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DEVELOPMENT OF METHODOLOGY FOR SYSTEMIC MANAGEMENT OF HUMAN CAPITAL IN THE CONTEXT OF THE ESTABLISHMENT OF AN INNOVATIVE ECONOMY

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Abstract: The growing globalization, increased competition in international and domestic markets, and intensified integration of economic relations actualize the need for a transition to building an innovative economy based on the formation and use of human potential. This is natural, because only human capital has a system of creative competencies and the ability to create a unique toolkit for the creation of competitive advantages of the national economy. For more than twenty years, the need for the transition to an innovative economy has been declared at all hierarchical levels of state authorities and administration. But, nevertheless, we have to admit that the state policy of innovative development carried out all these years did not allow ensuring a certain tangible qualitative growth of innovative activity in most regions and bringing high-tech innovative products with a high level of added value to the relevant markets. Among the

main reasons that prevent the definition and initiation of the human capital positions in the creation of an innovative economy, experts call the extremely low level of susceptibility of the bulk of employees to innovations and the underdevelopment of the innovative potential of human capital. we must also add to this the insufficient publication activity of domestic researchers: so, the share of publications by Russian scientists in the leading world databases Web of Science, Scopus, etc. is less than 2%, when in the USA, for comparison, their number is more than 27%, in China - 14%, etc. (Indicators of Science-2015) The result of this situation is that the methods and tools used for diagnosing human capital do not contain mechanisms and approaches to disclose the professional intellectual and creative abilities of employees regarding the development of priority areas for their construction and development. It is clear that in such conditions there can be no question of ensuring the accuracy of forecasting and strategic planning for the development of human capital, which is a necessary condition for creating an innovative economy. Of course, all of the above actualizes the need to develop a methodology for human capital management in order to ensure innovative economic development.

Keywords: methodology, human capital, management, systems approach, innovative economy, innovative activity, innovative management, innovative development.

INTRODUCTION

An analysis of the special literature on the scientific problems we have declared allows us to speak of the availability of many scientific developments devoted to the problems of building and developing human capital, managing the innovative development of the regional socio-economic system, etc. It should be noted that the majority of foreign and Russian researchers limit themselves only to recognizing the importance of human capital in creating an innovative economy, which, in our opinion, is extremely insufficient for analysing the role of the innovative component of human capital being the most active part of the innovative potential. This limitation is fraught with slowing down innovative development in general. The founders of the human capital theory, T. Schultz and G. Becker (who received the Nobel Prize in different years) argued that education, culture, medicine and other industries create long-term economic resources. At the same time, they proposed to consider the productive qualities and characteristics of a person as a special form of capital, because they also allow the owner to receive income for a certain time. Analysis of various approaches regarding the essence of the "human capital" concept allowed us to generalize them and note that most authors assume that it is necessary to consider under this concept the stock of knowledge, competencies, skills, and abilities accumulated by a person, used in social production, and contributing to a significant increase in labour productivity and income.

An integrated methodological approach to the study of human capital (considering the characteristics of an innovative economy) involves the use of structural, functional, dynamic, effective, systemic and probabilistic approaches. The transition from a traditional economy to an innovative one allows creating a new type of economic relations that are created during the production process between its objects. For a proper transition to innovative development, it is necessary to have an appropriate level of development of the productive forces, i.e. a man as a leading subject

of an innovative economy. The point is that the main element of the processes of innovative production development is a man, who has creative abilities, and is able to generate new ideas, which, in turn, is the main resource of innovative production. The strategic goal at the current stage of the socio-ecological and economic development of the Russian Federation is the immediate transition to an innovation-oriented economy, which can be ensured through the systematic involvement of the economic potential held by the constituent entities of the Russian Federation, and, in particular, human capital, which is indeed a national wealth. Nevertheless, it can be argued that the innovative component of human capital still does not act as a special object of research and strategic management. All this, of course, speaks of the need to improve conceptual provisions and develop methodological tools for the development of the innovative potential of human capital in a regional economic system.

