STATE REGULATION OF INNOVATIVE DEVELOPMENT OF HUMAN CAPITAL

Ilyina Anastasiya

ABSTRACT

Purpose: The article aims to study the impact of public authorities on the innovative development of human capital and substantiate its importance for the further growth of the economy.

Theoretical reference: The innovative development of human capital plays a crucial role in enhancing the efficiency and quality of public services, leading to reduced societal inequalities and contributing to the country's sustainable development. In an era of rapid technological advancements, adapting to new realities and fostering a skilled workforce is vital for public authorities to meet the demands of a competitive labor market.

Method: The methodological approach is based on the analysis of legal acts, scientific research and statistical data for the last five years. In addition, a comparative analysis of different countries is used to highlight positive practices and note aspects that need improvement.

Results and Conclusion: During the analysis, it was found that the state can influence the development of human capital by promoting education, improving qualifications, and creating an encouraging environment for the development of creativity and leadership qualities. The article emphasizes the need for an active state support of innovative initiatives, as well as reforming the system of public authorities in order to ensure a more effective impact on the development of human capital.

Search Implications: The state has a significant potential to stimulate the innovative development of human capital, and it is important to develop and improve its role in this process in order to achieve sustainable economic progress.

Originality/value: To realize the necessity of active state support, improve the legislative framework, and establish a sustainable innovation ecosystem in human resource management, which will contribute to further enhancing the country's competitiveness in the global market.

Keywords: professional development, human capital, innovative development, state regulation, public authorities, public service, sustainable development.

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REGULAMENTAÇÃO ESTADUAL DE DESENVOLVIMENTO INOVADOR DE CAPITAL HUMANO

RESUMO

Objetivo: O artigo tem por objetivo estudar o impacto das autoridades públicas no desenvolvimento inovador do capital humano e comprovar a sua importância para o crescimento da economia.

Referência teórica: O desenvolvimento inovador do capital humano desempenha um papel crucial na melhoria da eficiência e da qualidade dos serviços públicos, levando a uma redução das desigualdades sociais e contribuindo para o desenvolvimento sustentável do país. Numa era de rápidos avanços tecnológicos, a adaptação a novas realidades e a promoção de uma mão de obra qualificada são vitais para que as autoridades públicas satisfaçam as exigências de um mercado de trabalho competitivo.

Método: A abordagem metodológica baseia-se na análise de atos jurídicos, pesquisas científicas e dados estatísticos dos últimos cinco anos. Além disso, uma análise comparativa de diferentes países é usada para destacar práticas positivas e observar aspectos que precisam de melhorias. Resultados e Conclusão: Durante a análise, constatou-se que o Estado pode influenciar o desenvolvimento do capital humano promovendo a educação, melhorando as qualificações e criando um ambiente encorajador para o desenvolvimento de qualidades criativas e de liderança. O artigo salienta a necessidade de um apoio estatal ativo a iniciativas inovadoras, bem como de uma reforma do sistema de autoridades públicas, a fim de assegurar um impacto mais eficaz no desenvolvimento do capital humano.

Implicações da busca: O Estado tem um potencial significativo para estimular o desenvolvimento inovador do capital humano, e é importante desenvolver e melhorar o seu papel neste processo, a fim de alcançar um progresso econômico sustentável.

Originalidade/valor: Realizar a necessidade de apoio ativo do Estado, melhorar o quadro legislativo e estabelecer um ecossistema de inovação sustentável na gestão de recursos humanos, o que contribuirá para aumentar ainda mais a competitividade do país no mercado global.

Palavras-chave: desenvolvimento profissional, capital humano, desenvolvimento inovador, regulação estatal, autoridades públicas, serviço público, desenvolvimento sustentável.

