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Human Capital and Its Development Institutions in the Context of Technological Transformation: Experience of Russia and EAEU Countries

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Abstract. Human capital has been established as one of the central concepts in the system of national development projects in Russia for 2019–2024. The updated national projects have maintained the high relevance of the human capital factor in achieving the goals of economic development in Russia for 2025–2030, but have focused on realizing the potential of each person, developing their talents, and achieving technological leadership. Despite the presence of many publications by Russian and foreign scientists on this topic, which mainly reflect the genesis of the term, its measurement and multilateral assessment, such aspects as changing the content of dominant factors in the context of technologization, digitalization of the knowledge economy in modern society, as well as issues of human capital development through the prism of institutional theory (according to a group of development institutions) are not sufficiently elaborated on. The aim of the study is to identify dominant elements in the context of the technologization of the economy in the matrix of factors affecting human capital, to identify and systematize the most sought-after economic development institutions, as well as to study best practices based on comparative rapid analysis using the example of Russia, Belarus, and Kazakhstan. Based on the analysis of modern conceptual approaches to understanding the essence of human capital in the context of the revealed paradigm shift from innovative economic development to technological development, it is concluded that while maintaining the importance of health capital, the knowledge and intellectual component of educational capital comes to the fore, with a predominance of the share of individual talent development (with creative thinking) and its increment by using development institutions at the macro and micro levels. A comparative express-analysis of the development institutions of the Russian Federation, the Republic of Belarus, and the Republic of Kazakhstan has shown that the first type of development institutions meet the needs of the countries' technological development. Among the best practices of the second type of development institutions, such as centers for importing creative behavioral models, personnel training systems with their localization in industry clusters, including competence centers, and corporate employee retraining programs tailored to the demands of the digital economy have been identified. The application of the identified best practices will accelerate the movement of countries toward achieving technological leadership.

Key words: growth economics, technologization of the economy, human capital, human capital formation factors, matrix of human capital formation and development, development institutions, competence centers.

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Introduction

The development of human capital is an unconditional priority of public policy in most countries of the world. National human capital (HC) is the capital that makes up the main share of the national wealth of both the country and its regions (Podberyozkin, Rodionov, 2021). In the modern world, when innovation plays an increasingly important role, and countries compete in the primacy of technology and strive to create conditions for the formation of highly qualified teams ready to offer new solutions aimed at economic growth, human capital simultaneously plays a key role in the generation of innovation, determining the market competitive advantage

of the country, and also implies a highstandard of living and quality of life. The actualization of human capital research issues is associated with the need for its adaptation to new conditions and requirements of the modern economy, as well as with the search for ways to effectively use human potential in the conditions of digital transformation.

The "human capital" direction (with such national projects as "Health Care", "Education", "Demography", "Culture") with implementation dates January 1, 2019 – December 31,2024 was fixed as the main one in the Presidential Decree "On national goals and strategic objectives of development of the Russian Federation until 2024[1]". The national projects approved by the Presidential Decree "On the national development goals of the Russian Federation for the period until 2030 and in the perspective until 2036[2]" retained the high importance of the human capital factor in achieving the development goals outlined in these documents, but increased its importance in the context of identifying new goals, among which technological leadership, the realization of the potential of each person, the development of their talents are dominant. In addition, we emphasize that the modern understanding and choice for the study of human capital and institutions of its development is important from the standpoint of economic and national security[3], especially in the context of ensuring technological sovereignty.

Development institutions play an important role in the process of designingt of elements of the national economic system, including human capital. On the one hand, the national governments of the world apply various tools for the growth of human capital, pay much attention to the institutional arrangement of the environment, but, on the other hand, scientists note the insufficient connection between government efforts and their results, which necessitates a more detailed consideration of this aspect.

The institutional approach has significantly expanded the scope of analysis of the phenomenon of human capital, focusing on the norms, rules and regulations that govern the behavior of people in the real world in a particular country and in a particular period of time (Bobrova et al., 2018). Using the example of the Russian Federation, scientists have proved the strong influence of the institutional environment on human capital (Gimpelson, 2016), including the impact of institutional reforms on the growth of indicators comprising human capital (Avdeeva, 2024). The first step in solving this problem is definitely a reliable assessment of the level of human capital development, but today there are many methodological approaches and calculations (Pavlova, 2010; Petukhov, 2017; Chernenko, 2024; Shulgin, Zinkina, 2021), including those approved at the level of the World Bank[4] and the United Nations Economic Commission for Europe[5], but there are not enough development mechanisms, especially through the prism of institutional theory.

It is impossible to consider all the human capital elements at once, so the aim of this paper is to identify the dominant elements in the matrix of factors

[1] On national goals and strategic objectives of development of the Russian Federation for the period until 2024: Presidential Decree 204, dated 07.05.2018 (ed. of 21.07.2020). Available at: http://www.kremlin.ru/acts/bank/43027 (accessed: 04.03.2025).

[2] On the national development goals of the Russian Federation for the period up to 2030 and in the perspective up to 2036: Presidential Decree 309, dated 07.05.2024. Available at: http://www.kremlin.ru/acts/news/73986 (accessed: 04.03.2025).

[3] Human capital development institutions as the main factor in forming a national strategy for effective security and development in the conditions of coalition confrontation. Director of the MGIMO Center for Human Capital Development, Vice-Rector of MGIMO (U) MFA of Russia for Scientific Work, Dr. Sci. Hist. Available at: http://www.pravo.mgimo.ru/?q=node/58657 (accessed: 01.02.2025).

[4] The Human Capital Index 2020 update: Human capital in the time of COVID-19. Washington, DC: World Bank, 2021. DOI: 10.1596/978-1-4648-1552-2. Available at: https://openknowledge.worldbank.org/entities/publication/93f8fbc6-4513-58e7-82ec-af4636380319 (accessed: June 16, 2024).

[5] Guide on measuring human capital. UN. ECE. New York; Geneva: UN, 2016. Available at: https://digitallibrary.un.org/record/3931023?v=pdf (accessed: June 23, 2024).

concerning formation and development of human capital in the conditions of technologicalization of the economy and to study the development institutions that influence them. The comparative analysis of human capital development institutions in such friendly countries, which are members of the same integration bloc and also belong to the group of countries with a high level of human capital development, as Russia, Belarus, and Kazakhstan, will make it possible to identify the best practices, and their subsequent replication will lead to accelerated achievement of national development goals.

Theoretical bases for studying human capital in the conditions of technologization of the national economy

Actualization of the essence of technologization of the economy

The modern period of development of the world countries is characterized by the change of technological mode (Glaz'ev, 2022). The economy, in which the main driving force of production was physical labor, is now turning into an intellectual-intensive one, when the country's wealth is created with the dominance of mental labor, and the role and importance of personnel is multiplied (Makarov, Ye Liu, 2023). Most countries have already made such a transition, and Russia needs to make it, moving from the fourth technological mode to the fifth and sixth. This can be done only on the basis of an active technologization policy, the content of which is defined as follows (Dzhukha, Mishchenko, 2019):

– the priority of technological policy in the development of the national economy;

– advanced development of the science and scientific research sector among the types of economic activities;

– inextricable link between the development of proprietary critical technologies and their commercialization;

– creation of own technologies (based on the involvement of all kinds of resources, primarily intellectual), rather than copying (buying) already existing ones;

– increased R&D expenditures (for developed countries this is more than 2.5% of GDP;

– the core of the new mode is formed by the latest intellectual industries, including genetic engineering, bioeconomics, artificial intelligence, space exploration, etc., the development of which requires special qualifications of people.

