

AI, INTELLECTUAL SECURITY AND DEMOGRAPHIC CHALLENGES IN THE CONTEXT OF REGIONAL INTEGRATION

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Introduction

Dynamic changes in the world economy, current trends in regional integration, and the challenges in local markets strongly depend on the ability of each nation to utilize competitive and cooperative advantages. The latter is based on the efficient use of innovations, AI and other achievements of science and technology. All mentioned factors are products of human intellectual activity therefore our focus is the ability of the state to maintain proper level of intellectual security. In turn, it is closely related to demographic challenges that face each country, particularly in developing part of the world. Obviously, member states of the Eurasian Economic Union (EAEU) are not isolated from contemporary trends and challenges. It is our firm perception that the development of Eurasian integration is driven not only by purely economic factors, but also by social and demographic ones. Our research confirms the idea that all EAEU countries face common threats to demographic security. This applies to population aging, rising mortality rates, and declining birth rates, as well as mass migration, brain drain, and so on.

Of course, intellectual security through the use of AI is viewed primarily as the protection of the results of intellectual activity, and intellectual security can be compared to intellectual property. However, the concept of intellectual security encompasses not only the protection of intellectual products, but also the rational use, reproduction, and improvement of the intellectual capacity of people, which determines their activities.

Methodology

In our study different methods of economic analysis are used. The use of statistical lines helps to gather required data on the state of economic growth and competitiveness of each country. Method of comparative analysis allowed to reveal the levels of economic growth in EAEU member states with a particular emphasis on the knowledge based fields of economy. Among the useful methods of economic analysis we have exercised the method of generalizations, as well as the methods of analysis and synthesis.

Literature review

While some experts concentrate on AI-based security from threat detection and response point [Chen et al. 2020, 22-39], by comparing information and artificial intelligence to maintain proper level of national security [Al-Suqri & Gillani, 2022] and problems of

protecting digital content through AI, including watermarking and intellectual property in the creative industry [Ogbonna & Lee, 2023, 30-47], others pay more attention on detecting academic plagiarism using artificial intelligence, tools like ChatGPT and others [Johnson & Wang, 2018, 102; Khalil & Er, 2023] up to the importance for enhancing personalized learning, AI-driven identification of learning styles and content modification strategies [Kanchon et al., 2024, 269-278].

From economic development standpoint more valuable are the approaches on AI-powered innovation in digital transformation, including some pillars and industry impact [Al-doseri et al., 2024, 16-17] starting from education, and mediating role of trust in technology through interactive learning formats [Alotaibi, 2025, 1-30].

For Eurasian countries we find most relevant the works discussing ways to an AI-literate future through exploring economic and cultural capacities [Biagini, 2025, 1-51], as well as those suggesting the need for establishing the rules for building trustworthy AI: in ethics, governance, and policies in artificial intelligence [Floridi, 2021, 41-45], useful AI tools in these societies with certain impacts on cognitive offloading and the future of critical thinking [Gerlich, 2025, 6]. Given the wide range of topics related to AI, however, rarely experts examine mentioned issues linking them with the challenges and threats of intellectual security. Less attention is paid to the relationship of those issues on one side and the demographic challenges from the other. Finally, there is almost no continuous study on the role of AI, intellectual security and the prospects of regional development, particularly in countries of EAEU.

Scientific novelty

Although the issues related to the role of AI in economic development from one side and the issues of intellectual security and demographic challenges are separately widely discussed in economic literature, we have attempted to examine jointly the relationship between the use and the role of the AI, intellectual security, technological development, demographic challenges, regional integration, and the economic growth in the context of regional integration, particularly in the countries of Eurasian Union.

Analysis

For EAEU countries, the state of intellectual security is determined primarily by scientific potential and scientific resources that is the number and level of training of capable scientific intellect bearers – trained and working scientists and individuals with higher education, high intelligence, skills, and experience. Consequently, intellectual security, like national security, can be external and internal and is based on fundamental categories such as intellectual interests, intellectual threats, and intellectual protection.

It is worth noting the impact of the AI on the level of intellectual security and on the process of ensuring demographic security. Moreover, according to many analysts, genetics

and intellectual security are also interconnected: on the one hand, a violation of a country's intellectual security leads to genetic consequences for the population, the results of which are difficult to predict, and on the other, the state and changes in a society's gene pool have a direct impact on the state's intellectual security. The EAEU pursues the dynamic development of high technologies. However, in the context of the demographic development of Eurasian integration, this concept can and should now be interpreted more broadly: AI and other achievements of advanced, high technologies exist as part of the technological base in all sectors of the modern economy, as well as for industrial cooperation within the framework of Eurasian integration as a whole. Therefore, in relation to the structure of industrial production, high-tech industries should include a number of industrial sub-sectors – the production of electronic equipment and peripherals, aviation and rocket-space technology, industrial robots and integrated automation equipment, radio communications, radar, complex household electronic equipment, instrument making, etc. High-tech production contributes to improving the quality and standard of living of the population of countries, boosting the overall economy and the common market of the EAEU. The states shall seriously consider the state of high-tech development and the use of AI to promote the high-tech development and research. As representatives of the expert community, we are confident that increasing spending on innovative research and development and demand for its results will only be possible with sustained high rates of economic development and, consequently, favorable conditions for large and small private businesses, a healthy competitive environment, and increased competition in the common EAEU market, as well as effective industrial cooperation, which in turn will create the necessary conditions for ensuring intellectual security. Based on the above, one can be confident that intellectual security determines the scientific support and implementation of all other types of national security and that the current situation and trends of economic integration in the EAEU countries provide grounds for considering intellectual security issues as a critical regional, economic, social, and political challenge. Also, the consequences of an intellectual crisis could prove far more dangerous than a political, military, economic, or other crisis, and overcoming it will require several decades. Finally, the multifaceted nature, complexity, scale, and depth of the problem of developing and preserving intelligence elevates ensuring the intellectual security of the EAEU (along with demographic issues) to the ranks of the most pressing contemporary issues. As for the possible aspects of intellectual security, it is appropriate to consider it as a component – a subsystem of a higher-level system, such as national security. At the same time, it is viewed as a complex, multi-level system, including a number of subsystems or components of a lower order. The intellectual interests of countries and the EAEU as a whole are, undoubtedly, vital and long-term. Consequently, the essence of intellectual interests, ultimately, comes down to the effective use and reproduction of the intellectual potential of the people, as well as the development, preservation and accumulation of in-

