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Integrative Model of Socio-Economic Development of Human Potential: Adaptation to the Challenges of Modern Russia

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Abstract. The relevance of the research is related to the need to rethink approaches to human development in Russia in the context of global technological transformations, geopolitical instability and sanctions pressure. Despite the formally high rates of education and scientific activity, their real contribution to economic growth remains limited, which requires designing a comprehensive model of human development. The aim of the work is to review scientific publications and develop our own model of socio-economic development of Russia's human potential. Scientific novelty lies in the development of a comprehensive model of socio-economic development of human potential, integrating modern technological, economic and social aspects, taking into account Russian institutional environment specifics. Unlike the works of other researchers who also applied a systems approach, our study suggests adaptation to the conditions of the sixth technological paradigm, a hybrid development model combining government regulation of key industries with market mechanisms in the innovation sphere, as well as public control over the allocation of resources. The methodology is based on political economic and institutional approaches, which allows taking into account macroeconomic processes and the specifics of the Russian institutional environment. As a result, we reveal the following problems: technological lag, professional and qualification imbalance, poor quality of education, insufficient funding for science, high social and regional inequality. Based on the identified issues and threats, we design a human potential development model, including social and institutional spheres, as well as education, healthcare, and the labor market. The limitations of the study

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are related to the need for further elaboration on specific mechanisms for the implementation of the proposed model, including a system of indicators and economic policy measures. The research prospects include an in-depth analysis of regional specifics, as well as the adaptation of international experience to Russian conditions. Practical significance of the work lies in the possibility of using its findings to shape public policy in the field of education, science and social development.

Key words: human potential, economic growth, education, science and innovation, labor productivity, economic policy, technological sovereignty, socio-economic development model.

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Introduction

Current challenges of the global economy, exacerbated by technological transformations and geopolitical volatility, have set for Russia the task of radically revising approaches to human development as a key factor in national competitiveness. The research is relevant due to the growing gap between formal indicators of human development (such as the level of education or the number of scientific publications) and their real contribution to economic growth. In conditions when the traditional raw material model has exhausted its possibilities, and sanctions pressure has increased the need for technological sovereignty, the creation of an effective model of human potential reproduction is becoming not just an academic task, but an imperative of national security.

An analysis of existing studies shows that the requirements for human potential are currently being transformed due to the transition to the knowledge economy. There is a growing complexity in the structure of human potential, a change in its qualitative characteristics and the development of new models of its reproduction. At the same time, systemic issues persist: technological multiparadigmatic nature of the economy, professional and qualification imbalance, outflow of highly skilled specialists and a number of demographic challenges (Soboleva, 2022).

The issue of designing an effective model of human potential development in the context of

modern external challenges, including geopolitical contradictions and sanctions pressure, is of particular relevance. The existing educational system requires transformation, it is necessary to shift the focus from narrow professional training to personal development, ensuring accessible lifelong learning, democratizing management and overcoming bureaucratization (Yakovleva, 2022). Other researchers have also noted this (Rimashevskaya, Dobrokhleb, 2017): the Russian educational system suffers from commercialization and bureaucratization, which reduces its effectiveness. This is consistent with the conclusions of N.G. Yakovleva about the need to move to a socially oriented model.

The aim of the study is to review scientific publications and develop our initial model of socio-economic development of Russia's human potential, adapted to the challenges of the sixth technological paradigm, institutional constraints and current global trends. Unlike existing works that focus on specific aspects: education, demography, or the labor market, this study offers a systems approach that integrates technological, economic, and social factors into a single theoretical and methodological framework. The presented work is the first of the planned publications and it focuses on the theoretical basis (in subsequent publications we intend to develop a system of target indicators and specific economic policy measures).

The scientific novelty of the study lies in designing a comprehensive model of socio-economic development of human potential, which combines such aspects as education, healthcare, labor market, institutions and the social sphere into a single system of measures. Unlike the works of N.M. Rimashevskaya and other researchers who also applied a systems approach, this study suggests adaptation to the conditions of the sixth technological paradigm, including digitalization and sanctions challenges, which had not previously been considered in the context of Russian reality, as well as a hybrid development model combining government regulation of key industries (education, healthcare) with market mechanisms in the innovation sphere and public control over the allocation of resources.

The practical significance of the research lies in the possibility of using this model for formulating government policy in the field of human development, regional development programs, and educational programs.

The issues under consideration are elaborated fragmentarily and in specific areas: each author, as a rule, analyzes some particular side of human potential, and there are very few comprehensive studies. Moreover, the same is relevant to international and Russian annual human development reports, since they are limited to the indicators that were chosen to reflect the state of human potential

and hardly consider Russia-specific systemic factors that directly or indirectly slow down or hinder development. There are several key areas in the scientific literature.

1. Human potential as a driver of technological and economic development. A group of researchers, including S. Glazyev (Glazyev, 2020; Glazyev, 2022), N. Rimashevskaya and V. Dobrokhleb (Rimashevskaya, Dobrokhleb, 2017), as well as N. Yakovleva (Yakovleva, 2022), considers human potential as a central element of the national economy, especially in the context of the transition to the sixth technological paradigm. Their studies highlight the need for a shift to lifelong learning, the development of creative abilities, and the integration of the “human capital”¹ assessment system into strategic planning.

N.G. Yakovleva (Yakovleva, 2022) deepens the analysis by tracing the historical transformation of the educational system and its connection with changing technological paradigms. She criticizes the commercialization of education, which hinders the development of creative potential, and suggests a transition from a market-oriented to a socially oriented model. However, these studies lack specific mechanisms for implementing the proposed models in the Russian context.