RESEARCH METHODOLOGY

The theoretical basis of our research was a number of fundamental and applied scientific works by Russian and foreign authors on the problems of creating and developing human capital in an innovative economy, materials from specialized journals, etc. The methodological basis of the study was an integrated approach to diagnosing the processes embodying the development of the innovative component of human capital in the region. In the course of the research, we used such general scientific and special methods of cognition as dialectical, empirical, structural and comparative analysis, groupings, and generalization. The information base was Federal State Statistics Service data, the results of our own research, Internet resources, etc.

RESULTS OF THE STUDY

A lot of scientific and practical works are devoted to the problems of the creation and development of human capital, in which a number of its features are revealed. Within the framework of solving this problem, it is necessary to improve the methodology of systemic management of human capital in the conditions of the creation of an innovative economy. The methodology consists of a set of goals, methods and means of institutional regulation of factors for the development of human capital. In the special scientific literature, a methodology is singled out as a special subject of rational knowledge and action, which correlate with the properties and laws of reality. Modern researchers focus all their attention on two main types of scientific methodology: descriptive (relative) methodology (we are talking about the structure of scientific knowledge, etc.); and normative (prescriptive) methodology, directly aimed at regulating activities and representing a set of recommendations and rules for the implementation of scientific activities. It seems to us that such treatment can be applied in the theory and practice of systemic management of the creation and development of human capital.

In the course of our research, we had to study the evolution of the essence of the innovative development of socio-economic systems. The modern theory of innovation has generalized and identified a number of stages in the genesis of the theory of innovation (we are talking about the classical theory of innovation, the theory of large cycles, neoclassical theory, theory of acceleration, the theory of technological structures, and social theory), which form and determine the content of innovations, and their impact on the economy of society as a whole... Based on our goal, we focused all our

attention on the problems of developing a methodology for managing human capital in the context of the creation of an innovative economy. It is noteworthy that each technological mode has its own corresponding concepts of human management in production. So, for example, if in 1920-1940, in the era of the third technological mode, the traditional approach was used (a person still acted as the main labour force and manual labour prevailed everywhere, etc.) and the concept of "personnel management" was used, then the sixth technological mode, which is being implemented at the present stage (2020-2040), is characterized by an exclusively innovative approach. Here, a highly intelligent and creative-minded employee is the key factor in production (7; 21; 22).

Further transition to the next (seventh) technological mode of human capital management presupposes the formation of innovative competence for the active development of creative thinking, the creation of conditions for increasing creative returns, etc. The terminological uncertainty and multidimensionality of various approaches (including process and object-oriented approaches) to the study of the content of innovation allowed us to focus on the internationally recognized approach set forth in the Guidelines for the collection and analysis of data on innovation (Oslo Guidelines) (16). In the course of our research, we used such basic principles of the systems approach as consistency and isomorphism. Any complex system is characterized by a set of properties such as nonlinearity, instability, integrity, self-organization and emergence (6; 4).

A complex socio-economic system is always characterized by uncertainty in its behaviour; its development is aimed at different possible areas of improvement (here, we are talking about the impact of structures, or attractors). It is believed that if the system under consideration is in the field of action of a certain attractor, then it begins to evolve towards this relatively stable state (structure) (12). For an economic system, innovations act as fluctuations (deviations) that disrupt the functioning of the system. Hence, since innovations are a kind of fluctuations for an economic system, their use is associated with the processes of self-organization to adapt a new element to the structure.

As can be seen from the above, innovations violate the established order of functioning of the studied socio-economic system, introducing "creative destruction" into it according to J. Schumpeter. Returning to a stable position requires a managerial impact on the system by means of a resonant awakening that can push the system to an accelerated exit to one of the possible development scenarios in the mode of innovative renewal. Management innovations can act as such a resonant causative agent. All of the above allows us to assume that a managerial influence is required to transfer the system of strategic management of human capital to the position of sustainability of innovative development through managerial innovations for the accelerated transition of the system to one of the scenarios of innovative development (3; 15; 19). Of course, determining the impact of human capital on innovative economic development requires the presentation of a scientifically grounded methodological apparatus in categorical, instrumental and methodological aspects.