1 INTRODUCTION

The innovative development of human capital is an important component of sustainable development of society. This helps to improve the quality of citizens’ life, reduce inequalities in society and improve the sustainable development of the country. The implementation of innovative methods and approaches in public authorities can contribute to improving the quality of decisions and services provided to citizens. The public service, as a key component of state regulation of human capital development, affects the country’s development, demonstrates efficiency and rationality in the use of resources. The innovative development of human capital contributes to the improvement of the activities of state bodies, ensuring more efficient use of resources and improving
the quality of services to citizens. In the conditions of rapid technological development, the public service should adapt to new realities. The innovations in human capital management help to prepare specialists who can effectively use new technologies and tools. Growing competition in the labor market requires the public service to provide citizens with opportunities for learning and development. Thus, the innovative development of human capital contributes to training of the workforce and its ability to provide highly efficient activities, including in public authorities.

2 THEORETICAL FRAMEWORK

The consideration of issues related to innovative activity is one of the main topics in modern economic science, as it shapes the direction of the future development of the national economy and society in general. Accordingly, this aspect attracts the attention of numerous researchers. So, Boiko et al (2022) studied the issue of sustainable development and the place of Ukraine among foreign countries of the world under the conditions of the pandemic COVID-19, mentioning the state impact on this process. At the same time, Chechel et al (2020) noted that sustainable development is closely related to the state regulation of human capital on an innovative basis, in particular when public authorities’ staff use information and communication technologies. In this case, Holovnia et al (2019) emphasized that human capital is an indicator of effective interaction between all subjects of the investment process of both the state (public authorities) and private (private enterprises, institutions and organizations) sectors. Moreira et al (2023) Moreira researched the importance of management by competence as an efficient management system for organizations that wish to attract and retain human talent, aligned with the strategic planning of people management, in search of organizational sustainability. Daversa et al (2023) considered addresses the concepts of professional competencies and sustainable leadership and how they can be applied to the public sector from the perspective of public city administrators.

However, the foreign researcher Pestoff (2019) considers that it is the level of professionalism of public service specialists that is the primary source of the effectiveness of the formation and development of human capital, since innovative development requires effective regulation by the state. Along with this, Prodius et al (2020) indicated that the implementation of strategic investment plans of individual enterprises, institutions and organizations at the international level is a reflection of the innovative
development of human capital in the whole country. In this context, one can agree with foreign researcher Subhash (2019) that professional development (raining, retraining and advanced training) of personnel of both business entities and public authorities will create conditions for effective human capital management with the use of innovative methods and tools of system interaction. Here it is difficult not agree with Tochylina (2019) that individual human capital forms human capital at the national level, which is reflected in the constant innovation system of the country based on resource interaction impact on country’s sustainable development.

Despite the significant contribution of domestic and foreign researches to this field, it is important to study the current state of innovative activity in terms of assessing its position in international innovation rankings.

3 METHODOLOGY

There are following methods used in the article: scientific abstraction – choosing a research approach and formulating a research question concerned the innovative development of human capital influenced by public authorities; system analysis – studying the relationship between the personnel of public authorities and the process of innovative development of human capital; statistical methods – choosing a research sample, collecting and analyzing data for the last years; comparative analysis – comparison of statistical data on the innovative development of human capital in Ukraine and foreign countries of the world, interpretation of its results, making relevant conclusions and recommendations how to improve the human capital in Ukraine.

4 RESULTS AND DISCUSSION

The modern world requires constant changes and improvement in all aspects of life. The innovation has become a key factor in the successful development of society, and one of the important sources of innovation is human capital (Tochylina, 2019). The ability of society to adapt to new challenges, implement new technologies and develop stably depends on people’s knowledge, skills and creativity. However, the key question is how the state can influence the development of the innovative potential of human capital.

It should be noted that in modern conditions, when the economy, technology and social environment are rapidly changing, the state becomes an important agent that can
contribute to the innovative development of society. The way state administration bodies, public organizations and other public structures interact with society determines the possibility of forming and preserving innovative potential. Understanding and analyzing the role of the state in stimulating the innovative development of human capital is important for the effective management and development of modern society.

