

FORMATION OF THE INNOVATIVE COMPONENT OF THE INTERNATIONAL COMPETITIVENESS OF THE WORKFORCE OF UKRAINE IN THE CONDITIONS OF GLOBAL DIGITALIZATION

ФОРМУВАННЯ ІННОВАЦІЙНОГО КОМПОНЕНТУ МІЖНАРОДНОЇ КОНКУРЕНТОСПРОМОЖНОСТІ РОБОЧОЇ СИЛИ УКРАЇНИ В УМОВАХ ГЛОБАЛЬНОЇ ДІДЖИТАЛІЗАЦІЇ

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Abstract. The article is devoted to the consideration of the basic characteristics, the economic focus of the process of formation of the innovative component of the international competitiveness of the workforce of Ukraine in the conditions of global digitalization of the world economy. The innovative component of the international competitiveness of the workforce is defined as the potential professional abilities of employees who are able to optimally use the latest achievements of scientific and technological progress in social production. The main components of the innovative component of the formation of the international competitiveness of the domestic workforce are studied, namely: a) the level of mastery of modern information and communication tools; b) targeting the constant mastery of new digital technologies; c) acquisition of professional competences oriented to the parameters of world standards; d) modernization of the national system of higher education in the direction of training highly qualified specialists in demand on the domestic and global labour markets; e) using the advantages of cooperation with international partners in the field of involvement in training and borrowing new forms and methods of ensuring the professional growth of young specialists. Factors affecting the development of the innovative component of the international competitiveness of national labour resources are analyzed. They include: 1) the consequences of the Russian military aggression against Ukraine, which led to a decrease in the national scientific and technical potential; 2) forced migration of specialists within our country and abroad; 3) insufficient development of the IT sector of the domestic labour market; 4) regional disparities in the use of highly qualified labour force; 5) inadequate financing of the system of training of highly qualified personnel. The directions for strengthening the innovative component of the international competitiveness of the domestic workforce are proved, including: a) development of balanced state programs for national and regional development of highly qualified labour resources; b) modernization of higher education standards in the training of specialists of various professions; c) implementation of measures to stimulate the development of the national IT industry, digitization of industries and spheres of domestic production; d) formation of analytical centers for the study of features and trends in the development of world labour markets; e) adoption of an innovative national system of qualifications, oriented to the needs of internal and external business.

Key words: innovative component, international competitiveness of the workforce, digitalization of the IT sector of the labour market of Ukraine, national personnel strategy.

Statement of the problem and its connection with important scientific or practical tasks.

In modern conditions the issues of effective use of the innovative potential of domestic labour resources are becoming an urgent research. First of all, it seems appropriate to focus attention, firstly, on the characteristics of the existing capabilities of the innovative component of the domestic workforce, where the level of digitalization qualification acts as its main feature. Secondly, an attention should be focused on new challenges to the training of highly qualified theoretical and practical specialists. They are objectively the patterns of development of the world economy. First of all, it is about deepening the international division of labour, transnationalization, strengthening the

positions of regional and integration groups, diversification of world markets for goods, capital, labour, and services. Thirdly, special attention should be paid to the problems of balanced use of the innovative component of the domestic workforce in the modern conditions of the martial law in our country and in the period of the post-war restoration of the domestic scientific and technical potential. Taking into account the mentioned research of the innovative component of the international competitiveness of national labour resources in the direction of revealing its economic essence, structure, features of implementation, prospects for further development, it is one of the priority guidelines for the development of the economy of our state and strengthening its position on the world markets.

Formulation of the goals (purpose) of the article. The purpose of the article is to study the process of formation of the innovative component of the international competitiveness of the workforce of Ukraine and to substantiate measures for its qualitative growth.