Most of the modern specialized literature considers the category of "human capital" as a technical factor of production. Human capital is a complex internal structure that is dynamically developing and is a special form of capital. This is probably why scientists mainly focus on analysing only those qualities and properties that act as a direct source of increasing labour productivity and income when studying the structure

of human capital. We are talking, first of all, about health capital, education capital, intellectual capital, scientific and innovation capital, and demographic capital. Experts note that the concept of an innovation cycle is blurred at the national level. Underestimation of the innovation cycle importance at the national level is manifested by low values of such estimated indicators (regarding comparison with foreign countries) such as the effectiveness of the development of domestic higher education, the amount of funding for Russian science, the number of research institutes, patent activity, publication activity of Russian scientists, etc. We are talking about indicators of a managerial nature: budget expenditures, stimulating tax and other preferences intended for the renewal of production assets of enterprises, financing the research and development works, etc (1; 8; 22).

Modern globalization processes and the integration of economic relations have practically eroded the real and virtual boundaries and distances between communication objects, reduced barriers to external migration, etc., which led to an increase in the human capital mobility and the generation of the "brain circulation" phenomenon (18). The latter is understood as a phenomenon that encompasses the directions of promoting human capital between countries and enterprises in order to build the popularization and use of breakthrough knowledge, technologies, methods, etc., while simultaneously stimulating sustainable development of national economies. It is generally accepted to consider social wealth in the form of a combination of human and material capital. According to the results of research by analysts of the World Bank in 192 countries, production assets account for 19% of the national wealth in the United States, and 76% - natural resources; in Russia, these figures make 72% - natural capital, 14% - human capital, 14% - physical capital, respectively (17).

In the specialized literature, there are many methods for assessing human capital. One of the most popular are methods for determining the monetary value of human capital, including the method of "capitalization of earnings", the method of "cost of production", indicator method, etc. It is appropriate to cite the work of the Russian scientist R. Kapelyushnikov "How much does human capital cost in Russia?" (10) He used the Jorgenson-Fraumeni method to estimate the value of human capital. It is noteworthy that, according to this Russian researcher, the stock of human capital is 13 times the country's GDP and 5.5 times the cost of physical capital. There is no doubt that the main competitive advantages of the emerging Russian innovative economy are the proper level of quality of human capital and a high level of knowledge. At the same time, studies of the condition of Russian human capital conducted in recent years unanimously note a significant decrease in its quality due to avalanche deterioration in health, a decline in the level of culture, education and qualifications of workers (2; 11).

The UN invited all countries to use a universal indicator for diagnosing human capital development - the Human Development Index (HDI). So, Russia ranks 57th (0.788) by this index value according to the information given in the UN Report (2014) "On the development of human potential". This is generally a fairly high value. A significant increase in regional differentiation in the development of human capital, especially in the depressed, labour-surplus and land-poor republics of the North Caucasus is hidden underneath. It seems to us that a low HDI indicator is a kind of signal of the need for state support. What is characteristic is that the North Caucasus region has one of the highest educational levels, and it is knowledge, especially implicit knowledge that determines competitive advantages.

Today, the theory of human capital management in the conditions of the formation of an innovative economy is developing in several main directions. It is noteworthy that human capital is considered as the base one in this case. We are talking about human resource management (personnel intellectualization); management of intellectual objects (knowledge, intangible assets, intellectual capital, intellectual resources, creative resources, intellectual property, etc.) Undoubtedly, all these abilities are a real competitive advantage of the enterprise. Therefore, any modern enterprise aimed at competitive development is oriented not only to develop the creative or intellectual abilities of its personnel, but also to actively seek and attract talented and creative employees.