Boiko et al (2022) emphasized that it is innovative development that is a priority of the modern economy and is a necessary stimulus for business activity and the basis of a competitive economy. The growth of the innovative component dictates not only the need to intensify innovative activity, but also the presence of a formed innovative potential. It should be noted that the innovative development is practically impossible without the appropriate development of the productive human forces as the subject of innovative activity. Chechel et al (2020) noted that the key aspect of the process of innovative production is the innovatively active individual, whose human capital becomes an important resource of activity taking into account the formation of new knowledge.

As for data of Forbes Ukraine (2022), it is worth noting that Ukraine ranked only 57th position in the ranking of exports of high-technology products in 2022. This rating shows that Ukraine lags behind China, which is the global leader in technology, by more than 652 times (according to data for 2017). Compared to Germany, its technological competitor, Ukraine lags behind by more than 208 times. In addition, other leading countries in the field of high-tech exports in 2018 also include Korea, USA, Singapore, France, Japan, and others (Tab. 1).

<table>
<thead>
<tr>
<th>Position</th>
<th>Country</th>
<th>Volume (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>832,235,000,000.00</td>
</tr>
<tr>
<td>2</td>
<td>Germany</td>
<td>309,829,000,000.00</td>
</tr>
<tr>
<td>3</td>
<td>Korea</td>
<td>251,443,000,000.00</td>
</tr>
<tr>
<td>4</td>
<td>USA</td>
<td>196,178,000,000.00</td>
</tr>
<tr>
<td>5</td>
<td>Singapore</td>
<td>182,527,000,000.00</td>
</tr>
<tr>
<td>46</td>
<td>Greece</td>
<td>2,356,492,000,000.00</td>
</tr>
<tr>
<td>47</td>
<td>Latvia</td>
<td>2,315,268,000,000.00</td>
</tr>
<tr>
<td>57</td>
<td>Ukraine</td>
<td>1,743,878,000,000.00</td>
</tr>
<tr>
<td>60</td>
<td>Mexico</td>
<td>1,480,789,000,000.00</td>
</tr>
</tbody>
</table>

Source: author’s development according to: (Forbes Ukraine, 2022)

Its ranking was compiled on the basis of a comparison of the volume of exports of high-technology products among 167 countries of the world. The category of high-tech
products includes such areas as aerospace equipment, computer and office equipment, electronics and telecommunications, pharmaceutical products, scientific instruments, electrical equipment and machinery, chemical products, non-electrical equipment and machinery, and also products of the chemical industry and armaments.

Let’s consider the dynamics of changes in the Indexes of the European Innovation Scoreboard for Ukraine for the years 2018-2022 (Tab. 2).

Table 2. The dynamics of changes in the Indexes of the European Innovation Scoreboard for Ukraine from 2018 till 2022

<table>
<thead>
<tr>
<th>No</th>
<th>Basic blocks</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Human resources</td>
<td>131.6</td>
<td>100.8</td>
<td>53.4</td>
<td>46.4</td>
<td>31.8</td>
</tr>
<tr>
<td>2</td>
<td>Attractive research systems</td>
<td>22.3</td>
<td>15</td>
<td>17.3</td>
<td>15.1</td>
<td>17.3</td>
</tr>
<tr>
<td>3</td>
<td>Innovative environment/digitalization</td>
<td>5.5</td>
<td>6.0</td>
<td>169.6</td>
<td>97.5</td>
<td>72.0</td>
</tr>
<tr>
<td>4</td>
<td>Finances and innovation support</td>
<td>16.7</td>
<td>7.6</td>
<td>11.3</td>
<td>9.8</td>
<td>17.7</td>
</tr>
<tr>
<td>5</td>
<td>Innovation expenditures</td>
<td>44.8</td>
<td>52.9</td>
<td>45.1</td>
<td>34.8</td>
<td>41.0</td>
</tr>
<tr>
<td>6</td>
<td>Innovators</td>
<td>16.0</td>
<td>15.6</td>
<td>20.2</td>
<td>22.6</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Communication</td>
<td>9.6</td>
<td>3.0</td>
<td>37.6</td>
<td>36.5</td>
<td>10.1</td>
</tr>
<tr>
<td>8</td>
<td>Intellectual property</td>
<td>13.4</td>
<td>13.1</td>
<td>20.9</td>
<td>22.4</td>
<td>9.8</td>
</tr>
<tr>
<td>9</td>
<td>Impact on employment</td>
<td>77.9</td>
<td>77.4</td>
<td>86.9</td>
<td>80.5</td>
<td>78.2</td>
</tr>
<tr>
<td>10</td>
<td>Impact on export</td>
<td>32.8</td>
<td>34.7</td>
<td>35.1</td>
<td>35.3</td>
<td>37.5</td>
</tr>
</tbody>
</table>

