concern about job loss. In further measuring the scale of precarious

[4] The ILO criteria and all available data of the Russian state statistics, as well as the database of the The Russia Longitudinal Monitoring Survey — Higher School of Economics were used to identify indicators. The initial list of indicators was verified on the basis of: 1) multicollinearity (independence) test; 2) expert assessments (were obtained during a specially organised expert survey). To identify key and non-key indicators, ranking of the identified indicators using expert judgements was applied. Subjective indicators were not considered key by the experts. Further, they were not used to assess the scale of precarious employment.

employment, the authors are guided by objective indicators (1)-(13) characterising it.

The above-mentioned components of the labour force, the method of employment classification and the indicators of precarious employment allow measuring the scale of sustainable employment and precarious employment by individual components of the labour force and in general.

METHODS AND DATA

Theoretical and methodological (qualitative) approaches to the study of the object and subject of the research are based on the interrelation of deductive and inductive justification of the classification of modern employment; on the analysis and synthesis of the components of the expanded and traditional concepts of labour force and modelling of the structure of modern employment; on the standardisation of sustainable and precarious employment taking into account the concentration of their verified objective indicators; on the analysis of the conditions of employment of the labour force as a whole in the Russian Federation in its sectors; statistical and sociological approaches to the study of sustainable and precarious employment; comparison of their Russian and foreign characteristics.

Rosstat indicators, including data from the Comprehensive monitoring of living conditions (CMLC) and the Labour Force Survey (LFS), are used to quantitatively assess modern employment to complement its qualitative characteristics. In addition, data from the Russia Longitudinal Monitoring Survey — Higher School of Economics (RLMS)[5] are used in the analysis. The author's original calculations of sustainable and precarious employment were carried out and compared with the results published in Russian and foreign monographs and periodicals.

[5] "Russia Longitudinal Monitoring survey, RLMS-HSE", conducted by National Research University "Higher School of Economics" and OOO "Demoscope" together with Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology of the Federal Center of Theoretical and Applied Sociology of the Russian Academy of Sciences. (RLMS-HSE web sites: https://rlms-hse.cpc.unc.edu, https://www.hse.ru/org/hse/rlms)

RESULTS OF MEASURING SUSTAINABLE AND PRECARIOUS EMPLOYMENT (OBJECTIVE INDICATORS)

1. ***Extent of sustainable and precarious employment in the formal sector (organisation).*** This sector of employment is the main one in terms of the scale of employment and its role in the results of socio-economic development of the country. The RLMS data allow for a fairly complete characterisation of employment in the organisations sector. It has been revealed that in 2021[6] precarious employment prevailed among employees of organisations — they accounted for 87.2%, including moderate concentration of indicators (one or two key indicators of precarious employment) in 45.4% of employees, high concentration (one or two key indicators and one or three non-key indicators) in 33.8% of employees, and the most vulnerable position with the highest concentration of indicators (three or five key indicators, which may be accompanied by one or three non-key indicators) had 8% of employees. The transitional group (one to three non-key precarious employment indicators) comprised 5.3%, and only 7.5% of the organisations' employees were sustainably employed. A retrospective comparison of the dynamics of precarious employment for more than a decade (2008–2021) by "reference points" (2008, 2014, 2020 and 2021) showed that "compositionally" the situation with the quality of employment in the organisations sector has not changed fundamentally.[7] The share of sustainable employment in the period under review was low, remaining at less than 10%, while precarious employment with varying concentrations covered more than 80% of employees [31].

In relation to the total number of the labour force and persons of working age who are not in the labour force, in 2021, precariously employed workers in organisations totalled 55.9%, including 29.1% with moderate, 21.7% with high, and

[6] Estimation based on 30th wave of RLMS data.

[7] Estimation based on 17, 23, 29 and 30th waves of RLMS data.

5.1% with the highest concentration of signs of precarious employment.[8]

2. ***Extent of sustainable and precarious employment in the informal sector (individuals).*** This sector is dynamically developing and plays an increasingly important role in employment and socio-economic development of the country. However, its statistical support is insufficient. The databases of the Federal State Statistics Service (Rosstat, Comprehensive monitoring of living conditions (CMLC)) and RLMS (Russia Longitudinal Monitoring Survey — Higher School of Economics) allow measuring precarious employment only for some of the indicators of precarious employment used by the authors.