The analysis of the latest research and publications, in which the solution to this problem was initiated and on which the author relies. Quite a large number of scientific works by domestic and foreign authors are devoted to the problems of the development of the international competitiveness of labour resources of Ukraine. V. Budkin (Budkin, 2004), K. Wolczuk (Wolczuk, 2013), T. Davydiuk (Davydiuk, 2009), R. Dragneva (Dragneva, 2013) made a significant contribution to the development of theoretical, methodological and practical issues in this direction. I. Zhurba (Zhurba, 2012), M. Jovanovic (Jovanovic, 2006), V. Kopyika (Kopyika, 2015), H. Lukenbach (Lukenbach, 2010), D. Lukianenko (Lukianenko, 2008), I. Marchenko (Marchenko, 2018), V. Moroz (Moroz, 2015), L. Nikolaienko (Nikolaienko, 2010), S. Panchyshyn (Panchyshyn, 2009), O. Sakharska (Sakharska, 2009), O. Pyshchulina (Pyshchulina, 2020), A. Puntigliano (Puntigliano, 2017), M. Porter (Porter, 2000), A. Filipenko (Filipenko, 2004), A. Cherep (Cherep, 2011), O. Cheromukhina (Cheromukhina, 2021), Yu. Chaliuk (Chaliuk, 2021), O. Shnyrkov (Shnyrkov, 2011), M. Hamov (Hamov, 2011), R. Zablotska (Zablotska, 2016), T. Schultz (Schultz, 1975) etc. Their works, in particular, examine labour resources, which are the form of expression of the majority of human resources and are characterized as a part of the country's population, which, having the appropriate psychophysiological, physical and intellectual qualities, is able to produce material and spiritual goods and services; peculiarities of the development of the system of international competitiveness of the Ukrainian economy in the conditions of the European competitive space; factors that form the competitiveness of the work force of Ukraine on the domestic and foreign labour markets; international integration processes and their influence on the optimal use of the total innovation potential of the interested countries.

Highlighting previously unsolved parts of the general problem, to which the article is devoted. Quite a large number of scientific works are devoted to the development of directions of innovation and, in particular, their digitalization component of the labour market of Ukraine. But, taking into account the current realities, related, in particular, to the military invasion of Ukraine by the Russian Federation, this process requires additional scientific research. One of its priority components is the analysis of the prerequisites for the formation of modern basic characteristics, development peculiarities, mechanisms of implementation and increasing the innovative capabilities of the Ukrainian workforce, as a significant factor in strengthening the international competitiveness of the domestic economic potential. The study of this direction of the use of national labour resources is one of the priorities in the economic development strategy of Ukraine, and deserves a scientific analysis of its specifics.

Presentation of the main material of the study with a detailed justification of the obtained scientific results. The development of the innovative component of the international competitiveness of the workforce is one of the priority directions for the implementation of foreign economic strategy of Ukraine, which is capable of providing an impetus for qualitative transformations of the national economy and strengthening its position on world markets. In general, M. Porter (Porter, 2000) clearly stated the importance of the introduction of innovations as the main

condition for the competitiveness of the countries of the world and noted that: "The competitiveness of a particular nation depends on the ability of its industry to introduce innovations and be modernized." With regard to the analysis of the process of formation of the innovative component of the competitiveness of the workforce, it is advisable to determine, first of all, its economic essence and planes of manifestation. In our opinion, the generalized content of the competitiveness of the workforce can be considered as the mastery of professional knowledge by employees and the ability to use it in practical activities with higher efficiency, compared to representatives of similar professions.

Regarding the definition of the features of the manifestation of the international competitiveness of the workforce, here it is worth distinguishing the environment of its functioning. Firstly, in general, the competitiveness of the workforce is inherent on the labour market, where it is typical for the assessment of the employee's abilities. In this plane, we are talking, first of all, about the potential competitiveness of the workforce.

Secondly, the competitiveness of the workforce is concretely implemented in the labour market. In this plane, it is appropriate to consider the use of the employee's abilities in his direct production activities, their embodiment in the results of his work - material products, services and the demand for the latter and the volume of their implementation on the market. Herein, in contrast to the potential one, it is necessary to consider the real competitiveness of the workforce, which is ultimately embodied in the results of the employee's activity, and has priority on the market in terms of consumer demand for products manufactured for sale.

Thirdly, based on the abovementioned, the international competitiveness of the workforce, the forms of its manifestation, should be evaluated within the limits of its offer on the world labour market, and in the plane of its application, directly, on the world labour market. Regarding the assessment of the international competitiveness of the workforce on its world market, it is about the level of professional training of employees, the possibility of using their abilities, which is reflected in the terms of the contract that the employer offers to the hired worker. When the contract becomes legally binding, it becomes the first stage of functioning of the global labour market. The next stage is the professional work of the employee, its results, their implementation and compensation for labour costs. A characteristic feature of the international competitiveness of the workforce is that it, as an offer, is inherent and operates in our time in the global economic space.

Fourthly, the international competitiveness of the workforce should be evaluated within the framework of national economies, where it can also find its manifestation on the domestic workforce market and the labour market. In this plane, the international competitiveness of the workforce of a certain state will be manifested in the offer of employees and its comparative assessment of the possibility of employment in foreign companies operating on the territory of their country. In case of involvement of the local workforce to the work in foreign companies, the level of its international competitiveness will be generally reflected in the results of the activities of the relevant foreign business entities. Another way of assessing the international competitiveness of the national workforce is its effective activity at domestic enterprises. This can be evidenced by the overwhelming demand for their products, compared to similar imported ones, on the domestic market of goods and services. In this sense, the offer of the competitive local workforce in the conditions of the formation of the global labour market and the workforce market, an integral component of which are national links, acquires international features.