2. Issues of professional and qualification imbalance and practical solutions. I.V. Soboleva, T.V. Chubarova analyze structural issues of the

¹ We deliberately put the term “human capital” in quotation marks as an incorrect form and use it only in cases of reference to original works by other authors. In the Marxist school, the concepts of “human capital” and “human potential” differ in their essence, methodology, and ideology.

1. Human capital is a bourgeois economic category developed within the framework of neoclassical theory (G. Becker, T. Schultz, etc.). In this concept:

- 1) a person is considered as an economic resource, whose knowledge, skills and health increase his or her market value;
- 2) labor is reduced to investments (education, healthcare), which should make profit;
- 3) the concept ignores exploitation, alienating a person from his or her own abilities, turning them into assets.

2. Human potential is a Marxist and left-wing radical category that emphasizes the comprehensive development of personality beyond the logic of capital:

- 1) the emphasis is on free self-actualization, rather than on the market value of person's abilities;
- 2) human potential is realized through the elimination of exclusion, shorter working hours, access to education, culture, and creative work for all.

Thus, human capital is a tool of bourgeois ideology that justifies investing in an employee to increase profit. Human potential is a Marxist alternative that demands the freedom of labor and human development outside of market relationships.

For more evidence that the term “human capital” is incorrect, see (Buzgalin, Kolganov, 2024, pp. 496–511).

Russian labor market: professional and qualification imbalance, low level of retraining and digital skills (Soboleva, 2022; Soboleva, Chubarova, 2023). In addition, the situation in the labor market is considered in the context of current socio-economic challenges: low life expectancy, gender imbalance in mortality, preservation of the raw material economic model, deepening social inequality and reducing government funding for the social sector. The authors propose a comprehensive human development system, including the modernization of lifelong learning, focused on the needs of employers, increased funding for retraining programs, and support for socially vulnerable categories of workers.

T. Tumarov complements this analysis by noting the negative impact of the outflow of highly qualified specialists and suggesting measures to monitor the labor market and corporate training (Tumarov, 2023).

3. Government policy and institutional aspects.

E. Sleptsova and T. Ryndina draw the same conclusions as the previously mentioned authors, and also provide a number of targets for economic policy: creation of mechanisms to increase the effectiveness of “human capital” (government funding, educational loans, grants for gifted children, lower loan rates and other measures); provision of information to the public about the measures and results of the policies (Sleptsova, Ryndina, 2020). A.N. Pruzhinin suggests a more precise strategic approach, including the creation of an expert community under the government and increased investment in science and education, especially in the regions of Siberia and the Far East (Pruzhinin, 2020).

M.A. Akindinova (Akindinova, 2023), K.A. Ustinova, A.N. Gordievskaya (Ustinova, Gordievskaya, 2019) emphasize the need for cooperation between science, business and government to achieve technological sovereignty. Empirically, it turns out that the formalization of labor relations and the

availability of corporate professional development systems significantly increase the quality of labor potential: for example, workers employed in state-owned enterprises or with indefinite term employment contracts demonstrate higher rates. This provides guidance for the institutional and legal aspects of human potential policy.

4. Regional aspects and development disparity.

N.M. Rimashevskaya and co-authors identify significant interregional dissimilarities in the level of human potential, linking them with different incomes and the state of social infrastructure (Rimashevskaya et al., 2013; Rimashevskaya, Dobrokhleb, 2017). T.V. Uskova and L.V. Babich propose an index method for assessing the effectiveness of the use of “human capital” in the regions, noting low patent activity and insufficient integration of science and production (Uskova, Babich, 2021).

5. International context.

Foreign studies mathematically confirm the key role of investments in education, digital skills, and public health for economic growth (Kousar et al., 2023; Brodny, Tutak, 2024). Indrawati and Kuncoro emphasize the importance of integrating formal and informal learning, as well as cooperation between government, business and academic institutions (Indrawati, Kuncoro, 2021), which can be adapted for Russia.

The analysis of scientific developments allows us to identify several aspects of human potential development in Russia: technological (discrepancy between skills and the requirements of digital economy); demographic (population aging, outflow of qualified employees); institutional (insufficient funding for science and education); regional (development disparity).

In general, though most authors agree on the need to move from a market-oriented to a socially oriented model of human development, there are a number of notable lacunae in research on Russia that require scientific study.

First of all, there is no comprehensive model that would integrate economic, social and technological factors into a single system in the context of current trends. Most of the works are limited to analyzing individual aspects, without offering a holistic approach that takes into account changes in the interaction between human potential growth and economic development, and also without considering various scenarios.

The development of practical mechanisms for implementing the proposed measures is particularly poor. Although researchers such as I. Soboleva and S. Glazyev criticize the current situation, they do not provide specific solutions to key issues: how to fund lifelong learning under budget limitations, what incentives will help business to retrain employees, how to overcome institutional inertia and bureaucratic constraints. At the same time, new forms of employment and modern educational trends are practically ignored – the impact of the gig economy and freelance on human potential, the role of digital platforms in replacing traditional education, the transformation of professional skills under the influence of artificial intelligence, precarious employment and new forms of exploitation.