The databases of CMLC enable the following types of contractual arrangements to be analysed: (1) Employment on the basis of verbal agreement without documents; (6) Employment on the basis of civil law contract; (7) Employment on the basis of labour contract (service contract) for a certain period of time. The assessment of these indicators reveals 61% of sustainably and 39% of precariously employed wage workers in the informal sector, of which 26% work on the basis of verbal agreement (shadow employment) (2022).[9] In turn, wage workers accounted for about 61.6 per cent of the total number of recorded informal sector workers, while 38.4 per cent were registered independent workers (employers and self-employed who do not use wage labour).[10] The CMLC database does not allow to identify shadow independent workers who have precarious employment and to analyse precarious working conditions in informal employment. The RLMS database can partially fill this gap.

RLMS allows us to analyse the following indicators of precarious working conditions in the informal employment sector used by the authors: (2) The level of income from main employment that does not ensure the sustainability of the financial situation of households (less than 3.9 minimum subsistence level of the working population); (12) Unofficial (partially or fully) income from employment; (13) Working hours deviating from the standard working hours: the duration of the working week is more than 40 hours or not more than 30 hours (at the main place of work). The assessment of these indicators revealed 94.2% of the precariously employed according to the considered indicators of precarious working conditions, including 30.9% — for the presence of one indicator, 43.8 — for two indicators, and 19.5% of those employed in the informal sector — for three indicators (2021).[11] At the same time, the information in the RLMS database is insufficient to analyse precarious contractual arrangements in the informal employment sector, which does not allow us to use this criterion and complement the results obtained for working conditions. This gap can be partially filled by using the CMLC database.

Therefore, the two databases reviewed complement the characteristics of sustainable and precarious employment in the informal sector, but cannot fully describe them. It is noteworthy that, according to the RLMS data, almost all informal workers are characterised by precarious working conditions. The CMLC database shows a large proportion of precarious contract labour in the informal sector. Both results, given the limited capacity of the available databases to fully describe precarious employment, suggest, in our view, that it would not be inaccurate to attribute all employment of workers in the informal sector to precarious employment.

The magnitude of employment in the informal sector was 15.2% (2021) of the total labour force and working-age persons not yet included in the labour force.[12]

[8] Estimation based on 30th wave of RLMS data and Rosstat (Labour force sample survey results — 2021. URL: https://rosstat.gov.ru/folder/11110/document/13265).

[9] Estimation based on Rosstat data: Comprehensive observation of living conditions of the population 2022. URL: https://gks.ru/free_doc/new_site/GKS_KOUZH_2022/index.html

[10] Estimate based on Rosstat data: Labour Force Survey 2022. Rosstat. URL: https://rosstat.gov.ru/folder/11110/document/13265.

[11] Estimation based on 30th wave of RLMS data.

[12] Estimate based on Rosstat data: Results of the sample labour force survey — 2021. URL: https://rosstat.gov.ru/folder/11110/document/13265

3. ***The extent of precarious employment among the unemployed***. All the unemployed defined by ILO methodology have precarious employment because they do not have contractual agreements and labour income while looking for work. The unemployed in 2021 represented 4.0% of the total labour force and working-age persons not in the labour force.[13]

4. ***Potentially precarious (shadow) employment of working-age persons not in the labour force***. In 2021, this category of precarious employment accounted for 3.3% of the total labour force and working-age persons not in the labour force.[14]

Table 2 presents variants of calculations of the aggregate scale of precarious employment in the Russian Federation as a whole in 2021 for the expanded and traditional labour force concepts.

When precarious employment is identified under the expanded labour force concept under option 3, which takes into account the maximum scale of precarious employment (pp. 1–4), it reaches **78.4%** (of the sum of the labour force and working-age persons not in the labour force) (2021). If the requirements for the composition of precarious employment indicators in the formal sector are tightened, precarious employment decreases to **49.3%** [option 2, when considering workers with high (*Table 2*, pp. 1.2) and highest (*Table 2*, pp. 1.3) concentrations of its indicators], or to **27.6%** [option 1, when considering as precarious employment in the formal sector only workers with the highest concentration of its indicators (*Table 2*, pp. 1.3)], respectively.

For comparison, the maximum precarious employment scale (option 3) in 2021 under the traditional labour force concept is **89.9%.** If the requirements for the composition of precarious employment indicators in the formal employment sector are tightened, the scale of precarious employment decreases, respectively, to **55.1%** [option 2, when considering workers with high (*Table 2*, pp. 1.2) and highest (*Table 2*, pp. 1.3) concentration of its indicators], or to **29.1%** (option 1, when considering as precarious employment in the formal sector only workers with the highest concentration of its indicators (*Table 2*, pp. 1.3)). Sustainable employment using variants calculations was **10.1, 44.9 or 70.9 per cent**, respectively.