All this in total contributed to the generation of such a direction as talent management. In contrast to the traditional one, an innovative approach to human capital management is focused on meeting the new formed needs, on the creative search for new alternative solutions. A key feature of innovative human capital management is the development of priority areas for the construction, development and use of high-quality human capital, in motivating and stimulating the innovative behaviour of employees, in creating a favourable innovation climate for full-fledged professional, intellectual and creative return of employees in the innovation process. We are talking about the creative and intellectual resources of an enterprise, which act as an independent factor of production necessary for the effective achievement of innovative development (7; 22; 13).

Despite the fact that the management of human capital of an innovative enterprise acts as a complex system that includes interconnected subsystems of strategic planning, forecasting, development and involvement of human capital, nevertheless, this management system cannot be separated from the entire strategic management system. It seems to us that this provision should be the basis of any methodological approach to managing the human capital of an innovative enterprise, because it is aimed at ensuring the innovation process in the enterprise's innovation cycle.

The human capital management methodology is directly based on two groups of principles: Meaningful principles (they are determined by the essential characteristics of the content of human capital as an object of management in the innovation process. These are multidimensionality, participativity, motivation for innovative activity, adhocacy, etc.); Systemically important principles (they determine the list of requirements for the studied object of management, i.e. human capital for the implementation of the set goals of innovative development, or innovative results). Here we can name such principles as synergy, teamwork, innovative management, feedback, reproductive balance, etc (14; 5).

Tellingly, scientists and practitioners, in general, are exclusively engaged in production, technical and technological innovations. At first glance, this is natural, because they allow ensuring quick and obvious gaining of competitive advantages for the studied control object. But with a more detailed analysis, it is no less clear that the desired economic indicators are able to achieve exactly those enterprises that consistently and persistently use managerial innovations. Indeed, the experience of economically advanced countries (the USA, Canada, China, etc.) shows that a managerial innovation contributes to the acceleration of innovative development and ensures proper adjustment of the internal environment of the firm in accordance with the dynamics of changes in the external environment.

However, the same experience shows that management innovations very often encounter many obstacles due to their rejection by a certain category of people who are not able to foresee the possible results of the introduction of management innovations. To overcome such resistances to change, various organizational and structural methods of conflict resolution have been developed, in particular, a system of rewards, motivations and incentives, etc. Innovative development cannot be replicated for every enterprise, because only intellectual professional and creative employees are capable of developing and using management innovations in production.

Another (independent) problem on the creation of an innovative potential of human capital is the need to consider the institutional approach, because the mechanisms of an innovative economy can function effectively only if there is a system of relevant institutions. Speaking about the current institutional system of the Russian economy, it must be admitted that it still does not meet the modern requirements of the formation of an innovative economy. This is a consequence of the fact that most of these institutions were created to limit the opportunistic behaviour of economic entities and to allow their rational behaviour. It can also be noted that there are many informal institutions that no longer contribute to the development of an innovation-oriented economy. To build a modern institutional environment, it is necessary to immediately reform existing institutions and create new ones that can become the basis for sustainable development of an innovation-oriented economic model (5).

CONCLUSIONS AND PROPOSALS

The development of the methodology devoted to the human capital management system is associated with the need to actively use managerial innovations. We mean the latter as purposeful changes in the composition of management functions, organizational structures, technology and organization of management, management methods aimed at replacing the components of the generally accepted human capital management system to ensure the acceleration of innovative development of the enterprise. The characteristic of the human capital management methodology has been clarified; it consists of defining the theoretical foundations of an object and a subject of management, identifying two main groups and principles that reflect the complex of requirements for human capital management, and also an algorithm for forming approaches to human capital management (to ensure innovative development). As a result of the study, we have modified the mechanism of strategic human capital management with the use of managerial innovations regarding the strategic change in the content of functions, technology and organization of management, and also management methods to accelerate the innovative development of the entire enterprise.

CONFLICT OF INTERESTS

Authors confirm that there is no conflict of interest.

REFERENCES

1. Abdikeev, I.N. (2013). *Corporate knowledge management and business reengineering*. - M.: INFRA-M, - 382 p.
2. Barysheva, A.V. (2014). *Modernization of Russia from the standpoint of a new scientific paradigm of public exploration*. - M.: MaSska, - 280 p.