Methods

This work is based on a political-economic approach that allows us to analyze human potential as a key factor in socio-economic development, taking into account its relationship with technological paradigms, the institutional environment and global economic processes. This choice is conditioned by the need for a comprehensive consideration of the issue, including not only economic, but also social, demographic and technological aspects. The political-economic view focuses on the role of government, the disparity of resources distribution and social justice, which is especially important for Russia, where human potential is formed in a multiparadigm economy

with significant regional inequality. In some cases, a synthesis of a political-economic approach and an institutional analysis is used: this choice of methodology is due to the need to take into account the specifics of the Russian economy, where formal institutions (laws, government programs) often conflict with informal practices (corruption, informal employment schemes, etc.).

Special attention is paid to the processes of technological development and social change. Unlike Western studies, where “human capital” is often viewed as an individual asset (which is why we put the term “human capital” in quotation marks and consider it as an incorrect form of the concept of human potential), we emphasize its collective nature.

The theoretical framework includes scientific articles on various aspects of human “capital” and potential in Russia. The main focus is on the following areas: human potential development in the context of technological paradigms, the role of education in human potential development, professional and qualification imbalance, challenges to human potential reproduction, socially oriented education models, the quality of human potential, current trends and government policy for human development, and the basic income paradigm. The analysis uses statistical data from these papers, as well as additional sources such as reports from the Federal State Statistics Service, HSE University, and the World Bank.

The choice of indicative areas for the development of a future model of thresholds for economic policy (*Tab. 1*) is conceptually based on a holistic approach that combines key determinants of human potential: direct factors (education, health, employment) measure the current state of human capital; contextual factors (social sphere, institutions) create the environment for its development.

Table 1. Basic model indicators

Element	Indicator	Source
Education	<ul style="list-style-type: none"> • PISA findings • Education spending-to-GDP ratio • Access to higher education 	Rosstat, OECD, PISA
Healthcare	<ul style="list-style-type: none"> • Life expectancy • Preventable mortality • Health spending 	WHO, Rosstat, HSE University
Labor market	<ul style="list-style-type: none"> • Unemployment rate • Output per worker • Informal employment rate 	ILO, Rosstat, HSE University
Social sphere	<ul style="list-style-type: none"> • Level of poverty • Gini index • Social spending 	World Bank, Rosstat
Institutions	<ul style="list-style-type: none"> • Rule of law index • Level of corruption • Trust in institutions 	WJP, VCIOM, Transparency International
Source: own compilation.		

The theoretical basis is the UN Model (HDI), expanded by adding institutions and using accumulated developments by Russian and foreign researchers listed in the literature review.

The empirical study of various socio-economic indicators of Russia became the basis for the selection of specific elements of the model. Those with unsatisfactory (in our opinion) values which helped to determine particular areas of human development are the following.

Human potential as the basis of the labor market and technological development

The modern Russian economy is characterized by its multiparadigmatic nature, and elements of the fourth, fifth, and sixth technological paradigms coexist in it. At the same time, formally proclaiming the transition to the sixth technological paradigm, the economy remains dependent on the raw material model. According to Rosstat data for 2023², the high-tech exports' share of the total volume is only 2.3%, while in South Korea this parameter reaches 30%. In addition to this, investments in R&D do not exceed 1.1% of GDP, which is three times lower than the average for OECD countries.

² Statistical data on high-tech exports and investments in R&D for 2023. Federal State Statistics Service. Available at: <https://rosstat.gov.ru> (accessed: May 02, 2025).

It should also be noted that even with a high level of education, the efficiency of using “human capital” in Russia does not exceed 50%, which indicates structural issues in the integration of knowledge and skills into the real sector of the economy (Uskova, Babich, 2021).

In addition, the Russian labor market is facing professional and qualification imbalance. More than half of the economically active population do not work within their specialty (more than 70% of employees in some regions of Russia) (Leonidova, 2020), and the figure is even higher among workers in older age groups (Soboleva, 2022). This is due to low incomes, imperfection of the retraining system and the lack of motivation among employers to invest in employee development. For example, in 2022, only 40% of workers who changed their profession completed appropriate retraining courses (Soboleva, 2022). At the same time, as shown by the Vologda Region data, the availability of corporate retraining and advanced training systems leads to a 2.28-fold increase in the quality of labor potential (Ustinova, Gordievskaya, 2019). This situation causes a devaluation of “human capital” and a decrease in output per worker, which is 50% lower in Russia than in OECD countries (Glazyev et al., 2020).

However, labor market imbalance is caused not only by the factors listed above, but also by the discrepancy between the enrollment numbers of universities and the demand for these specialties in economics. For example, boosted economic and legal enrollment leads to a shortage of engineers (Yakovleva, 2022).

All this creates an institutional trap: the educational system continues to train specialists for outdated or unpopular industries, while business is not interested in retraining employees. According to calculations based on HeadHunter data, only 18% of vacancies in high-tech sectors actually require new competencies, such as the ability to work with artificial intelligence or big data. The remaining 82% of offers duplicate the five-year-old requirements.

The “human capital” assets of innovative organizations are a key factor in achieving technological sovereignty. Despite significant funding for innovation activities in Russia, qualitative changes in this area remain limited due to the science sector reduction and insufficient involvement of business in the development of innovations (Akindinova, 2023). This substantiates the need to reform the education and science systems in order to overcome technological dependence.

It turns out that technological development is hindered in several ways at once: the insufficient business interest in improving the skills and competencies of employees to progress (the lack of motivation for innovative development in business deserves a separate analysis); the insufficient government involvement in adapting the educational system to modern economic development goals.