Source: author’s development according to: (European Commission, 2021, 2022)

As for data of Bloomberg (2021) among the positive aspects in 2021, the existing innovative environment and its impact on employment were noted. In addition, Ukraine shows quite high indicators for such indicators as employment in research activities, the spread of broadband Internet (communication), spending on innovations that are not related to research and development (R&D), and also the export of knowledge-intensive services. However, the weaknesses of innovative development of Ukraine include financing and support of innovations, attractiveness of research systems and intellectual property.

The group of low-valued aspects includes indicators such as government spending on R&D, the share of small and medium-sized enterprises implementing marketing or organizational innovations, international publications in the field of science and business. As for data of European Commission (2021, 2022), analysis of the Innovation Index of the European Innovation Scoreboard by elements allows us to conclude that there are unused opportunities in Ukraine that hold back innovative development, especially in the context of intellectual property rights protection and commercialization of innovations.

In 2021 funding from the direction “Financial support for the development of scientific infrastructure and renewal of the material and technical base” was provided...
through budget funds. Fourteen main managers carried out this financing in the amount of UAH 1,478.01 million. Of these, UAH 1,143.88 million were spent at the expense of the general fund, and UAH 334.13 million – the special fund.

The largest shares of general fund expenditures were distributed among various organizations. So, the Ministry of Education and Science of Ukraine (MESU) received 39.37% (450.28 million UAH), the National Academy of Sciences of Ukraine (NASU) – 34.10% (390.00 million UAH), and the Ministry of Justice of Ukraine (MJU) – 23.96% (274.13 million UAH) of expenditures (Fig. 1).

It can be considered that it is an education in the direction of state regulation that has the greatest impact on the innovative development of the economy, increasing the level of human capital. In its turn, human capital becomes a significant impact on the activities of public authorities’ staff.

![Fig. 1. Distribution of the volume of expenditures of the general fund due to the direction of budget financing “Financial support for the development of scientific infrastructure and renewal of the material and technical base” by main managers, 2021 (percent)](image)

Source: author’s development according to: (Bloomberg, 2021; Forbes Ukraine, 2022)

As for WIPO ranking results of the Global Innovation Index – GII (2022), only a small number of economies consistently achieve the highest innovation productivity. For the twelfth year in a row, Switzerland ranks first in the GII. The USA overtook Sweden for second place and continues to lead the world rankings for 15 of the 81 GII 2022 innovation indicators (Tab. 3).
Therefore, the analysis of various international indexes related to innovative development confirms that countries of the world leading this process demonstrate better indicators on a number of parameters, such as entrepreneurial activity, the level of human capital, research expenses, etc. They direct significant investments in innovation and have a more highly qualified workforce.

The position of Ukraine in international rankings reflecting innovative development indicates the presence of significant potential in the educational and scientific sphere, which is the basis for the creation of innovations, scientific developments, new equipment and technologies (Tab. 4).

