REVIEW
by a foreign scientific consultant on the dissertation by Renata Ramilievna Gimranova on the topic "Structural transformation of human capital in the innovative economy of Kazakhstan: factors and mechanisms of activation" submitted for the degree of Doctor of Philosophy (PhD) in the educational program 8D04101 "Economics"

Relevance of the research topic.

In the era of the innovation economy, human capital is no longer just a factor of productivity, it has become the main source of sustainable competitive advantage and growth. Unlike the industrial model, which is based on material resources, the modern knowledge economy requires intellectual resources, creative potential, digital and interdisciplinary competencies. The structural transformation of human capital is driven by a number of factors: accelerated digitalization, the introduction of artificial intelligence technologies, and the automation of production processes. These processes require constant updating of competencies, the formation of new professional and supra-professional skills, the development of creative and critical thinking, as well as the ability to adapt to the highly dynamic labor market.

On a global scale, countries investing in human capital development and creating conditions for continuous education occupy leading positions in global innovation rankings (Global Innovation Index, Human Capital Index). For the Republic of Kazakhstan, these tasks are of particular importance in the context of implementing key strategic documents such as the Kazakhstan 2050 Strategy, the National Development Plan of the Republic of Kazakhstan until 2029, and others.

Insufficient adaptation of human capital to the requirements of an innovative economy can lead to structural unemployment, increased social inequality, and a loss of competitiveness for the country on the global stage. On the contrary, timely and targeted structural transformation of human resources ensures sustainable economic growth, the development of high-tech industries, increased labor productivity, and improved quality of life for the population.

Thus, the topic of the dissertation research, "Structural transformation of human capital in the innovative economy of Kazakhstan: factors and mechanisms of activation" is relevant and has high scientific and practical significance, as it allows for the identification of effective mechanisms for the formation and utilization of human potential in the interests of the country's long-term sustainable development. Identifying the factors for creating and mechanisms for activating human capital will always be in demand due to the inextricable link between the economy and modern global development requirements.

Novelty and practical significance of the dissertation research. The logically structured thesis by Renata Ramilievna Gimranova and the algorithm for solving the tasks set allowed the author to present well-formulated theoretical propositions that are scientifically novel and practically significant.

The scientific novelty of the dissertation research results lies in assessing the state of Kazakhstan's human capital in the context of global indices and internal criteria and developing proposals for mechanisms to activate it.

The results of the study, which contain elements of scientific novelty, are presented in the following provisions:

– the category of network human capital has been proposed as a synthesis of formal and informal technical, technological and managerial knowledge that ensures the functioning and development of business ecosystems as a competitive form of economic development in technological paradigms 5 and 6.

– macro-level factors influencing the level of high-tech production in the CCA countries have been identified, the most significant of which are the level of education of the population, the number of university graduates in science and technology, and the number of researchers per 1 million inhabitants of the country;

– factors of positive and negative influence of human capital on the competitiveness of Kazakhstani ecosystems in industry have been identified, including when introducing digital and geo-economic innovations into the ecosystem;

– tools for higher education programmes in the digital economy have been developed to activate mechanisms for generating and updating human capital in university and post-university education processes.

– direct and indirect measures have been proposed to increase motivation and expand opportunities for individuals to accumulate human capital, including in areas that are not traditionally considered when developing this issue.

The scientific novelty of the dissertation generally corresponds to the stated goal and objectives of the research, which are aimed at solving pressing and practical problems of structural transformation of human capital in Kazakhstan's innovative economy.

The practical significance of the dissertation lies in the fact that the author's proposed instrumental and methodological developments form the basis for the introduction of new elements into the human capital transformation system, represented by a mechanism for improving the quality of human capital to activate the innovative development of Kazakhstan's economy.

The scientific recommendations contained in the dissertation, in particular the priority areas and mechanisms for improving the quality of human capital, as well as the educational programme tools developed in the context of the innovation economy and ecosystems, can be used in the practical activities of the public and private sectors.

The empirical and factual material presented in the dissertation, the results of analytical and diagnostic work, as well as the results of forecasts can be used in conducting promising scientific research in this subject area.

Compliance of the dissertation topic with the specialist training profile and the qualification awarded. The dissertation research by Gimranova R.R. contains new scientific results aimed at solving the problem of identifying the factors and most effective mechanisms for activating human capital in the context an innovative development economics of the Republic of Kazakhstan. The thesis

topic fully corresponds to the training profile of the doctoral student and the qualification being awarded. The format and content of the doctoral dissertation by Gimranova R.R. on the topic: "Structural transformation of human capital in the innovative economy of Kazakhstan: factors and mechanisms of activation", submitted for the degree of Doctor of Philosophy (PhD) in the educational programme 8D04101 "Economics" meets the requirements.

The independence of the research conducted, the presence of conclusions and recommendations. The scientific propositions, conclusions and recommendations formulated in the dissertation are sufficiently substantiated, critically analysed and evaluated in comparison with existing ones in scientific circles, which testifies to the personal contribution of the dissertation author. The results obtained by the doctoral student are aimed at solving theoretical and applied problems that are controversial in modern economic science.

During the preparation, conduct of scientific research and presentation of the results of dissertation, Gimranova R.R. proved herself to be an initiative, responsible doctoral student and a versatile, qualified specialist in the formulation and solution of scientific and applied problems in the field of economics. The dissertation author has fully mastered the methodology of conducting scientific research and demonstrated proficiency in general and special methods of conducting economic research. This had a positive impact on the quality of the dissertation submitted for defence, the scientific level of novelty of the results, and their significance in theoretical and applied aspects.

The author used methods of systemic and institutional analysis, empirical sociological research with processing of its results in the PLS-PM programme, and methods of economic and statistical analysis.

In the course of her dissertation work, Gimranova R.R. demonstrated a high level of knowledge, erudition, competence and independence in solving complex problems that are essential for identifying the most important factors influencing human capital and revealing the mechanisms for activating its qualitative component in the context of innovative economic development. The systematic work of the dissertation author contributed to the accumulation of a qualitatively new body of knowledge, including theoretical, methodological, and practical provisions that define the author's contribution to the problem area under consideration.

The degree to which the problem has been solved and the research completed. A study of the dissertation allows us to conclude that the structure of the research meets the requirements and is characterised by internal unity. It allows us to examine the relevant issues of the research topic in a consistent manner and in connection with the content of the previous and subsequent structural elements of the dissertation.

The dissertation submitted for review can be characterised as a complete scientific study of a topical and complex problem, which is confirmed by a significant body of scientific literature, regulatory and legal acts, digital and graphic material.

Conclusion on admission to defence. The dissertation "Structural transformation of human capital in the innovative economy of Kazakhstan: factors and mechanisms of activation" is an independent, completed scientific work on a topical subject. Considering the relevance of the scientific problems solved in the dissertation, the elements of scientific novelty and the practical significance of the results obtained by Renata Ramilievna Gimranova, the scientific work meets the qualification requirements for doctoral dissertations (PhD) in the educational programme 8D04101 "Economics" and may be admitted to public defence.

Foreign scientific consultant,
PhD, professor at the Faculty of Economics
and Business Administration at Sofia
University St. Kliment Ohridski   Vladimirov Zhelyu