Education, science, income – the triad of human potential

The Russian educational system is facing a fundamental contradiction. On the one hand, according to formal indicators (42% of the population have a college degree), Russia looks prosperous. On the other hand, for example,

according to PISA (Programme for International Student Assessment – a study of 15-year-old students)³, the level of reading literacy and mathematical competences of the adult population of Russia is below the OECD average. The situation with digital literacy, according to our analysis of Rosstat data⁴ and HSE University research⁵, also does not allow moving to the sixth paradigm:

- only 37% of Russians can confidently work with office applications;
- only 12% have basic skills in programming;
- 43% experience difficulties when using government digital services.

Moreover, education spending in Russia amounts to 3.5% of GDP compared to 5–6% in developed countries. The main sources of funding for innovation activities in Russia are budgetary and institutional funds, while the venture capital funding system is poorly developed (Akindinova, 2023). This creates a vicious circle: low funding contributes to the continuation of educational process formalization, which generates and exacerbates the discrepancy between graduates’ competencies and market requirements, which leads to the maintenance of low output characteristic of Russia for many years, limiting opportunities for increased funding.

Nevertheless, there have been some positive trends in recent years. The percentage of students qualified for free tuition in 2022–2023 increased compared to 2010–2011, although it was still a bit less than 50%⁶. Also, the number of graduates increased by 0.4% in 2023, mainly in

³ PISA 2018 results (Volume I): What students know and can do. OECD iLibrary. Available at: https://www.oecd-ilibrary.org/education/pisa-2018-results-volume-i_5f07c754-en (accessed: May 02, 2025).

⁴ Digital economy: The official Rosstat website. Available at: <https://rosstat.gov.ru/folder/12787> (accessed: May 02, 2025).

⁵ Digital literacy of the Russian population: Findings. HSE University. Moscow: HSE University. 2024.

⁶ Digital economy indicators: 2023: Statistical book. Ministry of Science and Higher Education of the Russian Federation. Moscow: HSE University. 2023.

mathematics, natural science (by 5.6%), healthcare and medicine (by 5.4%).

In addition, after a period of stagnation, the number of postgraduates increased by 22% in 2022 compared to the previous year⁷. However, the system of continuing professional education remains insufficiently developed to ensure the necessary level of staff retraining.

At the same time, considering the issue of workforce reproduction within the household, it would be adequate to mention the well-known problems of low median income and high inequality. In 2020, the 10% of the richest citizens accounted for 29.9% of the total population income, while the 10% of the poorest accounted for only 2.1%⁸. According to other sources⁹, in 2023, the top 10% had 50.8% of pre-tax national income¹⁰. More than half of Russians had a monthly income below 27 thousand rubles, 5.9% were paid less than 10 thousand rubles, and 3.9% – less than 7 thousand rubles. The average per capita income was about 14 thousand rubles.

The third pillar of human potential, in our opinion, is science. The motivation of the state in this matter can be measured with several indicators of funding for the industry. The analysis revealed that domestic research and development spending in Russia remains stable at about 1% of GDP, while in technologically advanced countries this figure is 3–3.5%¹¹. Moreover, there is a tendency in Russia to reduce actual spending on scientific research, taking into account inflation.

⁷ Digital economy indicators: 2023: Statistical book. Ministry of Science and Higher Education of the Russian Federation. Moscow: HSE University. 2023.

⁸ Labor and employment in Russia. 2023: Statistical book. Rosstat. Moscow. 2023.

⁹ World Inequality Database (WID) official website. World Inequality Lab. Available at: <https://wid.world/> (accessed: February 05, 2025).

¹⁰ Pre-tax national income is the sum of all pre-tax personal income flows of owners of production factors, labor and capital before income taxes and public cash transfers but after social security contributions.

¹¹ Digital economy indicators: 2023: Statistical book. Ministry of Science and Higher Education of the Russian Federation. Moscow: HSE University. 2023.

The Russian system of education and science is facing a deep structural crisis, despite some positive changes. Insufficient funding, education formalization and little attention to the real needs of the economy lead to a shortage of qualified employees and a decrease in output. The situation is aggravated by high social inequality, which limits access to quality education and professional development for some of the population. Without a significant increase in investments in education, science and a reduction in the income gap, the lag in human development will persist, which in the long term will restrain growth and competitiveness of the Russian economy.

“Additional” challenges of human development: demography, regions

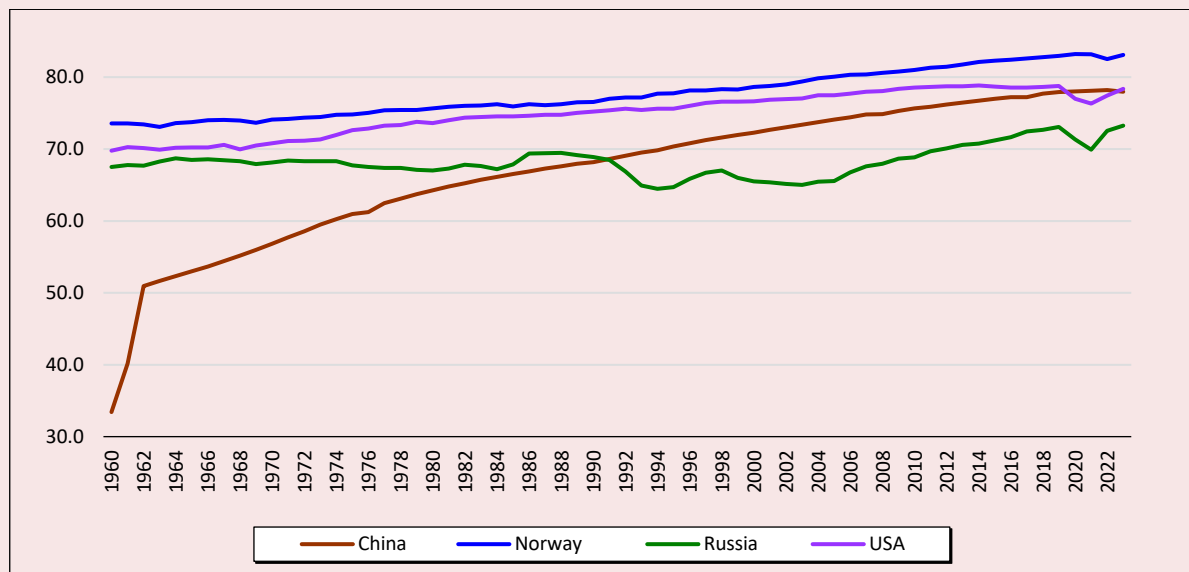
The demographic situation is of serious concern. According to Rosstat¹², life expectancy in Russia is 73.3 years, which is significantly lower than in developed countries (*Fig. 1*). Also, there is a gender imbalance in mortality and high morbidity.

