

# Digital Society and Transformation of Requirements for the System of Higher Qualification Specialists Training (Economic Sciences) on the Example of Russia and Belarus

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**Abstract**—The purpose of the article (research) is to determine the change (transformation) of requirements to the system of economic professional education at the level of training of specialists of higher qualification in conditions of digitalization of economy and society. The scientific novelty of the research consists in development of theoretical bases of state and public management of the system of professional economic education at the level of training of specialists of higher qualification in conditions of mixed economy and digital society. Author's contribution is equal. Modern methodology of social research based on the system approach was used to conduct the research, including methods of modeling, forecasting, comparison, systematization and periodization, formal-logic and statistical analysis, as well as instruments of included observation and scientific analysis of documents and results of activity. A comparison and analysis of the dynamics and main stages of development of the subsystem of higher qualification training in Russia and Belarus in the sphere of economics were made. The main problems and requirements to the results of training of highly qualified professionals in the field of economics in conditions of digital transformation of society and economy were formulated. The position of the system of training of specialists of higher qualification (economic sciences) as basic and infrastructural in the digital economy has been defined. The conceptual model of the system of training of specialists of the highest qualification (economic sciences) which is actual for a digital society is offered.

**Keywords**—*economic education, higher qualification specialists, education system management, digital society*

## I. INTRODUCTION

The digital economy and the digital society are very likely to be the reality of tomorrow. Requirements to economic

entities performing labor activities are changing before our eyes [14; 31; 32; 34]. This creates new challenges for the existing professional education systems, which traditionally are one of the most conservative institutions of modern society [11]. It is obvious that special managerial efforts are required to modernize the existing education systems and their elements, but scientific substantiations of modernization have yet to be developed.

One of the important elements of modern education systems is postgraduate (third level), not always equally organized in different countries. Nevertheless, the current transformation of society into a digital dimension implies an obvious change in approaches to the technology and the results of post-graduate studies, and it is not obvious, but possible,—to the goals and functions of such education. The transformation of postgraduate approaches in the natural sciences is evident, and the interdisciplinary approach is increasingly expanding as a direct consequence of these processes (biotechnology, genetic engineering, etc.). How achievable is this for the humanitarian sciences, in particular for economics? Economical sciences stand out in the system of socially important sciences, because professional training in this area directly determines the ways of socio-economic development of entire generations. That is why the subject of our study was the systems of training highly qualified specialists in the field of economics in two European post-Soviet countries, Russia and Belarus, which are close in their development trajectory.

TABLE I. MAIN CHARACTERISTICS OF SOCIO-ECONOMIC DEVELOPMENT OF THE RUSSIAN FEDERATION AND THE REPUBLIC OF BELARUS (BASED ON STATISTICAL DATA [27; 29])

Indicators	Russian Federation		Republic of Belarus	
	2018 year	2025 year (forecast)	2018 year	2025 year (forecast)
Number of population (end of year), thsd. persons	146800	146700	9475	9500
Average annual number of population employed in the economy, thsd. persons	71726	70000	4338	4400
Natural increase, decrease (-) of population, thsd. persons	-224,6	-200,0	-26,0	-20,0
Registered unemployment rate (end of year), %	4,8	4,5	0,3	0,3
Gross Domestic Product total, RUB mln/BYN mln *	103876000 / 3462533	105000000 / 3500000	3649740 / 121658	3900000 / 130000
Gross external debt (end of year), USD bln	49,2	50,0	39,0	51,0
in % to gross domestic product	13,0	12,0	65,5	85,0
Consumer price index, %	111,7	111,7	105,6	115,5

\*. The exchange rate of the Belarusian ruble as of 29.12.2018 - 30 Russian rubles

## II. LITARATURE REVIEW AND RESEARCH METHODS

Modernization of education systems in Europe is the subject of a number of scientific studies on the processes, tools and results of changes in different levels or elements of education systems in different countries [35; 36; 37; 38; 39; 40; 41; 42].

The Russian and Belarusian education systems have been undergoing reform due to the processes of integration of these countries from 1992 to the present day in the global economic and educational space. Both Russian and Belarusian educational reforms are based on system unification and standardization [33], retaining the general approach to awarding academic degrees and titles. However, there may be some differences, ranging from the identification of educational directions (higher education) to some requirements for the results of training.