If we consider the scale of precarious employment only in the formal employment sector (*Table 3*), its maximum size (option 3) was **86.9 per cent**. When the requirements to the composition of precarious employment indicators in the formal employment sector are tightened, the scale of precarious employment decreases, respectively, to **41.6 per cent** [option 2, when considering workers with high (1.2) and the highest (1.3) concentration of its indicators], or to **7.9 per cent** [option 1, when considering as precarious employment in the formal sector only workers with the highest concentration of its indicators (1.3)]. Sustainable employment using variants calculations was **13.1, 58.4 or 92.1 per cent**, respectively.

The penetration of some key and non-key indicators of precarious employment (low wages, wage arrears, deviating from standard working hours, etc.) into the organisational employment sector makes it necessary to estimate its size variably, taking into account the concentration of precarious employment indicators. The preferred option is option 2, in which the size of precarious employment was: under the expanded labour force concept — 49.3%, under the traditional labour force concept — 55.1%, including for the formal employment sector — 41.6%. Thus, between 40 and 55 per cent of the labour force, including its potential sector, had precarious employment.

The above variant estimates of sustainable employment and precarious employment allow researchers and practitioners to operate with the scales of sustainable employment and precarious employment that follow from the objectives of their

[13] Estimate based on Rosstat data: Results of the sample labour force survey — 2021. URL: https://rosstat.gov.ru/folder/11110/document/13265

[14] Estimate based on Rosstat data: Results of the sample labour force survey — 2021. URL: https://rosstat.gov.ru/folder/11110/document/13265

Table 2

Options for identifying the aggregate scale of precarious employment in Russia based on extended and traditional labor force concepts, 2021

	Scope, %	Options for identifying the aggregate extent of precarious employment (PE)		
		Option 1	Option 2	Option 3
I. Identification based on an expanded labour force concept *				
1. Precarious (including shadow) wage employment in the formal sector of the economy (in organisations), total	**55.9**			
Including:				
1.1. With moderate concentrations of PE (one or two key PE indicators are present)	29.1	-	-	V
1.2. With high concentration of PE (one to two key indicators and one to three non-key PE indicators are present)	21.7	-	V	V
1.3. With the highest concentration of PE (there are three to five key PE indicators, which may be accompanied by one to three non-key PE indicators)	5.1	V	V	V
2. Employment in the informal sector	**15.2**	V	V	V
3. Unemployment	**4.0**	V	V	V
4. Potentially shadow employment of persons of working age who are not in the labour force	**3.3**	V	V	V
Cumulative scale of PE, total		**27.6**	**49.3**	**78.4**
II. Identification based on the traditional concept of labour force **				
1. Precarious (including shadow) wage employment in the formal sector of the economy (in organisations), total	**66.9**			
Including:				
1.1. With moderate concentrations of PE (one or two key PE indicators are present)	34.8	-	-	V
1.2. With high concentration of PE (one to two key indicators and one to three non-key PE indicators are present)	26.0	-	V	V
1.3. With the highest concentration of PE (there are three to five key PE indicators, which may be accompanied by one to three non-key PE indicators)	6.1	V	V	V
2. Employment in the informal sector	**18.2**	V	V	V
3. Unemployment	**4.8**	V	V	V
Cumulative scale of PE, total		**29.1**	**55.1**	**89.9**

Source: authors' assessment based on the data of the 30 round of the of the RLMS and Rosstat. URL: https://rosstat.gov.ru/folder/11110/document/13265

Note: * – As a percentage of the sum of the labor force and persons of working age who are not part of the labor force; ** – As a percentage of the sum of the labor force and persons of working age who are not part of the labor force; "V" – taken into account when identifying the total scale of precarious employment; "–" – not taken into account when identifying the total scale of precarious employment.

research, depending on the concept of labour force, employment sectors, the number and composition of indicators characterising its concentration, as well as sectoral and regional characteristics of the objects under study.

It should be borne in mind that our results take into account only statistical estimates of the scale of sustainable employment and precarious employment, and not people's opinions, which may differ significantly from objective data.