In addition to low life expectancy, the proportion of the working-age population is decreasing. For example, in 2022, life expectancy in some regions, such as the Pskov and Kurgan regions, did not exceed 67 years, which is 10 years lower than the OECD average (Glazyev et al., 2022). This brings us to another Russian long-standing issue – regional inequality.

For example, in Moscow and Saint Petersburg, the income differentiation coefficient (R/P 10% ratio) reaches 15.9 and 14.8, respectively, while in the Murmansk Region it is 9.4 (Glazyev et al., 2022). The unemployment rate in depressed regions, such as the Ingushetia and Tyva republics, exceeds 30%, and in the Kurgan Region it is approaching 20% (Glazyev et al., 2022). This situation leads to an outflow of qualified workers to the under-staffed central regions, which increases the imbalance even more.

¹² Russian statistical yearbook 2023: Statistical book. Rosstat. Moscow, 2023.

Figure 1. Life expectancy at birth



Source: World Bank. Life expectancy at birth, total (years). World Bank Open Data. Available at: <https://data.worldbank.org/indicator/SP.DYN.LE00.IN> (accessed: May 02, 2025).

It is not just about the risks of the labor market, but also about threats to human potential in the general sense of the word. We have identified¹³ an increasing gap between the regions:

- in 2010, the difference in per capita GRP between the richest (Yamal-Nenets Autonomous Area) and the poorest (Republic of Tyva) regions was 12-fold, in 2023 it reached 18-fold;
- 73% of high-tech jobs, 68% of R&D investments, 85% of venture capital funding are concentrated in 15 “donor” regions;
- in the remaining 70 regions, the share of employees in traditional sectors exceeds 80%, the average age of equipment is 22 years (compared to 8 years in the “donor” regions), the outflow of young specialists reaches 30% of college graduates;

¹³ Regions of Russia. Socio-economic indicators: Yearbook. Moscow: Rosstat, 2024. Available at: <https://rosstat.gov.ru/folder/210/document/13204>; Indicators of innovation activity: Yearbook. Moscow: HSE University, Rosstat, 2024; Monitoring of the socio-economic development of the constituent entities of the Russian Federation. Moscow: Ministry of Economic Development, 2023; Monitoring of the employment of university graduates. Moscow: HSE University, 2023.

– in Russia, there is a shift of “human capital” from the scientific sector to more applied areas such as education and entrepreneurship, which exacerbates regional inequality (Akudinova, 2023).

We can also add the negative impact of unstable labor relations (unpaid vacations, wage delays, etc.) on the social well-being of employees and the quality of working life (Leonidova, 2020). Such conditions limit opportunities for professional growth and self-actualization, especially in depressed regions. It is worth noting that the formalization of labor relations (indefinite and fixed term employment contracts) increases the chances of employees to have “human capital” above the average by 1.36-fold, using the example of the Vologda Region (Ustinova, Gordievskaya, 2019).

Thus, a cursory analysis shows that human potential development in Russia is facing systemic challenges: technological lag, labor market imbalance, low education quality, insufficient funding for science, high social inequality and increasing regional differentiation. These factors

are interrelated and create a background for low output and little innovation activity, which hinders long-term economic growth. Further in the paper, we will propose a socio-economic model of human development aimed at overcoming these issues through a set of measures in the field of education, science, labor market and regional policy.