Table 3. The ranking results of the GII-2022 of the Innovation Productivity Index

<table>
<thead>
<tr>
<th>Country</th>
<th>Position</th>
<th>Country</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switzerland</td>
<td>1</td>
<td>India</td>
<td>40</td>
</tr>
<tr>
<td>USA</td>
<td>2</td>
<td>Bulgaria</td>
<td>35</td>
</tr>
<tr>
<td>Sweden</td>
<td>3</td>
<td>Malaysia</td>
<td>36</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>4</td>
<td>Vietnam</td>
<td>48</td>
</tr>
<tr>
<td>Netherlands</td>
<td>5</td>
<td>Islamic Republic of Iran</td>
<td>53</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>6</td>
<td>Philippines</td>
<td>59</td>
</tr>
<tr>
<td>Singapore</td>
<td>7</td>
<td>Chile</td>
<td>50</td>
</tr>
<tr>
<td>China</td>
<td>11</td>
<td>Brazil</td>
<td>54</td>
</tr>
<tr>
<td>Canada</td>
<td>15</td>
<td>Mexico</td>
<td>58</td>
</tr>
<tr>
<td>Turkey</td>
<td>37</td>
<td>Colombia</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dominican Republic</td>
<td>69</td>
</tr>
</tbody>
</table>

Source: author’s development according to: (WIPO, 2022)

However, at the same time, these rankings reveal a wide range of problems:
- an insufficiently efficient and weak mechanism for introducing innovations into the economic sphere and further commercialization;
- limited state support for innovative projects and their financing both from the state budget and from private investors;
- limited use of opportunities provided by the Association Agreement between Ukraine and the EU (2014), especially in the field of scientific and technological cooperation, development of entrepreneurship and industrial policy;
- reduction of funding for science, innovation and education;
- spread of corruption and political instability;
- insufficient level of cooperation between innovative enterprises and research institutions.

In this case, recently, it is possible to observe the increased attention of scientists and practitioners to the problems of the development of innovative potential, including human capital (Prodius et al, 2020).

One of the basic approaches to researching the innovative potential of socio-economic systems is the resource approach. It provides an opportunity to study such systems through many resources: personnel, material and technical, financial, informational. etc. As mentioned by Holovnia et al (2019), the innovative potential can be imagined as a set of labor resources that are directly experienced in strategic planning of investments in innovative activity in combination with material and technical, natural, organizational, managerial and institutional resources both in public authorities and private entities.

In the scientific literature, there is a variety of approaches to defining the concepts of “human capital” and “human potential”, which often leads to difficulties in their use in theory and practice (Subhash, 2019).

It is worth noting that the public service as the main regulator of human capital development is a key element of the state apparatus and public administration aimed at ensuring the efficient operation of state institutions and meeting the needs of society. The functions of the public service include a wide range of tasks aimed at supporting the functioning of the state, providing services to citizens and ensuring the development of society. For example (Pestoff, 2019):

- enforcement of laws: ensuring the enforcement of legislation and the implementation of state policy, that means ensuring compliance with the rights
and obligations of citizens, enterprises and other subjects in accordance with the laws;
- provision of public services: ensuring the provision of various public services, such as health care, education, social support, security, transport, etc., which are aimed at meeting the needs of citizens and improving their quality of life;
- planning and coordination: responsible for the development of strategies, plans and programs aimed at achieving state goals; it also coordinates the actions of various state bodies and structures to achieve joint tasks;
- financial management: carrying out the financial management of state funds, including their distribution, monitoring of expenses and effective use of budget resources;
- ensuring public security: it has the task of ensuring public security, including law and order, fighting crime, ensuring national defense and other aspects of security;
- development and innovation: it can contribute to the development of innovative initiatives and projects, contributing to the creation of conditions for innovative activities in various spheres of society;
- ensuring transparency and openness: it is obliged to act transparently and openly, to provide citizens with access to information about its activities and to make decisions based on general public interests.

These functions play an important role in ensuring the sustainable development of society, strengthening the rule of law and meeting the needs of citizens.

At the same time, the public service can influence the development of human capital in various ways, which are aimed at increasing the level of knowledge, skills, qualifications and innovative thinking of the population.