Table 3

Options for identifying the extent of precarious employment in Russia in the formal employment sector, 2021

	Scope, %*	Options for identifying the aggregate scale of PE		
		Option 1	Option 2	Option 3
Precarious (including shadow) wage employment in the formal sector of the economy (in organisations), total	**86.9**			
Including:				
1. With moderate concentrations of PE (one or two key PE indicators are present)	45.3	-	-	V
2. With high concentration of PE (there are one to two key indicators and one to three non-key PE indicators)	33.7	-	V	V
3. With the highest concentration of PE (there are three to five key PE indicators, which may be accompanied by one to three non-key PE indicators)	7.9	V	V	V
Cumulative scale of PE, total		**7.9**	**41.6**	**86.9**

Source: authors' assessment based on the data of the 30 round of the of the RLMS and Rosstat. URL: https://rosstat.gov.ru/folder/11110/document/13265

Note: * — As a percentage of the sum of the labor force and persons of working age who are not part of the labor force; "V" — taken into account when identifying the total scale of precarious employment; "–" — not taken into account when identifying the total scale of precarious employment

DISCUSSION

It is important to compare the results of the characterisation of sustainable and precarious employment with the assessments of foreign and Russian researchers. This will allow us to establish common and specific approaches to the study of these phenomena, identify discrepancies and determine their causes.

Let's start by looking at an international study organised by Eurofound, which periodically conducts European Working Conditions Surveys.[15] The fourth study (2005) included a component of studying precarious employment. Its 8 constructs and 11 indicators were defined: 1) precarious employment (indicator — type of contract); 2) low income (indicators — very low-paid jobs and number of in-kind benefits); 3) workers' lack of rights and social protection (indicator — health and safety information); 4) workers' inability to exercise their rights (indicator — unpaid flexible working hours); 5) lack of collective bargaining (indicator — freedom to determine their working hours); 6) unbalanced interpersonal power relations (indicator — participation in communication with superiors); 7) lack of training opportunities (indicator — percentage of training opportunities); 8) low control over working hours (indicators: changing the schedule during the working day and working more than 45 hours per week).

The results of this study show that precarious employment was a significant segment of national labour markets. Using selected objective indicators comparable to those used in our study, the following estimates of precarious employment were obtained for the three countries of France, Germany, and Italy:

- employment under fixed-term contractual agreements was 12.4, 19.4 and 14.0 per cent, respectively;
- very low paid employment — 23.7, 26.6 and 21.9 per cent;
- working more than 45 hours per week covered 8.0, 10.9 and 4.0 per cent of the employed, respectively.

[15] EWCS — A survey that is conducted every five years and covers various aspects of working life, such as working hours, work organisation, work-life balance and work-related health problems. URL: https://www.eurofound.europa.eu/surveys/european-working-conditions-surveys-ewcs

Objective and subjective indicators were used to assess precarious employment in this study. Their composition differed significantly from the verified indicators in our study. No country-specific integrated estimates of precarious employment were made.

Of the foreign country studies of precarious employment that we are aware of,[16] we will briefly (due to the limited volume of the publication) comment on its characteristics in Italy, Hungary, and Canada. The study of precarious employment in Italy was conducted in 2013–2016. [32]. The Italian state statistical authority applied the following classification of the employment structure: 1) atypical employment (temporary employment and so-called collective workers); 2) standard employment; 3) partially standard employment (part-time + open-ended contracts); 4) economically inactive and unable to work; 5) unemployed and potential labour force. The shares of these components of the labour force among young people aged 15–34 years were 56.7; 17.9; 15.4; 5.5 and 4.5% respectively. The paper finds that companies in Italy prefer temporary contracts for newly hired workers. Conversion of open-ended contracts with employees to those that do not provide stable employment is also common. General quantitative estimates of precarious employment in Italy are not presented in the paper.

Note that in this study the classification of the employment structure is based on an extended concept of the labour force, which is in line with our results. It seems important to identify the component "partially standard employment" in the Italian state statistics, which in the future it would be advisable to identify in our work, due to the corrosion of standard employment in our country.

Thus, as of 2021, based on the above calculations (see subsection *Dimensions of sustainable and precarious employment in the formal sector*), partially standard employment in organisations would include a transitional group of 5.3% (one to three non-key precarious employment indicators) and 45.4% (one to two key and one to three non-key precarious employment indicators) of workers with a moderate concentration of precarious employment indicators. Then the structure of the employed in organisations could be presented approximately as follows: 1) sustainably employed — 7.5%; 2) partially sustainably employed — 50.7%; precariously employed — 41.8% (employees with high and very high concentration of precarious employment indicators). Of course, in the future, if the concept of "partially sustainable employment" is introduced, it will be necessary to clarify the composition of key and non-key indicators of precarious employment, which could correctly describe this phenomenon in relation to the peculiarities of Russian employment.