In a broad sense, the term "technologization" means the process of development and implementation of new technologies, with innovations not only in the production sphere, but also in the social sphere. Scientists understand technologization as "an objective process that ... penetrates simultaneously all levels of the economy from global markets to ... micro-level of the enterprise" (Dzhukha, Mishchenko, 2019, p. 39); as a process of 'technological changes that have the character of an irreversible process of qualitative transformations' (Pavlova, 2010). According to other scientists, the essence of technologicalization of the economy is more fully revealed through the concept of "ecosystem of technological development of the economy" (ETD). On the one hand, its essence is quite clearly defined by the Russian legislation as "a set of interrelated subjects of economic and scientific-educational activity, which interact on the basis of network principles, develop jointly or on a competitive basis ... innovative products and services significantly affecting the development of the economy ... forming new markets". innovative products and services, significantly affecting the development of the economy ..., forming new markets" [6]. But, on the other hand, N.A. Maslyuk and N.V. Medvedeva look more deeply into the essence of technologization and focus directly on the change of the paradigm of innovative development to the concept of technological development, on the transformation of the innovation ecosystem (a system of isolated existence of science and production spheres) to ETD –

[6] The Concept of Technological Development for the period up to 2030: Government Order 1315-r, dated May 20, 2023 (p.10). Available at: https://rospatent.gov.ru/content/uploadfiles/technological-2023.pdf (accessed: 02.02.2025).

"an integrated system of network interaction of science, technology and innovation" (Maslyuk, Medvedeva, 2023, p. 101).

The key objects of the emerging economic and technological system, among others, are new institutional and economic units of technological development, including small technology companies, technology transfer agents, technology holdings, etc. Who will manage these structures? Who will generate innovations, and not copy technologies, but create their own new technologies? This will be done by people with a high level of intelligence, knowledge, and professional skills. All this is concentrated in the concept of "human capital".

Modern concepts of human capital and dominant factors promoting its development

Studies of the economic role of man are known to be the basis of classical political economy, some authors among the founders name A. Smith and D. Ricardo. Smith and D. Ricardo, another part – Irwin Fisher (Makarov, Ye. Liu, 2023), scientists of the third group (Bobrova et al., 2018) associate the formation of the theory of human capital with the names of Theodore Shultz and Harry Becker, who received the Nobel Prize for their developments in this field in the first half of the 20th century (Shultz, 1961). At this time, the concept of human capital was widely developed "as a response of economic science to the new challenges facing post-industrial society, in which the role of human intellectual capabilities has grown enormously" (Bobrova et al., 2018). Among the works of Russian scientists, let us pay attention to the works of Academician Stanislav G. Strumilin (1877–1974) in connection with the development of the concept of economic value of a person, in the framework of which the productive abilities of an individual were considered as a result of investing in some capital capable of generating income, including the significance of investment in education (Strumilin, 1982).

In modern conditions, "non-Western" theories of economic development are gaining momentum, and the approach of Asian countries, which have recently made a rapid leap forward in the economic and technological development of the national economy, is particularly interesting. Among them, we would like to highlight the approach of Chinese scientists, whose concept of human capital has gained particular popularity in the context of studying the transformation of labor resources and their quality in the PRC economy. Its essence consists in the fact that human capital is considered as "a set of intellectual and physical qualities, knowledge, professional experience of the rural population, which determines the level of its economic welfare and social well-being" (Petrov et al., 2023, p. 152), while the listed qualities are subdivided into individual and collective, basic and developed. The feature of the approach is that human capital is considered not so much as a factor in increasing the competitiveness of employees in the labor market, but as a basis for building a "middle-income society", the so-called concept of human capital with Chinese specifics, i.e. the economic interpretation is supplemented by a socio-institutional one related to the goals of social development of the state.

At the current stage of economic development, the concept of human capital as an economic category continues expanding along with the development of the global information community and knowledge economy. Today, concepts that take into account the following characteristics of modern conditions are primarily important: the scientific and technological vector of the country's development, "global economic fragmentation (GEF), leading to the division of global economic activity into separate blocks or regions" (Chernenko et al., 2024); the socio-economic knowledge component, as well as a new philosophical understanding of the role of man in the modern world.

A separate area of research is the study of digitalization impact on human capital, they have identified certain features. For example, the German scientist M. Schneider (Schneider, 20217)

proposes an "interrelated concept of human and organizational capital", justifying it by the fact that investments only in information technology without investments in human capital do not lead to an increase in labor productivity at the workplace. At the same time, human capital, which he interprets as an intangible asset, is able to form a firm's competitive advantage only in conjunction with organizational capital, which means "a holistic work organization with teamwork, decentralized decision-making, and ample opportunities for career growth" (Schneider, 2017). Scientists from Slovakia E. Ivanová, V. Žárská, and J. Masárová (Ivanova et al., 2021) argue that the speed of innovation development in the conditions of digital transformation of the economy depends on the conditions for the development of the necessary skills of human resources, including the institutional environment, in the formation of which the state plays a significant role.

Due to the great variety of concepts, it is impossible to cite them all; nevertheless, *Table 1* reflects the main approaches. Moreover, we deliberately included in the table the views of little-known authors, including scholars from Africa, as well as the opinion of researchers from friendly countries, for which further comparative analysis is carried out (Belarus, Kazakhstan), to move away from the usual interpretations.

Thus, we see that human capital should be considered as a complex system with a set of components, the main of which in the conditions of technologization of the economy is a set of knowledge that forms the added value of the created high-tech products.

Certainly, the concepts given in Table 1 are not exhaustive, nevertheless, they allow defining the modern essence of HC, which is reflected through such key words as intelligence, stock of knowledge and health, quality of life and others.

We identified the structural HC elements and the dominants in its matrix (*Tab. 2*) based on the compilation approach to identify the factors determining the HC development.

Table 1. Main modern approaches to the formulation of the essence of the CE

Author	Essence of the approach and definition of the HC
A.I. Podberezkin (Podberezkin, Rodionov, 2021) – Russia	"Intensive productive factor of development of economy, society and family, including educated part of labor resources, knowledge, tools of intellectual and managerial labor, environment of living and labor activity, ensuring effective functioning of the HC as a productive factor of development" (in the broad sense of the word); "intelligence, health, knowledge, quality and productive work and quality of life" (narrowly defined)
A.A. Khokonov (cit. ex: Dorokhova et al., 2022, p. 6)	"A complex synthetic factor that aggregates a set of socio-economic, psychological and other parameters of human resources"
Obiekwe Onvebuchi (Onvebuchi, 2018) – Africa	"Both the added value created in the economy through direct participation in the production process, or growth rate through it innovative capacity"
Piazza-Georgi (cit. ex: Onvebuchi, 2018)	Stock of personal skills that an economic agent has at his disposal, as well as physical capital
G.V. Mitrofanova, T.V. Skorzhevskaya (Mitrofanova, Skorzhevskaya, 2021, p. 228)	"The body of knowledge, skills and abilities of the individual and of society as a whole, ... The stock of knowledge, skills and abilities possessed by each individual that can be utilized by him or her for production or consumption purposes"
M.Z. Izotov* – Kazakhstan	"The stock of abilities, knowledge, skills, as well as moral motives and attitudes embodied in a person"; on the one hand, a set of production abilities of a modern worker, on the other hand, investments of the state, enterprise and the person himself in the formation and continuous improvement of these abilities.
V.M. Makarov, Ye Lyu (Makarov, Ye Lyu, 2023)	The sum of knowledge, skills, capabilities, including health, concentrated in the personnel of an enterprise.