The transformation of educational requirements in the knowledge economy and the digital society is a subject for consideration by representatives of different sciences. In the open access of the Russian electronic national library eLIBRARY.RU there are about 5000 works on the subject of digital society, and more than 1200 works on the issues of education reform in the digital economy. These are works for the years 2014-2019, their authors are Russian, Belarusian, Ukrainian, Kazakh scientists who place their publications in the Russian indexing system of scientific works (RSCI). A number of works [6; 12; 13; 20; 28], including postgraduate studies [4; 21; 24; 26; 30] in Russia [1; 17] and Belarus [7] are devoted to the problems of general education development, taking into account the predicted realities of close cooperation between the two countries [2; 3; 5; 15; 16] and the upcoming digital society [8; 9; 10; 18; 23; 25].

The authors put forward ideas of different quality, but the obvious trend is to suggest rational measures to change the results of education at all levels due to the obvious deterioration of the situation with the quality of education and training of specialists. The situation with postgraduate studies is no exception.

Meanwhile, the strategic importance of exactly economic postgraduate studies is determined, first of all, by the basic

and infrastructural role of economic science for the management of socio-economic systems processes.

In the conditions of the digital transformation of society, the importance of the quality of professional training for work in research structures and higher education institutions also increases, since the result of professional training in postgraduate studies has a dual purpose (science and teaching).

In this regard, the issue of organizing of training of scientific and pedagogical professionals, especially for the system of higher and postgraduate education, capable of scientific and teaching activities in the conditions of total digitalization is of special interest.

Modern methodology of social research based on the system approach was used to conduct the research, including methods of modeling, forecasting, comparison, systematization and periodization, formal-logic and statistical analysis, as well as instruments of included observation and scientific analysis of documents and results of activity.

## III. RESULTS

A comparison and analysis of the dynamics and main stages of development of the higher qualification training system in Russia and Belarus, including the economic sphere, were made. The main problems and requirements to the results of training of highly qualified specialists in the field of economics in conditions of digital transformation of society and economy are formulated. The position of the system of training of specialists of higher qualification (economic sciences) as basic and infrastructural in the digital economy has been defined. The conceptual model of the system of training of specialists of the highest qualification (economic sciences) which is actual for a digital society is offered.

## IV. DISCUSSION

Russia and Belarus are countries close in terms of hostel culture, they border each other and have a long history of cooperation. However, their socio-economic characteristics differ significantly (Table 1).

TABLE II. MAIN CHARACTERISTICS OF THE HIGHER QUALIFICATION SPECIALIST TRAINING SYSTEM IN THE RUSSIAN FEDERATION AND THE REPUBLIC OF BELARUS (BASED ON INDUSTRY STATISTICS [19; 22])

Indicators	Russian Federation		Republic of Belarus	
	2015 year	2025 year (forecast)	2015 year	2025 year (forecast)
Postgraduate education organisations, in total	1446	≤1000	121	122
Including:				
Scientific and research organizations	771	≤600	78	79
Higher education institutions	661	≤300	43	43
Further professional education organizations	14	≤15	-	-
Number of postgraduate students, at year end, thsd. persons	109,9	≤50,0	4,9	4,4
Admission to postgraduate studies, thsd. persons	31,6	12,0	1,5	1,0
Postgraduate graduation, thsd. persons	25,8	12,0	0,9	0,7
From it with a thesis defence, thsd. persons	4,7	≤10,0	0,04	0,03
For reference:				
Higher education institutions, total	896	≤600	52	52
в том числе:				
State and municipal organisations	530	≤450	43	43
Private organizations	366	≤150	9	9
Total number of students in higher education institutions (at the beginning of the school year), thsd. persons	4766,5	≤3000,0	336,4	300,0
Прием студентов в организации высшего образования, thsd. persons	1221,8	≤600,0	63,1	60,0
including in the group of economic specialties (Russia - Economics and Management; Belarus - Communications. Law. Economics. Management. Economics and organisation of production )	300,5	≤50,0	22,0	20,0

Having considered the dynamics of the development of higher education systems in the economies of Russia and Belarus, the main difference in the development of higher education systems in these countries can be identified as an exceptionally "scalable", i.e. a dimensional rather than substantive difference. Due to this factor, Belarus is not included in international education rankings as a country, for example, in the U21 Ranking of National Higher Education Systems (Russia - 35th place out of 50<sup>1</sup>), and as an educational institution, for example, in the ranking of the best universities in the world according to the Times Higher Education (THE World University Rankings)<sup>2</sup> and other versions.