The study of precarious employment in Hungary [21] focuses on identifying the scale and characteristics of atypical forms of employment and contractual arrangements (2005–2012), as well as the size of unemployment (1992–2011) and their impact on poverty. As a result of the analysis, the specific weights of the following forms of employment (in % of the number of employed) were established: fixed-term contract (10–15%); part-time employment (3–5%), etc. The unemployment rate during the period under study was within the range of 6–11 per cent. A comparison of these indicators of labour force employment with a number of other countries has been made. The work is conducted within the traditional concept of the labour force, but is not limited to the employed. Along with them, the precarious employed include the unemployed, which is not included in some Russian studies of precarious employment. The publication does not give a full picture of the extent of precarious employment, as it does not consider precarious working conditions and does not identify the country size of precarious employment.

[16] An overview of foreign studies is presented in the Introduction section of the paper.

The Canadian study[17] measured *the Index of precarious employment*, which is a person's average score on 10 questions related to: a measure of the employment relationship (including whether the person is in temporary employment or a standard employment relationship?); a measure of expected changes in hours of employment; income variability; the ability to voice problems at work without fear of losing it; the frequency of on-call work; whether the worker receives payment in cash; whether the worker receives payment for missing a day of work; and more.

Objective and subjective indicators were used to assess precarious employment in this study. Their composition differed significantly from the verified indicators of our study.

The published values of the "precarious employment index" were: 13.7% (1989), 20.1 (1997), 21.3% (2007), 22.1% (2011), 21.8% (2014). The dynamics of precarious employment shows an increase in its scale. The definition of an integral index of precarious employment in this study is commendable.

In Russia, the most notable sociological studies of precarious employment were carried out in 2018–2020 by a team led by a Corresponding Member of Russian Academy of Sciences Zh. T. Toshchenko. Their results are presented in the monograph [33]. Its methodological part emphasises the expediency of building a classification of workers by precarious employment based on a combination of the values of two attributes — the level of employment instability and their subjective assessment of their situation [satisfaction with employment conditions, (not) willingness to change the place of work, etc.]. The team of researchers used in their work 7 indicators (signs) of precarious employment:

1) registration of labour without a contract or with a contract for not more than 1 year;

2) complete inconsistency of education and qualifications with the work performed;

3) permanent overwork (more than 8 hours);

4) moonlighting (regular or irregular) in one's own or third-party organisation;

5) salary in an envelope (systematic or occasionally);

6) change of job more than once in the last 3 years;

7) inability to influence decisions in your work organisation.

An important innovation is the introduction of the concept of "degree of precarity" in the characterisation of precarious employment and the establishment of its ranges depending on the number of indicators: 0–1 — low degree of precarity; 2–3 — medium degree of precarity; 4–6 — high degree of precarity (the core of the precariat).

In this study, as far as we know, for the first time in the Russian Federation, the involvement of workers in precarious employment is considered not only for the Russian Federation as a whole, but also for the main large sectors of the Russian economy: industry, construction, transport (with the example of automobile transport), and agriculture (a total of 11 sectors). It was found that the degree of precarity of employment, depending on the industry studied, was (in % of the number of employees): in industry (2018) — low — 66.5, average — 26.4, high — 7.1; in construction (2019), respectively — 39.0; 24.4; 36.6; in transport and communications (2019) — 59.6; 22.8; 17.5; in agriculture (2018) — 55.8; 28.8; 15.4; in education, science, culture and health care (2018) — 80.2; 15.3; 4.5; in trade, services (2018) — 47.6; 28.6; 23.7. According to the obtained estimates, in Russia as a whole, 45–50% of the economically active population was involved in precarious employment in 2018, and the distribution by degree of precarity in Russia as a whole in 2018–2019, including the above-mentioned sectors of the economy, was as follows: with a low degree — 62.2%, with an average degree — 22.6%, and with a high degree — 15.3%.