* Chief Researcher of the Institute of Philosophy, Political Science and Religious Studies of Committee of Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan Dr. Sc. Ph., Prof. Mukhtar Z. Izotov in an interview to the Review and Analytical Journal "Exclusive"
"Kazakhstan Social Model and Human Capital" dated November 25, 2013. Available at: https://exclusive.kz/expertiza/politika/11429/ (accessed: 01.02.2025).
Source: own compilation.

Table 2. HC elements and dominant factors influencing it: main approaches

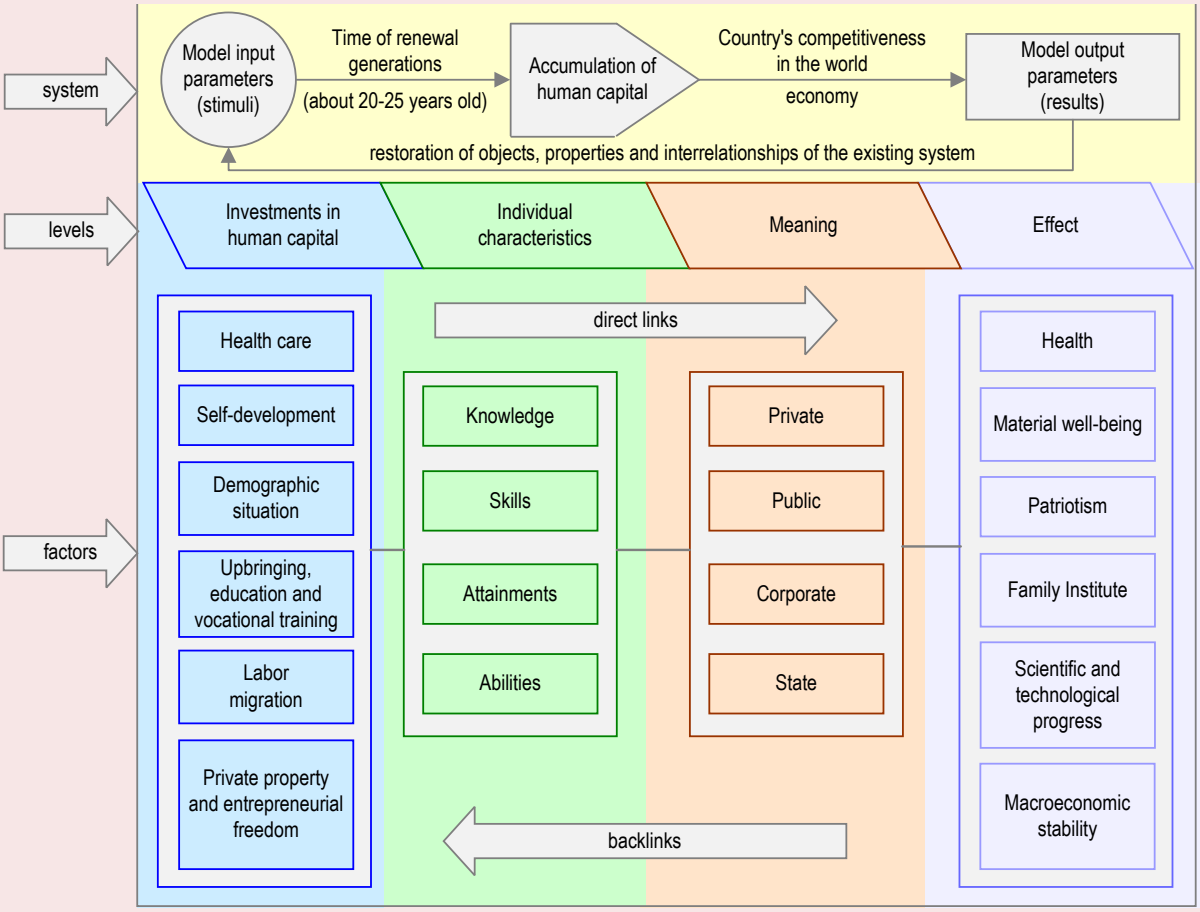
Authors	Structural elements that constitute the essence of the PE as an integral indicator	Factors affecting these elements
N.V. Dorokhova, E.S. Dashkova, T.M. Dodokhyan (Dorokhova et al., 2022, p. 5); O.I. Motorina (Motorina, 2017) – Belarus; D.A. Avdeeva, A. Weiss, D. Weil, M. Bils and P. Klenow (Avdeeva, 2024; Weiss, 1995; Weil, 2007; Bils, Klenow, 2000) M.Z. Izotov*	Education capital (a set of professional and qualification characteristics Intellectual capital is a set of accumulated knowledge, skills, etc.	State of the education system and accessibility of educational services; a permanent system of professional development
	Intellectual capital is a set of accumulated knowledge, skills, etc.	Use of lifelong learning system, qualitative characteristics of socio-economic environment
	Cultural and moral capital is moral and ethical values, stereotypes of human behavior in the professional environment established in the process of socialization of an individual	Corporate culture of an organization, which defines norms and standards of interaction in the team
	Health capital, the totality of a person's psycho-physiological potential, which is laid down at the genetic level, formed at a certain age and used throughout life	State of the health care system and accessibility of health care services
A.I. Podberezkin (Podberezkin, Rodionov, 2021)	The educated part of the labor force, knowledge; tools of intellectual and managerial labor; habitat and labor activity environment ensuring effective and rational functioning of the Personnel Committee	Demographic policy; policy of modernization of health care, education, pension and social assistance development, culture; creation of a comfortable and safe social environment, efficient housing markets; institutional services and improvement of the entrepreneurial climate
O. Onvebuchi (Onvebuchi, 2018)	Human capital development is the process of investing in and developing the skills, knowledge and abilities of employees in order to increase their productivity; the goal of human capital development is to transform employees into a more tangible asset and align them with the strategic needs of the organization	New learning paradigm; "nurturing" talent; Factors affecting the effectiveness of human capital may include education and training programs, availability of resources and support networks, working conditions, remuneration, job security, and access to career and development opportunities
S.A. Nazlukhanyan (Nazlukhanyan, 2016)	The primary element in the structure of HC, its primary basis, is health; secondary elements, acting as a superstructure and corresponding to the social nature of man, are education, information, socio-cultural component, determining intellectual abilities to work; Self-organization as a *cohesive element, where* intelligence is the foundation	In addition to quality education and health care, these are the conditions of information circulation and access to the database (as a source of knowledge)
G.V. Mitrofanova, T. V. Skorzhevskaya (Mitrofanova, Skorzhevskaya, 2021)	The social component of human capital; biological component	Factors concerning formation and development of the social component: formal, informal and independent learning (knowledge, education, qualification, morality, labor migration, ethics, culture); factors of formation and development of the biological component: physical level, investments in all elements of the health care system
V.M. Makarov, Ye Lyu, (Makarov, Ye Lyu, 2023, p. 103; Schneider, 2017)	"Intangible capital embodied in the employees of the enterprise"	Investment system (including investments and investment methods) in intangible assets and employee incentive system (labor and recreation)

* Chief Researcher of the Institute of Philosophy, Political Science and Religious Studies of Committee of Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan Dr. Sc. Ph., Prof. Mukhtar Z. Izotov in an interview to the Review and Analytical Journal "Exclusive"
"Kazakhstan Social Model and Human Capital", dated November 25, 2013. Available at: https://exclusive.kz/expertiza/politika/11429/ (accessed: 01.02.2025).
Source: own compilation.