Some common features of development and current status should also be noted, namely:

1. General orientation of the education system reform.
2. Support for the traditional model of post-graduate studies and economic sciences degrees.
3. Declining interest of applicants for postgraduate studies and degrees in the economic sciences, expressed by the number of applicants, students and graduates.

<sup>1</sup> U21 Ranking of National Higher Education Systems. Humanitarian Encyclopedia: Research [Electronic resource] in Center for Humanitarian Technologies, 2006–2019 ( revised: 27.12.2019). <https://gtmarket.ru/ratings/u21-ranking-of-national-higher-education-systems/info>.

<sup>2</sup> The Times Higher Education Ranking of the Best Universities in the World. Humanitarian encyclopedia: Research [Electronic resource] in Center for Humanitarian Technologies, 2006–2020 ( revised: 01/19/2020). URL: <https://gtmarket.ru/ratings/the-world-university-rankings/info>.

4. Decrease in the quality of post-graduate studies in the economic sciences, expressed by the number of people remaining after graduation in teaching work.

Periodicalisation of the development of higher qualification specialist training systems in the Russian and Belarusian economies is similar in terms of the content of periods (traditional, stagnant, reformative), but differs in terms of calendar timing, as the European integration of education systems in Belarus has been more rapid. The regulation of the education systems in Russia and Belarus is also similar, with a minimum of differences at the level of training of highly qualified specialists. Scientific degrees awarded in both countries in a similar manner (through the system of dissertation councils at scientific and educational institutions with the approval of the Higher Attestation Commission) are recognised by both countries equally.

The main characteristics of the higher qualification specialist training system (economic sciences) and related elements of economic activity are presented in Table 2.

Thus, for Russia and Belarus, the issues of managing the transformation of educational requirements can be considered as similar or single-tasking. In order to understand the transformation processes in the regulation of higher professional training systems in the field of economics, we can present the classical and new prospective requirements for these systems in the table (Table 3).

Thus, the transformation of requirements for the system of training of highly qualified specialists in the field of economics for both Russia and Belarus is reduced to the mandatory use of digital technologies in the learning process, scientific research processes, and thus the formation of digital competences of trainees, applicable in their future professional work at any workplace (science, education, production).

TABLE III. COMPARATIVE ANALYSIS OF THE CHARACTERISTICS OF THE SYSTEM OF TRAINING OF HIGHLY QUALIFIED SPECIALISTS IN THE FIELD OF ECONOMICS IN THE CONDITIONS OF TRANSFORMATION OF REQUIREMENTS TO THEM IN THE DIGITAL SOCIETY

Management characteristics of the system for training highly qualified specialists (economic sciences)	Forms of manifestation	New requirements for the higher qualification specialist training system (economic sciences) in the digital economy
1. Participation in the training of highly qualified specialists with research and teaching competencies in the field of economics, including for the management of the country's socio-economic development	Key value	Formation of economic researcher and teacher competencies required in the new digital economy, including for managing the country's socio-economic development
2. Socio-economic efficiency	A qualitative scientific product, including a practice-oriented one	Creation of a qualitative scientific product using and for digital technologies
3. Characteristics of the quality of the intellectual labour force formed in the system	Capable of creating technologies that increase work productivity or create new workplaces	Capable of creating technologies, including digital ones, that increase work productivity and/or creating new digital jobs
4. Demand for highly qualified economic specialists trained in the national education system	Constant enough, below the desired/optimal value	Constant, optimal
5. Payback for education costs (as a productive sector of public production)	It is conditional, but it is also possible to have direct (increase in tax revenues with growth of salaries in science and education) and indirect (external effects due to increase in income of highly qualified employees who create an increasing volume of scientific products) effects	The payback is conditional, there is an overall socio-economic effect
6. Types of socially significant capital generated that are indirectly measured in value terms	Aggregate national intellectual, human and social capital	Aggregate national intellectual, human and social capital

However, even the simple introduction of information technologies into educational processes and the achievement of the results of education required in a digital society requires a certain qualitative condition of the educational systems themselves at all levels. At present, this quality appears disputed to us on a number of grounds.