The specified basic characteristics of the international competitiveness of the workforce are also inherent in the process of forming its domestic innovative component. A specific leading feature of its current level is the existing degree of digitization of the domestic workforce. It is the mastery of the latest ICT tools that allows employees to demonstrate their competitive potential. It should be noted that digitalization, as was mentioned at the G-20 Summit (15-16 November 2022), is one of the priority forms of transformation of civilizational development, and it includes, among other things, world workforce markets, labour markets and integration and national competitive relations of actors on each of them (Ukrinform).

Digitalization of the domestic labour market is characterized by complex non-linear relationships with the international competitiveness of the workforce of Ukraine (ICWU) due to the lack of a unified approach to defining the concepts of digitalization, digital transformation of a certain

industry, competitiveness of the workforce, etc. In this context, the concept of ICWU should be investigated as a competitive characteristic of the country's human capital on the international labour market (education, professionalism, competence in the form of abilities, knowledge, skills, personal qualities, innovation potential, motivational potential) in comparison with the human capital of other countries (Moroz, 2015).

Digital technologies represent a huge market and industry, as well as a platform for the efficiency and competitiveness of the workforce and all other markets and industries. Digital transformation is considered as 1) cultural, organizational and operational change of an organization, industry or ecosystem through intelligent integration of digital technologies, processes and competencies at all levels and functions in a phased and strategic manner; 2) strategic implementation of digital technologies (Cheromukhina, 2021), (Chaliuk, 2021). Thus, digital transformation involves the development of digital competencies and a change in the international competitiveness of the workforce, in particular the emergence of a new characteristic of the country's labour resources on the international labour market, namely digital skills that provide remote interaction between employees and employers, expand the employment potential.

As a result of the integration of digital technologies in various industries, a digital labour market is formed, that is a specific segment of the global labour market, in which the demand and supply of labour digital services is created remotely, while the interaction of its subjects takes place using information and computer technologies (Pyshchulina, 2020). The concept of digitalization of the labour market can be considered as a strategy for automating jobs, search processes, recruitment, labour resource management, training, and technology integration to optimize the functions performed by personnel of various educational and qualification categories. The dynamic digitization of the labour market will have a positive effect on the ICWU, thanks to the improvement of the level of qualification of labour resources, their competence and other personal qualities. The country's emphasis on the development of digital competences will contribute to the formation of a digital labour market at the national level, which will be integrated into the global, international labour market.

The international competitiveness of the workforce of Ukraine is determined by the state policy in stimulating the development of talents, legal norms regulating labour market, which currently limit its development, in particular flexibility. Since independence, there has been no effective policy of managing the competitiveness of the workforce in Ukraine. On 14 April 2022, on the website of the Cabinet of Ministers of Ukraine, Order No. 286-p of 23 February 2022 "On the Approval of the Strategy for the Development of Higher Education in Ukraine for 2022-2032" (Pro skhvalennia Stratehii rozvytku vyshchoi osvity v Ukraini na 2022-2032 roky) was published, which provides for the implementation of five key goals: ensuring the effectiveness of management of the higher education system; ensuring and building the trust of citizens, the state and business in the educational, scientific, innovative activities of higher education institutions; provision of high-quality educational and scientific activities, competitive higher education, which is accessible to various population groups; internationalization of higher education of Ukraine; attractiveness of higher education institutions for study and academic career.

A number of tasks have been determined within the specified goals, which will affect the improvement of the level of qualification of the workforce and its competitiveness. This process will consist in the modernization of the network, consolidation of higher education institutions, support of research universities; providing conducive conditions for higher education institutions to conduct research and consult business; creation of conditions for the development of public and private partnership in the field of higher education; providing conducive conditions for the use of innovative technologies and the latest learning tools in the educational process, development of research infrastructures; development of the national system of qualifications; simplification of the procedures for recognition of foreign educational qualifications, etc. The expected result of the implementation of the Strategy involves the creation of an effective system of higher education in accordance with the needs of the economy, citizens and society, which, in turn, will strengthen the level of competitiveness of the workforce on the domestic and global market of educational services.