Generalization of the points of view presented in Table 2 allows concluding that the main structural element of the human capital matrix in the conditions of technologization is intellectual and moral capital enhanced by creativity (talent). Accordingly, the dominant factors of their development are the investment of resources (organizational, managerial, investment) in education (at all levels), the system of knowledge generation, and the social component. Health capital as a physical component retains its importance, since mental labor requires high energy expenditures.

The result of considering the points of view of scientists from Russia, Belarus, Kazakhstan, and Africa is quite informative. However, it will be incomplete without the experience-rich European practice. In this regard, let us analyze the approach of the UN Economic Commission for Europe[7]. Based on the Guidelines of the UN Economic Commission for Europe, we have built a logical framework consisting of 4 blocks (*Fig. 1*). Its feature

Figure 1. Human capital: formation, accumulation and contribution to the economy



Source: own compilation based on the United Nations Economic Commission for Europe Human Capital Measurement Manual.

[7] *Guide on Measuring Human Capital*. UN. ECE. New York; Geneva: UN, 2016. Available at: https://digitallibrary.un.org/record/3931023?v=pdf (accessed: June 23, 2024).

is to highlight the characteristics of the HC and its development factors at all stages of its existence, namely formation, accumulation and realization, including:

– human capital formation starts from the moment a child is born and the medical support of their mother, and then continues with investments in its upbringing, education, training, and self-development;

– individual qualities of personality, such as people's knowledge, skills, abilities and abilities, play a determining role;

– the result of human capital accumulation is expressed not only in material factors (public health, material well-being), but also in value orientations (including responsible citizenship, patriotism).

Taking into account the multicomponent nature of human capital and the need for its structuring, let us use such a way of formalization by S.A. Kristinevich (Kristinevich, 2013) as a "matrix of formation and development of human capital", and at all stages of the life cycle of an individual. The dominant factors affecting the human capital level, or in S.A. Kristinevich's terminology "human-forming industries" (Kristinevich, 2011), in the conditions of technologicalization of the national economy are the education system with new standards, which forms the intellectual and knowledge component of human capital and develops a person as a talent, creative personality; the system of value formation (responsible citizenship, patriotism, lifestyle); the system of ensuring health of proper quality, as it affects the productivity of the human capital; and the system of the human capital development. In addition, studies of workers' social capital, which is understood as sustainable social interactions in a network of informal communications, have become increasingly popular in recent years.

As we have noted above, one of the mechanisms for the progress of these components of human capital is human capital development institutions. But let us emphasize that the institutional environment, first, is formed under the influence of public policy, and second, it represents "a set of norms and rules not only economic, but also social, ..., cultural order" (Dzhukha, Mishchenko, 2019).

Diversity of human capital development institutions and their modern content

Institutional theory, in its broad purpose, "involves determining the impact of institutions on the object under study, that is, it considers the development of the economy as a result of multidirectional activities of various institutions that affect the economy as a whole and the economic behavior of people, among others" (Fakhrutdinova, 2022). Many researchers have established the existence of a relationship between the quality of the institutional environment and the economic development level (Motorina, 2017; Ivanová et al., 2021).

The singling out of the institutions for the HC development in the institutional environment as a separate group is associated, according to scientists, primarily with the increasing role of the human factor in society, the economic development of which has reached the post-industrial stage. "A person, their ability to think creatively and provide knowledge increment become the most important economic growth factor, more important than the availability of natural resources" (Motorina, 2017). In the broad sense of the word, development institutions are interpreted as a mechanism of stimulating state influence. In the narrow sense of the word:

– *institution* is a system of formal and informal norms, rules (restrictions) operating in society and determining the rules of interaction between individuals, and mechanisms of coercion and motivation to fulfill them (Motorina, 2017; Podberyozkin, Rodionov, 2021; Gevraseva et al. 2024);

– *development institute* is also a set of norms and rules, but in a certain area, as well as special organizations whose activities contribute to stimulating the economy, supporting business entities with a focus on solving specific problems.

We emphasize that if earlier the mandatory criterion of a development institution was the direct participation (intervention) of the state (including financing), today the approach related to hybrid and quasi-institutions (quasi-state) is developing (Tatarkin, Kotlyarova, 2013).

First of all, the formation (accumulation) of human capital occurs in the process of interaction of key public social institutions, including the institution of family, trust, and culture (Podberyozkin, Rodionov, 2021; Bobrova et al., 2018), and then development institutions (DI) come into play.

To systematize DI, they often resort to their classification, distinguishing such groups as political, social, economic; formal (a set of laws and organizations, which are fixed in formal law) and informal (not fixed, but accepted way of acting in a certain area); financial (as a rule, funds) and non-financial. Among the financial instruments, scientists single out the institution of investment in human capital, which is "an established stable system of social and economic relations between the subjects of institutional policy, manifested in the form of standards of behavior, stereotypes of thinking, rules and mechanisms of enforcement of these rules regarding the investment strategy of human capital development" (Kristinevich, 2011; Kristinevich, 2013). However, we consider the basic classification to be the one derived from the definition, i.e. development institutions include laws and regulations (Type I) and specialized institutions (Type II). In refraction to the dominants of the human capital matrix, we clarify them in *Table 3*. We emphasize that we have included not only the macrolevel of the economy, but also the micro-level

Table 3. Systematization of the most frequently used human capital development institutions (HC DI)

Dominant spheres related to the HC development	Human capital development institutions (most common)	
	Type I – as a set of laws, rules	Type II – as organizations, structural units
A health care system that ensures the reproduction of human resources and the maintenance of health to preserve its labor potential	Regulatory and legal acts in the field of health care, including national projects, state programs	Regional fund for social initiatives – health of the nation
Education area	Normative legal acts in education, including national projects, state programs, e.g. the Program of connecting all levels of education into a single vertical of training professional staff for branches of the economy	Educational and scientific institutions of additional education that form the intellectual potential of society, such as the organization "Human Capital Development"; mechanisms in the economic support for educational institutions
Personal development, creativity	Entrepreneurship Institute (including the law on entrepreneurial activity)	SME Support Fund; Institutional structures promoting activities in the field of science and innovation (research centers, business angels, innovation centers, technoparks, etc.); Academy of Innovators
Maintaining and developing the professional level of employees in corporations	Corporate telecommuting program for parents with small children	Development institutions in corporations, including: human capital development fund; corporate fund to support socio-economic initiatives; corporate bank of promising ideas
Social capital	Social return on investment – SROI	Register of socially oriented non-profit organizations
According to: (Kristinevich, 2011; Dias, Tebaldi, 2012; Kristinevich, 2013; Maldonado, Corbey, 2016; Chernenko, 2024; Kezia et al., 2019; Bondeza et al., 2019; Azarnert, 2020; Podberezkin, Rodionov, 2021); Register of socially oriented non-profit organizations. Ministry of Labor of Russia. Available at: https://mintrud.gov.ru/nko/default/index (accessed: 01.02.2025); Human Capital Index (HCI). World Bank. Available at: https://data.worldbank.org/indicator/HD.HCI.OVRL; sitography.		

of maintaining and multiplying human capital, the model of which includes such areas as "investments in the development of intra-firm human capital, promotion of employee self-development, retention of creative employees" (Petukhov, 2017).