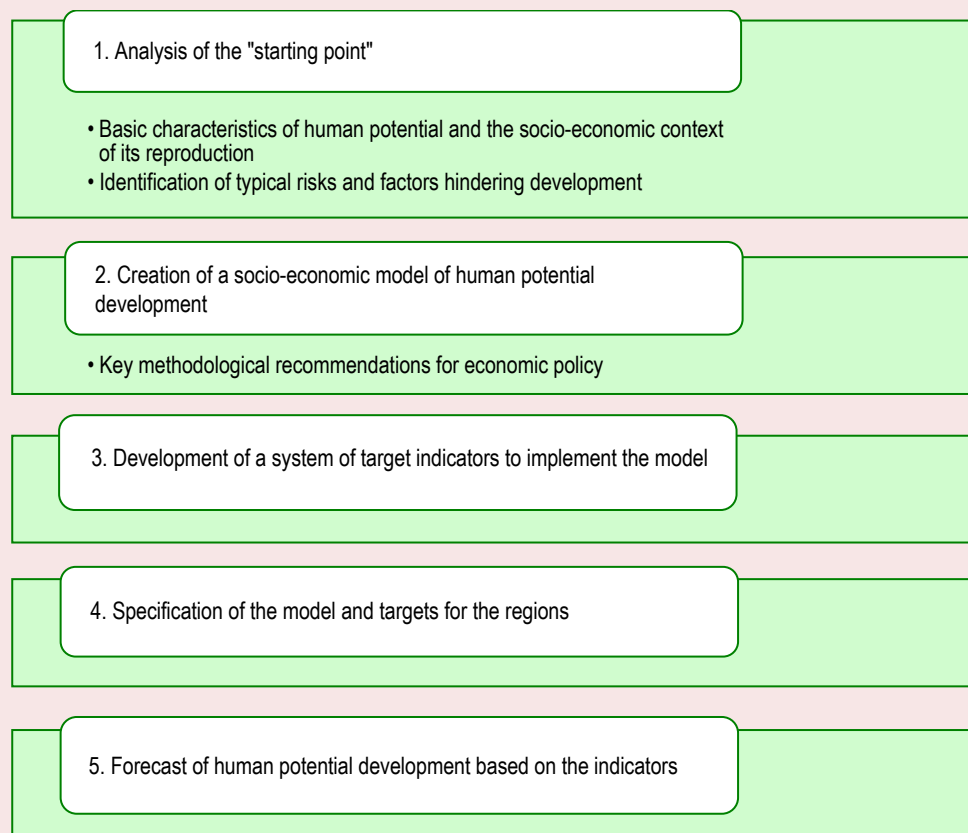
Socio-economic model of human potential development

Human potential development in Russia should be based on an integrated approach that takes into account both macroeconomic and some microeconomic aspects. First of all, it is necessary to create a macroeconomic management system, where people remain the main element, and education becomes a key branch of the economy and acquires

a new quality. In our vision, such a system can be developed in five stages (*Fig. 2*). The first and second are the subject of this work, the third and fifth will be the aim of the second publication on the topic. The regional aspect (the fourth stage) is beyond the scope of our analysis, but it will be sometimes indirectly discussed. In this and subsequent articles, there will be enough basic information to continue this research by our colleagues from the regions. We now proceed to the basic requirements for the human development model.

To sum up the findings previously presented in the paper, we can identify the basic elements of human development (in the socio-economic area) and classify the key challenges and threats within these elements (*Tab. 2*).

Figure 2. Plan for the development of a socio-economic model of systemic human potential development



Source: own compilation.

Table 2. Elements of the human development system with current values

Element	Value based on the previously analyzed data	Current issues, challenges and threats
Education	Education is a basic element of the model, as it develops the cognitive and professional competencies necessary to adapt to the sixth technological paradigm. Its quality directly affects output and innovation activity. The crisis of education related to commercialization and formalization requires a transition to a socially oriented model (Yakovleva, 2022; Glazyev, 2023)	<ul style="list-style-type: none"> • Education quality: despite the formally high level of education (42% of the population have a college degree), real skills are below the OECD average • Digital literacy: only 12% of Russians have basic programming skills, 43% have difficulties with digital services • Inconsistency with the labor market: boosted economic and legal enrollment and a shortage of engineers and technical personnel • Underfunding: education spending – 3.5% of GDP versus 5–6% in developed countries • Commercialization and bureaucratization: reduced accessibility and efficiency due to the formalization of processes
Healthcare	Public health is a key factor in human potential stability. Low life expectancy and regional disparities reduce the economic return on investments in education and science	<ul style="list-style-type: none"> • Low life expectancy: 73.3 years (67 years in Pskov and Kurgan regions), which is 10 years lower than the OECD average • Gender imbalance in mortality • Regional inequality • Underfunding
Labor market	Professional and qualification imbalance and low staff mobility reduce the efficiency of using human potential. The requirements include a competence monitoring system and tax incentives for employers investing in retraining (Soboleva, 2022)	<ul style="list-style-type: none"> • Low output per worker: 50% of the OECD average • Professional and qualification imbalance: in some regions 70% of employees do not work within their specialty • Lack of retraining: only 40% of those who changed their profession had completed retraining courses • Brain drain • Inconsistency with the digital economy requirements: 82% of vacancies in high-tech sectors require outdated competencies
Social sphere	High inequality limits access to education and healthcare. Progressive taxation and programs to support vulnerable groups can narrow the gap and increase social stability (Rimashevskaya, 2017)	<ul style="list-style-type: none"> • High inequality: top 10% account for 50.8% of the national income • Poverty: 50% of Russians have incomes below 27 thousand rubles per month, 5.9% have incomes below 10 thousand rubles • Regional gap: the difference in per capita GRP between rich and poor regions increased from 12 to 18-fold (2010–2023) • Waning trust in institutions • Cultural gap: insufficient consideration of cultural and moral values in politics
Institutional environment	Corruption and insufficient integration of science with business hinder innovation. Public management digitalization and creation of technology clusters can be a solution (Akindinova, 2023)	<ul style="list-style-type: none"> • Poor integration of science with business: low patent activity, poor business participation in funding for science • Insufficient government funding for science: 1% of GDP versus 3–3.5% in developed countries • Inefficient government programs: implementation of Western models without adaptation • Corruption and informal employment: contradiction between formal and informal practices • Regional policy: lack of mechanisms for reducing disparities
Source: own compilation.		