In the context of the mentioned measures to ensure the innovative component of the ICWU, special attention should be paid to the definition of the main task of domestic higher education, which

consists in the formation of the professional and scientific and educational potential of Ukraine through the implementation of high-quality educational programs, research and social projects, integration into the European research and educational space, social responsibility and competitiveness of education, dynamic institutional development of scientific communities (Stratehichna piramida rozvytku vyshchoi osvity v Ukraini na 2022-2032 roky). Among the main operational goals within the scope of ensuring the effectiveness of higher education management there is training of in-demand specialists to meet the needs of the economy in qualified labour resources, which involves the introduction of a system for monitoring professional qualifications and employment of graduates of higher education institutions in 2022 and the creation of a new regulatory framework for contracting the first workplace for graduates who studied at the expense of the state or local budget in 2023 (Stratehichna piramida rozvytku vyshchoi osvity v Ukraini na 2022-2032 roky). In higher education institutions, educational programs based on the competence approach are approved, in which a list of general, professional (specialist) competences and integral competence (the ability to solve typical specialized tasks and practical problems in the relevant field of activity or in the learning process) are defined.

The formation of the innovative component of the ICWU should contribute to the consistent compliance with the provisions of the National Strategy for the Development of Education in Ukraine for 2012-2021 (Pro Natsionalnu stratehiiu rozvytku osvity v Ukraini na period do 2021 roku), in which one of the main tasks is defined as the development of higher education standards oriented on the competence approach, which will be coordinated with the new structure of educational and qualification (educational and scientific) levels of higher education and with the National Qualifications Framework (NQF) (Pro zatverdzhennia Natsionalnoi ramky qualificatsii). The formation of special (professional) competences in various fields of knowledge involves the use of an interdisciplinary approach, i.e. the ability to use the provisions and research methods of various disciplines to solve problems in various professional spheres of activity and to use information and communication technologies. Thus, the modernization of the higher education system of Ukraine will contribute to the development of the qualified workforce and strengthen its competitiveness on the international labour market.

In the context of comparison of the parameters of the existing innovation component of the ICWU with similar indicators of the developed countries of the world, in particular the EU, it is necessary to note the slow contribution of domestic specialists to the development of our high-technology exports. This is evidenced by the data in Table 1.

Table 1

Dynamics of exports and shares of exports of ICT services in Ukraine,
2010-2021

Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Deviation +/-
	Exports of goods and services, % of GDP												
The EU	40,3	43,2	44,8	45,0	45,7	47,1	46,7	48,4	49,2	49,3	46,7	50,7	10,4
Ukraine	46,5	49,4	47,4	42,9	48,6	52,6	49,3	48,1	45,2	41,2	38,8	40,7	-5,7
	ICT services exports, % of exports of services												
The EU	10,6	10,8	10,8	10,8	11,1	11,5	12,1	12,3	13,5	14,5	17,9	18,3	7,8
Ukraine	3,9	4,9	6,0	7,9	13,7	16,9	18,6	19,4	21,9	24,8	33,3	38,1	34,2
	High-technology exports, % of industrial exports												
The EU	16,7	16,0	16,4	16,4	16,5	17,2	17,5	16,0	15,6	16,2	16,1	16,2	-0,5

Ukraine	4,5	4,5	6,5	6,1	6,9	8,0	6,7	6,2	5,4	5,5	5,9	5,7	1,2
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Source: combined by author based on Exports of goods and services Ukraine. World Bank.
Retrieved from <https://data.worldbank.org/indicator/NE.EXP.GNFS.ZS?locations=UA>

Source: combined by author based on High-technology exports. World Bank.
Retrieved from <https://data.worldbank.org/indicator/TX.VAL.TECH.MF.ZS>

Source: combined by author based on service exports.Ukraine. World Bank.
Retrieved from <https://data.worldbank.org/indicator/BX.GSR.CCIS.ZS?locations=UA>

The data in Table 1 show the dynamics affecting the international level of economic competitiveness of Ukraine, namely: the exports of goods and services show a negative value of -5.7%, high-technology exports are growing at a slow pace and show a rather low value of 1.2%, at the same time, the ICT services exports show a significant growth of 34.2% during 2010-2021.

Among the factors that affect the improvement of the innovative component of the ICWU there are education, qualifications, ability and readiness for intensive work, etc. According to the calculations of E. Libanova, director of the Ptoukha Institute for Demography and Social Studies of the National Academy of Sciences of Ukraine, Ukraine is not inferior to most developed economies in terms of the quantitative parameters of vocational training, but this high level is ensured by middle-aged and older people. As for young people, due to large-scale emigration, despite a significant increase in the training of specialists with higher education, their share in the population aged 25-34 has decreased significantly. With a general increase in the volume of training of specialists with higher education by 1.5 times, there is a noticeable redistribution of them: the role of institutions of the I-II levels of accreditation (with 3-4 years duration of study) is decreasing – both in absolute and relative terms. On the contrary, the role of institutions of the III-IV levels of accreditation (with 5-6 years duration of study) is increasing. Given the reduction, rather than growth, of the total number of jobs truly requiring highly qualified labour, and the preservation of a significant share of budget expenditures in financing training, such shifts are not positive (Panchyshyn, 2009), (Sakharska, 2009).