Methodological provisions and data

We carried out the research using the methods of comparative, institutional, statistical and content analysis, as well as case-study at the country and company level. The data for content analysis were based on the legislative documents of the countries being compared and the websites of the analyzed HC development institutions. The methodology of comparative analysis provides for the comparison of the content of DI and indicators of the countries by the same parameters.

At the first stage, the comparison of countries by aggregate HC was performed. The list of indicators includes GDP at PPP per capita, the country's place in well-known rankings, namely: Global Human Capital Report[8], Human Capital Index[9], The Human Capital Index by authors[10], Human Development Report 2023-24[11], The Global Innovation Index 2024[12]. The choice of indicators is justified by the following. Despite the fact that the GDP indicator is more characteristic of the "classical" theory of economic development, according to which the human being was assigned the role of a driving force, it nevertheless reflects the overall progress. The composite index of human capital development is the main tool of the HC concept because in the framework of modern concepts of economic development, the country's progress should be assessed not only by GDP, but also by achievements in the spheres of education and health.

At the second stage, we carried out the systematization of HC development institutions of the Chechen Republic and comparative analysis of the best practices of their functioning (for development institutions of the first and second types) according to the selected dominant factors. We interpret the systematization of HC development institutions of the Chechen Republic in the context of the generally accepted classification of development institutions as a kind of their inventory.

The concept of "best practices"[13] refers to the best option (tool, method) for achieving a goal, best practices, etc.). Since there is no official filter for which practices can be considered best and which cannot (and success is not always efficiency in a particular company), we have adopted the following criteria in this study: the earliest to appear in practice, a novelty, a regional initiative (this criterion is leading in the context of the competitiveness of regions in the implementation of national projects), the most replicated or frequently encountered in the information field cases from different industries, and the experience of market leaders.

[8] The global human capital report 2017: Preparing people for the future of work. Samans Richard. World Economic Forum. Geneva, Switzerland, 2017. Available at: https://www.weforum.org/publications/the-global-human-capital-report-2017/ (accessed: January 9, 2025).

[9] Human Capital Index (HCI). World Bank. Available at: https://data.worldbank.org/indicator/HD.HCI.OVRL (accessed: October 21, 2024).

[10] Our own taxonometric ranking for this study (Gorbunov, Shorokhov, 2023), which includes 10 variables: prevalence of underweight and stunting in children under 5 years of age, fertility rate, proportion of births attended by skilled health personnel, life expectancy at birth, lifetime risk of maternal mortality and under-5 mortality, years of compulsory education, proportion of people using the Internet and owning an account in a financial institution, and the number of children under 5 years of age who have an account in a financial institution.

[11] Human Development Report 2023–24: Breaking the gridlock: Reimagining cooperation in a polarized world. UNDP (United Nations Development Programme). New York. Available at: https://hdr.undp.org/sites/default/files/2023-24_HDR/HDR23-24_Statistical_Annex_HDI_Table.xlsx (accessed: January 12, 2025).

[12] The Global Innovation Index 2024. Available at: https://www.wipo.int/web-publications/global-innovation-index-2024/en/ (accessed: January 9, 2025).

[13] Theory of best practices. Available at: https://trends.rbc.ru/trends/education/60efef659a79478b2eac415c (accessed: 20.04.2025).

For the express analysis of development institutions, relying on the proposals (mostly controversial) of economists and legal scholars, we have adopted the following compilation of provisions and metrics (Tatarkin, Kotlyarova, 2013; Kurochkin, 2020; Vasilieva et al., 2023): the presence (number) of legislative acts, systematicity (periodicity of updating) of legislation, applicability (the presence of a mechanism for achieving the goal), the opinion of experts (scientific community), the presence of the object of regulation, the fact concerning the influence of the norm on the relations between subjects, enforceability, social value and demand for measures. A detailed analysis in the future (after a certain period of enforcement) will certainly require analysis by quantitative indicators, including the ratio of achieved goals and set goals (stepped and non-stepped), assessment of the effectiveness of state support measures through the achievement of target quantitative indicators provided by the programs, including the amount of funding (Vasil'eva et al., 2023).

The Republic of Belarus and the Republic of Kazakhstan were considered for comparison with Russia on two criteria: they belong to the group of countries with a high level of HC development[14], as well as they are friendly and belong to the same integration bloc of the EAEU (i.e. they are relevant for comparison).

Results and discussions

Table 4 presents the results of step 1, which aims to identify leading countries according to a set of indicators characterizing the relationship between technological and socio-economic development indicators.

We can see that, leading among the analyzed countries in terms of GDP per capita, Russia is also the leader in the global innovation index of countries (Belarus has the lowest values in these indicators). We also note Russia's higher position compared to Belarus in terms of E-participation. Kazakhstan has an intermediate position in terms of GDP per capita and global innovation index. It means that there is a certain coincidence of the countries' positions in these two indicators. However, the situation is mixed with regard to the indicators reflecting HC and innovation: while being the leader in terms of HC development, the