The sociological surveys conducted by the authors of the monograph made it possible

[17] The Precarity Penalty. The impact of employment precarity on individuals, households and communities — and what to do about it. PEPSO. 2015. URL: https://pepso.ca/documents/precarity-penalty.pdf (accessed on11.08.2023).

to identify such characteristics of precarious employment, which had not been previously recorded by Russian scholars, and to expand its largely previously unexplored characteristics. For example, "the inability to influence decisions in one's own production organisation" or the impact of the transport component of (non-) accessibility of employment on the disruption of the "work-family" balance, etc.

A number of methodological techniques described in the monograph and the calculations of precarious employment based on them coincide with those presented in our paper. This refers to the definition of a set of indicators to characterise precarious employment, the identification of the "degree of precariousness of employment", which echoes the concept of "concentration of precarious employment indicators" introduced by us and allows differentiated assessment of its level depending on the nature of the tasks to be solved, etc.

At the same time, it should be noted that, unlike our study, the authors of the monograph were guided only by the traditional concept of the labour force (moreover, they did not include the unemployed in the precarious employment), which limited the possibilities of precarious employment characteristics. The monograph does not provide a justification for the choice of precarious employment indicators rather than others. Unlike its authors, we are not in favour of considering both objective and subjective indicators of precarious employment when **simultaneously** assessing the scale of precarious employment.

We believe that it is reasonable to **base** the characterisation and evaluation of this phenomenon on objective indicators. It would be correct to consider subjective characteristics of precarious employment and corresponding indicators separately, in addition to objective ones. The contradictory relationship between these two groups of indicators, when considered simultaneously, may lead to a distortion of the characteristics and scope of precarious employment. This is why our work is limited to identifying and analysing objective indicators of precarious employment. Subjective independent indicators have also been identified and verified: (14) Dissatisfaction with wages; (15) Dissatisfaction with working conditions; (16) Workers' concern about job loss [34]. Their relationship with objective indicators and their impact on the scale of precarious employment have not been considered by us and will be studied in the future. Due to different concepts of the labour force, different ways of classifying employment and different composition of precarious employment indicators, the characteristics and extent of precarious employment differ in the compared studies.

Let us note the analysis of sustainable employment and precarious employment carried out in the Vologda Scientific Centre of the Russian Academy of Sciences (VolSC RAS). Its results show that the scale of precarious employment among employees when assessed on the basis of the presence of one or more objective characteristics (informal nature of labour relations at the initiative of the employer,[18] lack of basic social guarantees,[19] low wages[20]) can reach 39% [35]. Here, as well as in the already commented studies, there is a number of general and specific methodological techniques for identifying precarious employment. In order to compare these results with others, it is necessary to bring them to a single methodological construct of the characteristics of sustainable and precarious employment.

CONCLUSIONS

We have analysed the characteristics of sustainable and precarious employment in the expanded and traditional concepts of the labour force. The extent of precarious employment is determined in accordance with the classification of modern employment and using its verified objective indicators for different components of the labour

[18] The employer refuses to conclude a labour contract.

[19] The following social guarantees are not provided at the main place of work: compulsory social insurance, paid regular leave, payment for temporary incapacity for work.

[20] Wages below the minimum wage rate.

force and employment sectors, as well as for the Russian Federation as a whole.

These variable estimates of sustainable employment and precarious employment will allow researchers and practitioners to use the indicators they need, depending on the chosen concept of the labour force, employment sectors, the number and composition of objective indicators describing the concentration of precarious employment, as well as sectoral and regional characteristics of the objects under study. **Therefore, the hypothesis of the study, which is that the objective characteristics of sustainable and precarious employment and their extent depend on the applied concept of labour force, ways of employment classification, as well as on indicators (parameters, indices), was confirmed.**

It was found that the analysed foreign and Russian studies have a number of common methodological elements. At the same time, it was found that there are significant differences in the characteristics and estimates of the scale of sustainable and precarious employment.

These differences are due to:

- different conceptions of the labour force that guide researchers of contemporary employment;
- studying of (non) involvement of workers in precarious employment without prior classification of modern employment and taking into account its peculiarities in different components of the labour force and employment sectors;
- different composition and number of precarious employment indicators without their selection and testing for independence;
- confusion of objective and subjective indicators of precarious employment, as well as ways of identifying and quantifying its objective and subjective characteristics and interpreting the obtained results.

This implies that researchers need to develop consensus methodological approaches to the study of sustainable and precarious employment based on the ILO concept, taking into account country, sectoral and regional specificities. We hope that the results we have presented will contribute to the further study of contemporary employment and can also be used by public authorities to regulate it.

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