The proposed model includes five interrelated elements: education, healthcare, labor market, social sphere and institutional environment. Each of these components is crucial in generating human capital, and their integrated development can ensure the long-term progress of Russian society. Education is fundamental for the creation of a skilled workforce and innovative potential. According to a study by E. Hanushek and L. Woessmann, an increase in the education quality by one standard deviation correlates with a 2% annual increase in GDP in the long term (Hanushek, Woessmann, 2020). However, the current state of Russian education is of concern, and the situation with the human development index is controversial: Russia remains its position in the top group of countries, but after 2019 there has been a deterioration, and Russia has not yet returned to its previous maximum¹⁴.

Healthcare directly affects output and life expectancy, and these indicators are among the weaknesses of the Russian economy. In addition, WHO data (2023) show that an increase in life expectancy correlates with GDP growth.

The labor market determines employment opportunities and income levels. Although official unemployment rate in Russia is low (according to various estimates, it is around 3.5%), about 18% of workers are employed in the informal sector – 18.3% in 2023 (Kiselev et al., 2024), which poses risks to their social security. Output per worker remains significantly lower than in developed countries (27.5 dollars per hour versus 77 dollars per hour in the USA¹⁵), which indicates the need to modernize educational and retraining systems.

¹⁴ Human Development Index (HDI). Available at: <https://hdr.undp.org/data-center/human-development-index#/indicies/HDI> (accessed: July 04, 2025).

¹⁵ SDG indicator 8.2.1 – Annual growth rate of output per worker (GDP constant 2021 international \$ at PPP) (%). ILOSTAT. Available at: https://rplumber.ilo.org/dataexplorer/?lang=en&segment=indicator&id=SDG_0821_NOC_RT_A (accessed: July 04, 2025).

The social sphere is essential in reducing inequality and maintaining the quality of life. The Gini index in Russia (0.408 in 2024¹⁶) indicates a persistently high level of social stratification. At the same time, social spending (13.5% of GDP) is noticeably lower than in the EU (20%+)¹⁷.

The institutional environment creates conditions for economic activity and social development. According to the 2024 WJP Rule of Law Index¹⁸, Russia ranks only 113th among 142 countries, while it ranks 137th in terms of the Corruption Perceptions Index¹⁹. The level of trust in government institutions, according to VCIOM surveys (2025)²⁰, does not exceed 49%, which is lower than the Europe average (60%+).

So, the proposed model covers all the key aspects that determine the quality of human potential in Russia. Its implementation requires coordinated measures to modernize education and healthcare, reform the labor market, increase social support and improve institutional conditions. The successful solution of these tasks will ensure the sustainable development of human potential as the basis for the long-term economic progress of Russia.

The next stage after the theoretical and methodological analysis is the development of indicators for each of the identified elements of the develop-

¹⁶ The Gini index (income concentration index) in Russia and its constituent entities. Federal State Statistics Service (Rosstat). Available at: https://rosstat.gov.ru/storage/mediabank/Nb_Rd_1-2-5.xlsx (accessed: July 04, 2025).

¹⁷ World Development Indicators. World Bank. Available at: <https://databank.worldbank.org/source/world-development-indicators> (accessed: July 04, 2025).

¹⁸ WJP Rule of Law Index. World Justice Project. Available at: <https://worldjusticeproject.org/rule-of-law-index/global/2024/Russian%20Federation/> (accessed: July 04, 2025).

¹⁹ Corruption Perceptions Index. Transparency International. Available at: <https://www.transparency.org/en/cpi/2024> (accessed: 04.07.2025).

²⁰ Government institutions activity. VCIOM. Available at: <https://wciom.ru/ratings/dejatelnost-gosudarstvennykh-institutov/page> (accessed: July 04, 2025).

ment model. The main principle for methodological and applied stages of the model creation is the integration of the following components:

1) government regulation of key industries (education, healthcare, basic science), considering the positive historical experience of the Russian economy in the 20th century, as well as the modern experience of Scandinavian economies;

2) market mechanisms in the field of innovations and applied research (with areas of these innovations prescribed by the government and with its financial assistance);

3) public control over the allocation of resources.

Conclusion

The conducted research provides a comprehensive analysis of the key issues of human development in Russia and offers a socio-economic model for overcoming them. In the context of global technological transformations, geopolitical volatility and the exhausted traditional raw material model of the economy, the relevance of such developments is increasing. The study highlights systemic challenges, including technological lag, professional and qualification imbalance, poor quality of education, demographic risks and regional inequality, which are interrelated and create a trap of low output and limited innovation activity.

The scientific novelty of the research lies in the development of a hybrid model that integrates economic, social and technological factors into a

single system adapted to the conditions of the sixth technological paradigm. Unlike existing studies that focus on individual aspects, this model offers a holistic approach that combines government regulation of key industries (education, healthcare) with market mechanisms in the innovation sphere and public control over the allocation of resources. This will allow overcoming the fragmentary nature of previous research and propose practical mechanisms that consider the specifics of the Russian economy.

The practical significance of the findings lies in the possibility of using the developed model for formulating government policy, creating regional development programs and educational initiatives. The model can serve as a basis for developing target indicators and specific measures aimed at improving the quality of human potential, which is crucial for ensuring long-term economic growth and national security.

We plan to work on a system of indicators to elaborate on the mechanisms of model implementation and to evaluate the effectiveness of the proposed model. This will allow us to move from theoretical analysis to practical recommendations that ensure the sustainable development of human potential in Russia. Thus, the completed work lays the foundation for further research and practical actions aimed at overcoming systemic challenges and creating a competitive knowledge economy.