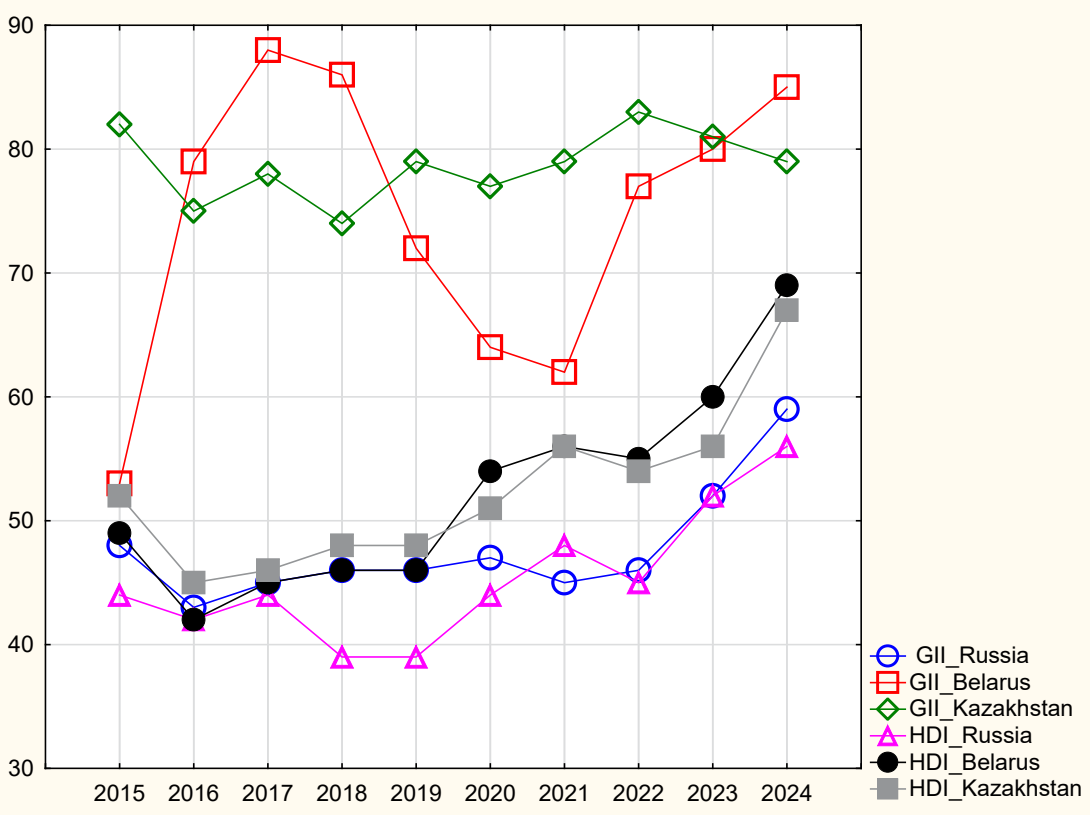
Table 4. Comparison of countries by total human development

Indicators and areas of the economy	Russia	Belarus	Kazakhstan
PPP GDP per capita in U.S. dollars. United States, 2023, World Bank, 192 countries* (for comparison – Luxembourg 143809.51)	44120.14 (54th place)	30763.02 (73rd place)	38515.18 (61st place)
UN E-Participation Index (EPI), World Bank, 2022, 192 countries** (for comparison – Japan 6.0)	59th place with a 3.61 index	86th place with a 2.73 index	15th place with a 4.84 index
Human Capital Index (HCI), World Bank, 174 countries (for comparison – Singapore 0.87913)	41st place with a 0.68142 index	36th place with a 0.70008 index	55th place with a 0.62851 index
Human Development Report 2023-24, United Nations Development Program, 193 countries (for comparison – 0.967)	56th place with a 0.821 index	69th place with a 0.801 index	67th place with a 0.802 index
The Global Innovation Index 2024, World Intellectual Property Organization (WIPO), 133 countries (for comparison – Switzerland 67.5)	59th place with a 29.7 index	85th place with a 24.2 index	78th place with a 25.7 index

Note: index values are given in the range from 0 to 1 or from 0 to 100.
*GDP per capita, PPP (current international $). International Comparison Program, World Bank Group. Available at: https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD (accessed: January 13, 2025).
**UN E-Participation Index (EPI). World Bank Group. Available at: https://prosperitydata360.worldbank.org/en/indicator/WB+GTMI+I+27 (accessed: January 13, 2025).
Source: own compilation.

[14] An overview of the 2023–2024 Human Development Report. Breaking the deadlock. UNDP. Available at: https://hdr.undp.org/system/files/documents/hdr2023-24overviewru.pdf (accessed: 19.04.2025)

Figure 1. Global Innovation Index (GII) and Human Development Index (HDI) rankings of countries



Symbols:

GII – Global Innovation Index (The Human Factor in Innovation),

HDI – Human Development Index (UN).

According to: Human Development Index. Available at: https://statbase.ru/datasets/indexes-and-ratings/human-development-index/ (accessed: 19.02.2025); Ranking of the world's countries according to the UN Human Development Index, 2024 (United Nations Development Programme. Human Development Index 2024. Available at: https://gtmarket.ru/ratings/human-development-index (accessed: 19.02.2025).

Republic of Belarus lags behind in terms of the global innovation index, which characterizes the country's technological development level. The insufficiently high values of the indicators can be partially explained by the following problems of the HC development:

– in Russia, it is the initial insufficiently clear; it is according to the opinion of MGIMO professor A.I. Podberezkin (Podberezkin, Rodionov, 2021), initial formulation of priorities for the HC development;

– in Belarus, it is lack of staff competence, especially in the conditions of digitalization: in the countries of Europe and Central Asia, this factor is considered significant at 7.4% of enterprises, in Belarus – 11.9% (Bogdan, 2021);

– in Kazakhstan, it is spatial heterogeneity of human capital: in fact, the country is divided into four large macro-regions, which reduces the effectiveness of unified policies and requires a targeted approach (Nyussupova, Kalimurzina, 2016; Nyussupova et al., 2024).

Figure 1 shows the relationship between the dynamics of countries' rankings on the Global Innovation Index (GII) and the Human Development Index (HDI).

Table 5. Countries' position in the global innovation index by its constituent elements (2024)

Country	Switzerland (for reference)	Russia	Belarus	Kazakhstan
Total place in the rating (index)	1 (67.5)	59 (29.7)	85 (24.2)	78 (25.7)
Constituents				
Institutional environment	**3**	**126**	**132**	**76**
Human capital	**4**	**39**	**43**	**65**
Infrastructure	7	76	84	68
Market environment	5	57	98	86
Barriers to business	4	53	81	66
R&D implementation	1	52	46	85
Creativity (poetry, drama)	1	53	92	83

According to: The Global Innovation Index 2024. Available at: https://www.wipo.int/web-publications/global-innovation-index-2024/en/ (accessed: January 9, 2025).

Graphical visualization of the dynamics shows the following: GII and HDI trends for Russia almost completely coincide; HDI trends of all three countries coincide; HDI trends of Belarus and Kazakhstan do not coincide with the GII trend; moreover, Belarus has a more broken curve. The situation can be clarified by analyzing the components of the global investment rating, which is interesting for this study because of its representativeness and relevance, since, unlike other ratings, it is updated as of 2024. The Global Innovation Index consists of seven elements, including the quality of development institutions and human capital (*Tab. 5*).

All three countries – Russia, Belarus and Kazakhstan – have relatively good positions in the sphere of human capital. Out of 133 states participating in the ranking, the countries under consideration are in the first half of the ranking. We should note that in 2022, education expenditures amounted to 5% of GDP in Belarus, 4% in Russia and 4.5% in Kazakhstan. This value is above the world average (3.8%), but below the indicators of such countries as Kyrgyzstan (7.2%) and Tajikistan (5.7%). For comparison: in Indonesia, education expenditures in 2022 amounted to only 0.9% of GDP, in Monaco – 1.2%, and in Singapore, which is in first place on the human capital index calculated by the World Bank – 2.5%[15]. The positions of Russia and Belarus are related to the need for additional funding on the principle of reducing the gap in the level of development of the institutional environment compared to developed countries, while in Kazakhstan, for the most part, the necessity to form market relations.

Changes in the human capital index coincide with changes in the income level as expressed by GDP per capita. Therefore, as a rule, countries with a high level of human capital have a higher GDP per capita at comparable prices, and vice versa, countries with a low GDP per capita have a low value of human capital. However, some countries with higher levels of human capital have lower GDP per capita. For example, the Russian Federation has a higher GDP per capita than Belarus, but Belarus has a higher human capital index. This indicates that human capital has not yet reached its potential level and institutional reforms are needed, primarily in labor relations, medicine and education.