3. Bogatyreva, V.V. (2013). *Financial management of human capital reproduction in an innovative economy: theory, methodology, modelling: monograph*. - Novopolotsk: PSU, - 224 p.
4. Chechurina, M.N. (2011). Theoretical approaches to the study of management of innovative development inherent in complex economic systems. *Vestnik MGTU, 1*, 12-18.
5. Chernyavskaya, S.A., Korovina, M.A., & Zherdeva, O.V. (2018). Analysis of the regional food subsystem formation and development. *Journal of Applied Economic Sciences, 13*(8(62)), 2323-2339.
6. Erokhin, S.A. (2011). Synergetic paradigm of modern economic theory. *Actual problems of economics, 2*, 4-18.
7. Glazyev, S.Yu. (2010). *The strategy of the advanced development of Russia in the conditions of the global crisis*. - M.: Economics, - 255 p.
8. Gorelova, G.V., Zakharova, E.N., & Ginis, L.I. (2005). *Cognitive analysis and modelling of sustainable development of socio-economic systems*. Rostov-on-Don: Russian State University Publishing House, - 262 p.
9. Indicators of Science-2015. - M.: NRU HSE, 2015. - 320 p.
10. Kapeliushnikov, R. (2012). Russia's human capital: what is its value? – National Research University “Hinger School of Economics”, – 76 p.
11. Karmokova, H.B., & Misakov, V.S. (2008). Some problems of organizing the system analysis of the state of innovative activity. *Economic Bulletin of Rostov State University, 6*(4-2), 85-88.
12. Knyazeva, E.I. (1994). *The laws of evolution and self-organization of complex systems*. - M.: TsISN, - 128 p.
13. Kushbokova, R.Kh., Shamurzaev, Z.S., & Misakov, V.S. (2009). Some approaches to managing the innovative potential of an industrial enterprise. *Terra Economicus, 7*(4-3), 123-125.
14. Misakov, V.F., Baiduyev, I.Z., & Gendugov, S.Z. (2009). Functionally-value analysis as a method of system research. *Bulletin of the Orenburg State Agrarian University, 2*(22), 167-172.
15. Misakov, V.S. (2007). Comparison as a general scientific method of cognition. *News of the Kabardino-Balkarian Scientific Centre of the Russian Academy of Sciences, 3*, P. 16.
16. Oslo Guidelines. (2000). *CSRS Publishing House*, - 248 p.
17. Roshchina, L.N. (2010). Conceptual and terminological constructors and levels of management of the scientific and innovative industrial potential. *Economic sciences, 11*, 150-156.
18. Serednikov, O.N. (2012). Internationalization of Russian high-tech start-up companies in the context of the circulation of innovative human capital. - SPb, - 26 p.
19. Shevlovkov, V.Z., & Misakov, V.S. (2014). Guidelines for improving the investment and business climate in the KBR. *News of the Kabardino-Balkarian Scientific Centre at the Russian Academy of Sciences, 2*(58), 110-113.

20. Sycheva, I.N., Chernyshova, O.V., Panteleeva, T.A., Moiseeva, O.A., Chernyavskaya, S.A., & Khut, S.Yu. (2019). Human capital as a base for regional development: a case study. *International Journal of Economics and Business Administration*, 7(S1), 595-606
21. Zakharova, E.N. (2013). Game-theoretic modelling of the interaction of complex systems represented by hierarchical cognitive maps / E.N. Zakharova, G.V. Gorelova, I.S. Gorelova. *Bulletin of the Adyghe State University, Series 5. Economics. - Maikop: ASU Publishing House*, 1(15), 107-114.
22. Zakharova, E.N. (2014). The main trends in the transformation of the system of economic relations in the context of the tertiarization process development. E.N. Zakharova, S.A. Lyausheva, S.M. Kojamanyan. *Bulletin of the Adyghe State University. - Series 5. Economics. - Maikop: ASU Publishing House*, 2, 181-188.