tellectual potential and intellectual resources. A special role in the system of intellectual interests belongs to scientific intelligence, since it determines the level of development, In the context of digitalization and the use of AI, the threats to intellectual security in the context of the demographic development of Eurasian integration are:

- low interest or inability of scientists to work in their field of training;
- "brain drain" abroad;
- aging and shortage of scientists and people with higher education able to use AI;
- moral and material undervaluation of the work of scientists;
- underestimation of the social significance of scientists;
- lack of prestige of professions related to science and work for the state;
- decreasing desire of young people to engage in science and obtain higher education;
- decreasing quantity and decreasing quality of defended diploma and final theses, dissertations for the degree of candidate or doctor of science.

Given the existing trends, it is advisable to take the following active measures:

- development of a modern concept of the scientific and technical policy of the EAEU for the development of science and education, corresponding to the new challenges;
- development of laws to stimulate the development of science and education;
- development and harmonization of laws and legislation protecting the intellectual interests of the EAEU member states, intellectual property, intellectual property holders;
- development of requirements for the training of experts with higher education and scientific personnel, particularly for utilizing the AI potential;
- development of general requirements for diploma and final theses, dissertations for academic degrees submitted for defense, etc.

In addition, we believe it is necessary to:

- consistently utilize the intellectual potential of the individual, society, and the state;
- improve the working and living conditions of intellectuals;
- effectively protect the products of intellectual activities, the use of AI from various types of encroachment;
- employ scientists and specialists with higher education only in their field of training;
- provide incentives for the work of intellectuals and extensive use of AI;
- adequate implementation of the results of the activities of scientists.

Our analysis of the relationship between the use of AI, maintaining required levels of intellectual security and steps to reduce demographic challenges in the context of regional integration serves as a foundation to reveal some prospects for knowledge based economic growth and innovative governance in Armenia

1. Digital governance and application of artificial intelligence

A process of digitalization of public governance has begun in Armenia, both in the field of budget planning and public services. Digitalization opens up new prospects for:

- real-time data collection,
- building forecasting models,
- analyzing public responses.

Artificial intelligence can be used in the context of economic policy simulations, risk analysis, and strategy selection.

2. *Smart governance*

Innovative governance should move towards smart policy design, where policy, data, technology, and institutional mechanisms are combined. In Armenia, smart governance can be observed in the following sectors: IT, agriculture, infrastructure, and education.

3. *System analysis and interconnectedness*

Innovative governance views the economy as an interconnected system, in which any decision can have multiple consequences in other sectors. For example, tax reforms can affect emigration, and targeted labor market policies can affect investment attraction. In terms of innovative management, Armenia faces a number of challenges:

- Weak analytical and modeling capabilities in state structures,
- Lack of professional personnel in the field of strategic planning,
- Insufficient financial resources for data collection, processing and analysis,
- Underdeveloped system of institutional cooperation,

Innovative management of the national economy can be made practical and effective only if strategies are developed based on realism and multi-factor scenarios. It is this approach that ensures the flexibility of the economic system, optimal allocation of resources and effective response to the changing environment. The introduction of this model in Armenia requires a coordinated state policy, development of professional capabilities and modernization of management thinking. We believe it is necessary to:

- Make scenario planning a mandatory tool in forming national and sectoral strategies.
- Create a Center within the government with a cross-disciplinary team of experts.
- Institutionalize innovative management by innovation laboratories in the government.
- Cooperate with universities, think tanks and the private sector to develop new models

.Conclusions

Thus, it can be concluded that intellectual security is an important element in the economic and national security system, which is based on intellectual interests, intellectual threats, and intellectual protection. At the same time, it must be taken into account that the EAEU countries possess significant intellectual potential for addressing intellectual security issues, and this potential must be harnessed. Consequently, maintaining and strengthening intellectual security in today's environment is only possible by eliminating intellectual threats, satisfying the intellectual interests of individuals, society, and the state, and implementing effective intellectual protection activities. Finally, a significant threat to intellectual security in the context of the demographic development of Eurasian

integration is the targeted activities of various states, on the one hand, "poaching" highly qualified specialists trained in post-Soviet countries and especially in the EAEU countries, and on the other, deliberately underplaying or dis-crediting the achievements of their own scientific intellect in the global community.

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This article is related to the issues of AI use, intellectual security and demographic challenges in the context of regional integration. Prospects for innovative governance and knowledge based economic development are also justified based on thorough analysis of existing risks and opportunities.

Clearly, to ensure, maintain, and strengthen intellectual security, it is necessary to implement a range of organizational, legal, economic, and other measures aimed not only at preserving and reproducing existing intellectual potential, but also at enhancing the prestige of intellectual work and encouraging those with scientific intellect to engage in productive work. In implementing these measures, it becomes imperative to shift the focus from passive to active defense.