Within the framework of stage 2, providing systematization and more detailed study of the institutional factor, we obtained the following result (*Tab. 6*).

[15] Government expenditure on education, total (% of GDP). World Bank. Available at: https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS (accessed: January 9, 2025).

Table 6. Comparative analysis of the best practices of human capital development institutions

HC components	DI type	Russia	Belarus	Kazakhstan
1	2	3	4	5
Human capital development institutions (selectively, frequently used): typical features				
In education area	I	The seven large-scale national goals include preserving the population, improving their health and well-being; realizing the potential of each person, developing their talents[1]); National Project "Realization of the potential of each person, development of their talents, education of a patriotic and socially responsible person"[2])	Education Code of the Republic of Belarus 243-Z, dated January 13, 2011; strategic initiatives aimed at ensuring the intellectualization of the national economy based on the strategy of digital communications development, interaction in science and innovation, and innovation education	Development Strategy of the Republic of Kazakhstan until 2030, aimed at improving the HC quality)[3]) and the Long-term development strategy "Kazakhstan – 2050"[4]); State programs to improve the quality of education that meets the standards of the future innovation economy of the country, including the Bolashak Program, the Fund of the First President of the Republic of Kazakhstan
	II	ANCO "Human Capital Development" – human resources for high-tech companies of the capital; Technograd Innovation and Education Complex – one of the largest innovative educational complexes[5])	Priority of the Republic of Belarus development until 2025 no. 3: "intellectual country" – quality and accessible education, disclosure of personal potential, creation of a new type of educational system[6])	Sectoral clusters of the personnel training system; Assistance of the state in stimulating the improvement of specialists' qualification level to the requirements of the labor market[7])
In health area	I	National Project "Population preservation, health promotion and improvement of people's health and well-being, family growth"	Law of the Republic of Belarus 2435-XII, dated June 18, 1993 "On health care"	Fund of the First President of Kazakhstan[8]), Strategy "Kazakhstan –2050"
	II	Regional fund for social initiatives "Health of the nation"[9])	State Program "People's health and demographic security" for 2021–2025 (as amended by Decree of the Council of Ministers of the Republic of Belarus 965, dated 18.12.2024)	State program of health care development of the Republic of Kazakhstan for 2020–2025. Resolution 982 of the Government of the Republic of Kazakhstan, dated 26.12.2019
In entrepreneurship and the corporate sector, emphasis on personal creativity and high professionalism	I	Federal Law 209-FZ, dated 24.07.2007 "On the development of small and medium businesses in the Russian Federation"	Program of socio-economic development of the Republic of Belarus for 2021–2025, where the main goal is to build up social capital and create conditions for self-realization of a person[10]); promotion of start-ups, innovative entrepreneurship in the ICT (Bogdan, 2021)	The HC concept goes beyond the discussion of the education and health fields to consider the influence of values and informal institutions that directly affect the formation and quality of an individual's soft skills[11])
	II	Moscow fund for support of industry and entrepreneurship of the Moscow government; Corporate Bank of promising development ideas; Fund for the HC development (intra-corporate)	The system of in-house training in organizations, the base included: its own training center, full-time employees of the organization conducting training, long-term contracts with educational institutions, including specialized secondary education (Makovskaya, 2015)	Centers for "importing behavioral patterns"; A "bright spots" tool, for personal growth among leaders who demonstrate initiative, supportive creativity and other personal qualities

End of Table 6

[1)] About national purposes of development of the Russian Federation for the period till 2030 and on a prospect till 2036: Presidential Decree 309, dated 07.05.2024. Available at: http://kremlin.ru/events/president/news/73986 (accessed: 14.11.2024).
[2)] List of state programs, national and federal projects, priority programs and projects in the Russian Federation (The material was prepared by the specialists of ConsultantPlus). Available at: https://www.consultant.ru/document/cons_doc_LAW_310251/ (accessed:13.01.2025).
[3)] Message of the President of the country to the people of Kazakhstan in 1997 "Kazakhstan - 2030: Prosperity, security and improvement of welfare of all Kazakhstanis". Information-legal system of normative legal acts of the Republic of Kazakhstan / Institute of Legislation and Legal Information. Ministry of Justice of the Republic of Kazakhstan. Available at: https://adilet.zan.kz/rus/docs/K970002030_ (accessed:14.11.2024).
[4)] Message of the President of the Republic of Kazakhstan - Leader of the Nation N.A. Nazarbayev to the People of Kazakhstan "Strategy 'Kazakhstan-2050'. Available at: https://primeminister.kz/ru/gosprogrammy/strategiya-kazahstan-2050 (accessed:13.01.2025).
[5)] Department of Entrepreneurship and Innovative Development of Moscow / Moscow City Government. Available at: https://hcdf.ru/ (accessed: 14.11.2024)
[6)] On Approval of the Program of Social and Economic Development of Belarus for 2021-2025: Decree of the President of the Republic of Belarus of 29.07.2021 № 292 C. 9. Available at: https://www.nbrb.by/mp/target/pser/program_ek2021-2025.pdf (accessed:13.01.2025).
[7)] Department of human capital development. National chamber of entrepreneurs of the Republic of Kazakhstan "Atameken". Available at: https://atameken.kz/ru/departments/10-departament-razvitiya-chelovecheskogo-kapitala (accessed:13.01.2025).
[8)] The Fund of the First President of the Republic of Kazakhstan is a non-profit organization, a public foundation established in December 2000 to promote the strengthening of Kazakhstan statehood, patriotism, further democratization of Kazakhstan society, development of international relations of the Republic of Kazakhstan in cultural, economic and political spheres.
[9)] Regional fund for social initiatives "Health of the nation". Available at: https://рфсизн.рф/ (accessed: 13.01.2025).
[10)] On Approval of the Program of Social and Economic Development of Belarus for 2021–2025: Presidential Decree of the President of the Republic of Belarus 292, dated 29.07.2021. P. 8. Available at: https://www.nbrb.by/mp/target/pser/program_ek2021-2025.pdf (accessed:13.01.2025).
[11)] Human capital development of the Republic of Kazakhstan – "Battle for the Future". Report by S. Kuznetsova, Editor-in-Chief of TopPress.kz Information Portal. May 10, 2020. Available at: https://toppress.kz/article/razvitie-chelovecheskogo-kapitala-respubliki-kazahstan-bitva-za-budush-ee (accessed: 01.02.2025).
Source: own compilation.

Based on the performance criteria of legal acts, state programs, set out in the section "methods" (availability of a package of documents, their regular updating, clear designation of social and economic goals, the presence of a mechanism for their achievement, etc.), we conclude that the analyzed institutions for the development of the first group of HC meet the requirements of the modern economy, which has taken a course on technologization and digitalization while ensuring a high value of HC.