The main problems of the formation of the innovative component of the ICWU today are those related to the access to financing (Marchenko, 2018), the growth of the discount rate and the cost of lending in the conditions of military aggression of the Russian Federation, devaluation of the national currency, which significantly affects the level of well-being of the population, corruption risks, insufficient efficiency of state administration, lack of competence of territorial bodies of local self-government in developing the potential of labour resources, attracting talents and scientific personnel to regional development. These factors affect the state of the domestic economic potential and slow down the process of forming the innovative component of the ICWU.

In our opinion, institutional, trade, innovation, and demographic factors can be distinguished among the significant global factors of the formation of the innovative component of the ICWU. The latter ones, in the context of the formation of the innovative component of the ICWU, should be considered an important competitive advantage of our country, which is first of all embodied in the degree of development and professionalism of domestic human capital. However, for now, this is a potential competitive advantage that will turn into a real one in the process of innovative activity, transformation and modernization of the system of higher education, development of the framework of qualifications, scientific research potential and stimulation of innovative activity under the condition of a high level of remuneration of scientific workers, which is absent in Ukraine at the current stage of development. Ukraine can increase the level of global competitiveness of the workforce only under the condition of qualitative improvement of the work of state institutions and improvement of the quality of infrastructure; supporting the quality of education in the country, increasing the efficiency of the functioning of commodity markets, the labour market, and the financial market; maximum expansion of the innovative component.

Today the potential strengths of the formation of the innovative component of the ICWU are the following ones: high general education level of the population; large volume of domestic market

and foreign trade; high ability to innovate; quality of research institutions; availability of scientists and engineers. During further reformation process of the economy of Ukraine in order to increase its competitiveness, it should be taken into account that these factors should remain the basis for future growth.

An important feature of the modern innovative component of the ICWU is also the fact that it serves as a condition for attracting foreign capital, primarily investment capital, to our country, which contributes to the increase of jobs and the reduction of unemployment. As a certain problematic impact of the innovative component of the ICWU on the employment of domestic labour resources, especially in the conditions of the war with the Russian Federation, and overcoming its consequences, it is worth paying attention to the forced emigration of highly qualified specialists. This, of course, reduces the possibilities of the full use of the innovative component of the ICWU.

Conclusions and prospects for further investigations in this direction.

The process of formation of the innovative component of the ICWU shows that our state has a fairly high level of education. However, the insufficiently effective state policy of the use of labour resources in the most competitive industries, the lack of measures to stimulate innovation and the involvement of qualified workers in production activities through the activation of scientific research and development, leads to a decrease in the quality of life, well-being, and the level of remuneration, which causes an outflow of talents, labour migration of workers of various educational and qualification categories. Among negative factors of influence on the formation of the innovative component of the ICWU, it is necessary to note the insufficient level of international competitiveness of the education system of Ukraine, insufficiently balanced approaches to education, teaching of innovative disciplines and their mastery by future specialists, and measures for the development, attraction and retention of talents.

For the formation of the innovative component of the ICWU, it is advisable to: a) create national and regional programs for the development and maintenance of highly qualified labour resources in accordance with the approved updated framework of qualifications; b) modernize the network of higher education institutions by revising the standards of higher education in the training of specialists of various professions; c) provide financial support to research universities and promote the establishment of research centers within several universities; d) provide conducive conditions for higher education institutions to conduct research and consulting for business, to create analytical centers at higher education institutions that conduct market research based on business requests and the main problems of business structures (for example, entering the international market, researching regional domestic markets, etc.); e) create conditions for the development of public and private partnership in the field of higher education and the implementation of research commissioned by state bodies and local self-government bodies; f) promote the use of innovative technologies and the latest teaching aids in the educational process, the development of research infrastructures through the establishment of a financing mechanism; g) develop the national system of qualifications taking into account the needs of employers for the skills of employees; h) develop the legal framework for the regulation of remote work in accordance with global requirements in order to protect workers and reduce the level of employment in the informal sector. The expediency of conducting a study of the general legal bases of managing remote forms of employment, determining the standards of workload and productivity of highly qualified specialists on the domestic labour market can be considered a promising direction for the development of the innovative component of the ICWU.

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