Thus, the main problems for the modern system of training of specialists of the highest qualification (economic sciences) according to the results of the included observation for the period of 1992 to the present time we can name the following:

1. Break in the scientific continuity between generations of local scientific and pedagogical workers (failure of 30-40 year olds' generation of serviceability, lack of a workable older generation - about 60 years).
2. Ambivalent intergenerational changes in scientific ethics and individual goals of scientific and pedagogical activities in the field, recorded in the practice of achievements of formal scientific results.
3. Homogeneous quality of education management at all levels (systemic and local) as a product of lengthy reformation, the consequence of which is an ambiguous result of educational activities (too formal).
4. A downgraded or falsified place for science and teaching in the social hierarchy of society.
5. Uncertainty about the rights of producers and consumers of intellectual products in general and in education and science in particular.
6. Lack of "digital" competencies of the senior faculty training contingent in the field.

These problems, in our opinion, are the origin of the initial trends in the social and economic development of European post-Soviet states in the context of a transformational economy. The transition from planned socialist economy to an indicatively managed mixed economy was quite difficult for all social actors. In some cases, the transition to international standards has also been a setback for the social sphere in post-Soviet countries. The focus, importance and social roles of science and scientists, especially in economics and public administration, have shifted, and as a result, the scientific and teaching 'field' of economic sciences has lost the necessary quality.

Thus, the ongoing reformation of the higher qualification specialist training system (economic sciences) in Russia and Belarus should at the same time overcome the consequences of these negative trends and ensure the necessary quality of economic science, economic education and people who apply economic knowledge in their professional and independent activities for the new digital society.

A conceptual model of a system for training highly qualified specialists in the field of economics for Russia and Belarus, developed with these requirements in mind, is selectively presented in Table 4.

## V. CONCLUSION

Thus, the situation in the higher qualification specialist training system (economic sciences) in Russia and Belarus requires qualified modernization. The reforming of the social system and economy of the post-Soviet countries has not obviously worsened the starting position of higher education and post-graduate studies for transformation in connection

TABLE IV. CONCEPTUAL MODEL OF THE HIGHER QUALIFICATION SPECIALIST TRAINING SYSTEM (ECONOMIC SCIENCES) FOR THE DIGITAL ECONOMY (JOINT RF+RB VERSION)

Key elements of the model for a higher professional training system (economic sciences) for the digital economy	Content characteristics of the elements of the model of the higher qualification professional training system (economic sciences) for the digital economy
Purpose	Training of highly qualified specialists in the required quantity and quality, capable of developing science and of reproducing the scientific, managerial and teaching elite
Main function	Creation of basic (infrastructural) conditions for mass effective goal setting and corresponding economic and regulatory activities in the knowledge economy and digital economy
Place in the education system	The triune: 1. As part of the mandatory educational training of the higher education teaching sector. 2. As an independent system for scientific researchers training and a source of new scientific knowledge. 3. As a qualification stage in the formation of state and economic management specialists.
Place in the system of forming of public wealth (capital)	1. Production of intellectual capital (positive economic theory). 2. Production of technological capital (applied technologies for managing socio-economic systems and processes). 3. Production of human capital (for trainees and trainers). 4. Production of social capital (as part of collective work)
Result	Gradual creation of a knowledge-intensive decision-making environment at various levels of state, corporate and public management based on the high quality of human and social capital
Material base	An advanced material base of educational and scientific research institutions of higher education, including meeting information needs. Advanced funding for scientific and teaching activities. Strict system of payment for scientific and educational work not related to the individual production of an intellectual product, sufficient social packages. An advanced system of financial and other support for trainees. Development of industrial and public systems for the exchange of scientific information.
Intermaterial base	Relatively high quality of human potential/capital included in the educational stage. Scientific traditions and intellectual capital of Russian science. Variety of scientific and educational products throughout the country. Preparedness of the new generation for development in the digital space.
Management structure	A combination of state and non-state government administration bodies, including internal self-government of educational and scientific organisations and structures
System of quality	The quality of the required scientific and educational product, based on true ethics and high professionalism
Control system	A combination of direct and indirect control methods: from internal (control of students by educational institutions; control of researchers by the scientific community; control of the results of applying scientific knowledge in the practice of state regulation and management of socio-economic systems and processes of society)
Performance evaluation	Delayed final integral efficiency. Conditional cost recovery. Planned achievement of operational efficiency (economic, managerial, social).

with the requirements of the coming "digital society". The proposed conceptual model of the system for training highly qualified specialists in the field of economics for Russia and Belarus can provide the necessary theoretical and managerial basis for reforming the educational system of this level, taking into account the future requirements of the digital economy.

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