To strengthen the conclusion about development institutions of the second type, let us supplement the information in Table 6 with the following Russian private practices in the field of development institutions (by dominants):

– on the education factor: established on the initiative of the Department of Entrepreneurship and Innovative Development of Moscow, the Autonomous Non-profit Organization "Human Capital Development", which unites projects for retraining personnel for high-tech companies in Moscow, offers a wide range of educational products[16]; one of the largest university innovative and education complexes "Technograd", which acts as "an ecosystem of a new type, combining various formats of personnel training in demanded professions for the high-tech sector of the economy with the involvement of leading companies"[17]; Institutes for youth intellectual development – quantoriums – have become widespread[18];

[16] Department of Entrepreneurship and Innovative Development of Moscow. Moscow Government. Available at: https://hcdf.ru/ (accessed: 14.11.2024).

[17] ANCO "Human Capital Development". Peoples' Friendship University of Russia named after Patrice Lumumba. Available at: https://www.rudn.ru/career/employment-partnerships/partners/ano-razvitie-chelovecheskogo-kapitala (accessed: 14.11.2024).

[18] The Health Initiatives Support and Development Fund provides a variety of financial services other than insurance and pension services. Available at: https://companies.rbc.ru/id/1217700527681-fond-podderzhki-i-razvitiya-initsiativ-zdravoohraneniya-stolitsa-i-oblast/ (accessed: 13.01.2025).

– regional fund for social initiatives "Health of the Nation"[19] and the charitable fund "Health of the Nation" ("popularization and promotion of physical culture, sports and sports art, social support and protection of citizens, participation in work with youth")[20].

In addition to individual mechanisms of technological development of countries, among the best common practices, we identified such development institution as competence centers (in Russia, it is a subdivision of the National Technology Initiative Fund, which provides support to companies from the federal budget, so according to the above criteria it belongs to the second type of development institutions). Among its generalized (for the analyzed countries) characteristics, the most significant are the following[21]: the main goal is to form a network of engineering-educational consortia based on universities and scientific organizations to create innovative solutions; implementation of educational programs to train leaders in the development of new technologies; created in partnership with Russian and foreign organizations; the main performance indicators are the number of trained specialists, the volume of income from activities, the number of patents, and the number of patents.

The effectiveness of their activities is evidenced by the following figures: investments in the "Bashkir–Belarusian Industrial and Investment Cluster" being created in the Republic of Bashkortostan will amount to 100 billion rubles by 2030[22]. Among the main results for 2018–2023, the most significant are the following[23]: almost 61 thousand specialists were trained, more than 3,000 license agreements were concluded for the results of intellectual property, revenues amounted to 27 billion rubles (including about 3.62 billion rubles in 2023), almost 14.5 billion rubles were attracted from extra-budgetary sources cumulatively since 2018. In Kazakhstan, the competence center for agro-industrial complex subjects held 666 seminars on 25 priority areas of agro-industrial complex on a free-of-charge basis on the basis of advanced farms of the country, covering about 10 thousand agro-industrial complex subjects.

According to scientists, public expenditures on education and health care are determinant for the growth of human capital (Beisembina et al., 2023). However, as the analysis has shown, a significant group of development institutions, including knowledge, is formed at the corporate level without the participation of budgetary funds.

It is important to note that common to all the analyzed countries in the conditions of active technologicalization of the economy is the application of the "human-centered" concept of social development. In the context of HC, it is based on such principles as "acquisition of future skills, culture of continuous development, ..., mobility of competencies, respect for the values of employees" (Bogdan, 2021, p. 43).

[19] Regional fund for social initiatives "Health of the Nation". Available at: https://рфсизн.рф/ (accessed:13.01.2025).

[20] Charitable Fund "Health of the Nation". Available at: https://фондзн.рф/ (accessed:13.01.2025).

[21] Competence Center. Available at: https://nti.fund/support/centers/ (accessed:13.04.2025); Competence Center as a point of growth. Chamber of Entrepreneurs of the Republic of Kazakhstan. Available at: https://atameken.kz/ru/pages/619-centr-agrokompetencii (accessed:13.04.2025); The volume of investments in the Bashkir–Belarusian cluster will amount to 100 billion rubles by 2030. TASS. News from 20.02.2024. Available at: https://tass.ru/ekonomika/20040949 (accessed:13.04.2025); Competence Center NORGAU. Available at: https://by.norgau.com/competence_center/ (accessed:13.04.2025).

[22] The volume of investments in the Bashkir–Belarusian cluster will amount to 100 billion rubles by 2030. TASS. News from 20.02.2024. Available at: https://tass.ru/ekonomika/20040949 (accessed:13.04.2025).

[23] Competence Center. Available at: https://nti.fund/support/centers/ (accessed: 13.04.2025).

We have identified the best national practices despite the common features. To replicate them, we recommend the mechanism of creating a single development institute in the format of a digital platform based on the one-stop-shop principle.

Conclusion

Thus, the study has shown that in the coming years the emphasis of economic growth in the context of the technologicalization of the national economy will increasingly shift toward the qualitative rather than quantitative characteristics of human resources, where de facto the key factor is already human capital with the dominance of intellectual and knowledge characteristics, competencies in the digital economy. At the current historical stage, when not just "cosmetic" technological changes are taking place, but the paradigm shift from innovative to technological development, new structural units (small technology companies, technology transfer agents, etc.) become the key actors of the emerging ecosystem. Technological and economic growth (breakthrough) requires not just labor resources as healthy strong people, but specialists with new knowledge and qualifications, with creative thinking and ideas (an intangible asset of the enterprise and society). For Russia, the updated national projects have preserved the high relevance of the human capital factor in achieving the national economic development goals for the period of 2025–2030.

The paper reveals that, on the one hand, human capital is still an interpenetrating set of subsystems of health capital, education and social capital with the dominance of intellectual capital. On the other hand, the content of these components is changing toward intellectualization, creativity, spiritual and moral integrity, more reasonable entrepreneurship, new knowledge system, and is also considered in the context of a continuous cycle of "formation – accumulation – contribution to production (with appropriate return)". So, human capital today is primarily a body of knowledge that determines the socio-economic well-being of the country. The physical component does not just retain its importance, since mental labor as a process of idea generation is energy-consuming, but only the integrative interaction of all components of human capital can bring results.

In general, the transition to the "new man" has already taken place, but insufficient application of institutions for the development of their potential will hamper the formation of new qualities of personality capable of conquering new technological peaks.

One of the tools for the generation of HC are development institutions of the first and second type, which operate simultaneously. Today, the most demanded are those that correspond to the dominants of the matrix of PE factors. Based on the comparative express analysis of national economies, we revealed that they meet the requirements of the technological vector of development of countries. Among the development institutions of the second type, both similarities (competence centers, entrepreneurship development funds, funds for the development of social initiatives) and differences have been revealed. Within the framework of the trend of activation of institutions of knowledge development and HC at the corporate level (retraining programs, organization of employees' work with young children on a remote basis, grant competitions, etc.) such best practices of Kazakhstan as the formation of centers for "importing behavioral models", the program "Bright Spots" for personal growth among creative leaders, as well as industry clusters of the personnel training system in Belarus are highlighted. Other countries will benefit from the Russian experience of nurturing youth talent through the institution of youth quantoriums.

Since Russia ranks only 129th on the "institutional environment" factor concerning the global investment rating, the application of the identified best practices of Belarus and Kazakhstan will allow the country to successfully realize its national goals in both technological advancement and building a sustainable and dynamic economy.

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