According to the Law of Ukraine “On Education” (2017), the public authorities’ staff can create and support educational programs that contribute to providing affordable and quality education for all segments of the population. This may include funding for schools, universities, support for scientific research, training courses for public servants and other initiatives.

The Law of Ukraine “On Professional Development of Employees” (2012) interprets, that the public authorities’ staff can provide opportunities for professional
growth and improvement of the qualifications of employees through training, workshops, and other forms of education helping employees develop new skills and knowledge.

In many countries, there is a system of normative legal acts that regulate the issue of professional training and professional development of public service employees. These acts determine the standards and requirements for qualification, provide rules for assessment and certification, contributing to the improvement of the professional level of public servants as the key human capital development managers in various innovative approaches (Subhash, 2019).

At the same time, according to the Law of Ukraine “On Scientific and Scientific-Technical Activities” (2015) the state can create conditions for the development of an innovative environment that facilitates the implementation of innovative projects and ideas. This may include support for startups, innovation centers, and promotion of research activities. By providing grants, subsidies and other financial support for R&D that contribute to the development of new technologies, products and services, the state encourages the process of R&D.

It should be noted that the development of human capital occurs through the support of creativity and innovative thinking. The public authorities’ staff can organize and support initiatives aimed at the development of creativity and innovative thinking among the population: forums, competitions, creative meetings, etc.

The innovative development is also facilitated by the introduction of technologies, because the use of the latest technologies to improve the quality of its services includes the introduction of electronic platforms, automation systems and other solutions.

Thus, the state through the implementation of laws and regulations affects the development of human capital. The effective implementation of these acts contributes to the provision of proper education, training, advanced training and development of skills of the population, which affects the growth of productivity, innovation potential and quality of life in general.

Moreover, increasing the impact on the development of human capital, the state can: create a special fund that would provide financial support to innovative projects within the framework of public service; develop and adopt laws that guarantee the protection of intellectual property rights, will promote the commercialization of innovative solutions and the involvement of investors; promote the unification of innovative enterprises, scientific institutions and research centers in specialized clusters;
support the development of new educational programs aimed at training specialists with innovative thinking and skills, which is an important element for ensuring the quality development of human capital; establish the international partnerships in the field of innovation contributing to the exchange of experience and knowledge, as well as the involvement of foreign investors; support for startups, implementation of an evaluation system that takes into account not only the amount of work, but also the innovative contribution.

5 CONCLUSIONS

The analysis of the state impact on the innovative development of human capital revealed a number of key aspects that should be taken into account when forming strategies and policies in the field of economic and educational development. The public service is an important catalyst for promoting the innovative growth of human capital. With the help of properly structured programs of innovative development, it promotes training, improvement of qualifications and development of new skills among employees. The support for innovative approaches and creative thinking in work contributes to the formation of leadership qualities and a highly educated workforce.

In addition, it is necessary to focus on the development of the public service as a continuous advance in the direction of creating a stimulating innovation environment. This implies the availability of effective financing mechanisms for innovative projects, as well as the constant improvement of the system of education and training. It is also important to ensure public support for the commercialization of innovative solutions and scientific developments.

The access to information and communication technologies (ICTs) is an important aspect for innovation. The high availability of ICTs and its use contributes to the development of the economy and society.

The indicators of knowledge creation and impact are very important. A large number of patents, scientific articles and software costs confirm the importance of innovative achievements. The level of intellectual property and the export of high-tech products are indicators of the spread of knowledge. The effective use of intellectual property and increased exports of high-tech goods can improve competitiveness.
Overall, the GII reflects important aspects that contribute to a country’s innovative development, including the political environment, education, infrastructure, scientific and technological potential, and the level of knowledge diffusion.

Thus, the development of human capital through the state regulation is an integral part of the modern strategy of sustainable economic growth. An active state support, improvement of the legal framework and creation of a sustainable innovation ecosystem in the field of human resource management will contribute to further increase of the country’s competitiveness in the global market.
REFERENCES