References

- Akindinova M.A. (2023). The role of human capital assets of innovative organizations in strengthening Russia's technological sovereignty. *Sotsial'nye i ekonomicheskie sistemy*=Social and Economic Systems, 3–2(44), 238–266 (in Russian).
- Bobkov V.N. (2023). The basic income paradigm and its impact on human development opportunities. *Vestnik Instituta sotsiologii*=Bulletin of the Institute of Sociology, 14(4), 18–37. DOI: 10.19181/vis.2023.14.4 (in Russian).
- Brodny J., Tutak M. (2024). A multi-criteria measurement and assessment of human capital development in EU-27 countries: A 10-year perspective. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(4), 100394. DOI: <https://doi.org/10.1016/j.joitmc.2024.100394>

- Buzgalin A.V., Kolganov A.I. (2024). *Globa'nyi kapital [Global Capital]*. Volume 2.
- Glazyev S.Yu., Voronov A.S., Kudina M.V., Orlova L.N. (2022). Forecast of human capital development in the Russian Federation in the context of global economy changes. *Gosudarstvennoe upravlenie. Elektronnyi vestnik=Public Administration. E-journal (Russia)*, 91, 24–44. DOI: 10.24412/2070-1381-2022-91-24-44 (in Russian).
- Glazyev S.Yu., Voronov A.S., Leontieva L.S., Orlova L.N., Sukhareva M.A. (2020). On formation of human capital at different stages of socio-economic development. *Gosudarstvennoe upravlenie. Elektronnyi vestnik=Public Administration. E-journal (Russia)*, 82, 140–170. DOI: 10.24411/2070-1381-2020-10096 (in Russian).
- Hanushek E.A., Woessmann L. (2020). *The Economic Impacts of Learning Losses*. DOI: <https://dx.doi.org/10.1787/21908d74-en>
- Indrawati S.M., Kuncoro A. (2021). Improving competitiveness through vocational and higher education: Indonesia's vision for human capital development in 2019–2024. *Bulletin of Indonesian Economic Studies*, 57(1), 29–59.
- Kiselev S. et al. (2024). Employment in informal sector of Russia: Unemployment and other socio-economic factors. *Population and Economics*, 8(3), 197–219. DOI: <https://doi.org/10.3897/popecon.8.e114046>
- Kousar S. et al. (2023). Is government spending in the education and health sector necessary for human capital development? *Humanities and Social Sciences Communications*, 10(1), 1–11. DOI: <https://doi.org/10.1057/s41599-023-01514-3>
- Leonidova G.V. (2020). Human development issues in the social and labor sphere of the Russian regions. *Mir ekonomiki i upravleniya=World of Economics and Management*, 20(3), 184–200. DOI: 10.25205/2542-0429-2020-20-3-184-200 (in Russian).
- Pruzhinin A.N. (2020). Features of the strategic development of human capital. *Sotsiologiya=Sociology*, 2, 306–313 (in Russian).
- Rimashevskaya N.M., Bochkareva V.K., Migranova L.A., Molchanova E.V., Toksanbaeva M.S. (2013). Human potential of Russian regions. *Narodonaselenie=Population*, 3(61), 82–141 (in Russian).
- Rimashevskaya N.M., Dobrokhleb V.G. (2017). Lifelong learning as the basis for sustainable development of the country. *Narodonaselenie=Population*, 2(76), 42–50 (in Russian).
- Sleptsova E.V., Ryndina T.I. (2020). State human capital development policy in Russia. *Ekonomika i biznes: teoriya i praktika=Journal of Economy and Business*, 3–1, 180–183 (in Russian).
- Soboleva I.V. (2022). Professional and qualification imbalance as a challenge to economic and social security. *Ekonomicheskaya bezopasnost'=Economic Security*, 5(3), 989–1008. DOI: 10.18334/ecsec. 5.3.114898 (in Russian).
- Soboleva I.V., Chubarova T.V. (2023). Challenges for human potential reproduction: Global trends and Russian specifics. *Vestnik Instituta ekonomiki Rossiiskoi akademii nauk=The Bulletin of the Institute of Economics of the Russian Academy of Sciences*, 5, 40–58. DOI: 10.52180/2073-6487_2023_5_40_58 (in Russian).
- Stepanova T.D. (2024). Trends in economic development of Russia after 2022: Industry, science, human potential. *Rossiiskii ekonomicheskii zhurnal=Russian Economic Journal*, 5, 32–45. DOI: 10.52210/0130-9757_2024_5_32 (in Russian).
- Tumarov T.F. (2023). Trends in the human capital, resources and potential development in Russia. *Human Progress*, 9(1). DOI: 10.34709/IM.191.15. Available at: http://progress-human.com/images/2023/Tom9_1/Tumarov.pdf (in Russian).
- Uskova T.V., Babich L.V. (2021). Effective use of human capital in the context of sustainable development of the region. *Regionologiya=Russian Journal of Regional Studies*, 29(4), 820–839. DOI: 10.15507/2413-1407.117.029.202104.820-839 (in Russian).
- Ustinova K.A., Gordievskaya A.N. (2019). The analysis of the influence of socio-demographic and institutional factors on human capital. *Ekonomika truda=Russian Journal of Labour Economics*, 6(4), 1505–1522. DOI: 10.18334/et.6.4.41312 (in Russian).

Yakovleva N.G. (2022). Education: The role in the formation of human potential, technological and socio-economic modernization of Russia. *Rossiiskii ekonomicheskii zhurnal*=*Russian Economic Journal*, 4, 30–47. DOI: 10.33983/0130-9757-2022-4-30-47 (in Russian).

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