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Problems and prospects of development of SMART-economy in Problems and Prospects of Development of SMART-Economy in the Post-Socialist States (challenges of the future)

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Abstract: Post-socialist transformations have been in the focus of attention of scientists around the world for more than 30 years. Thus, the issues of smart-economy development in post-socialist countries are of particular relevance, since it is possible to provide the population with a decent standard of living in modern conditions only through the implementation of innovative development and introduction of the latest smart technologies aimed at the development of intellectualization, institutionalization, socialization, and ecologization in all spheres of society. The purpose of this article was to study the features of the development of the economies of post-socialist countries and to determine the problems and prospects for the formation of a smart-economy. The research was based on a qualitative combination of general scientific methods. In particular, the study of the existing base of scientific literature used methods of analysis (logical and statistical analysis, as well as analysis of the structure and dynamics), synthesis, induction, deduction, concretization, methods of generalization, and analogy. For clarity, the data obtained as a result of the analysis are presented using tabular methods. As a result of the study, the essence and features of the smart-economy have been defined, and the reasons for the need for the transition of modern society to the smart-economy have been established.

Keywords: post-socialist countries, economic development, innovation, smart - technologies, intellectualization, institutionalization, socialization, ecologization.

Introduction

In modern conditions, the behavior of the world community is characterized by chaotic dynamics of social changes, caused by the change of stereotypes, values. At the same time, national economies of post-socialist countries are included in a complex transformation process, characterized by changes in

the system of economic relations due to the exhaustion of growth potential, because further progress of society is possible only within the construction of a fundamentally new system of economic relations.

Structural reforms form the systemic basis for increasing microeconomic efficiency, which leads to rapid economic growth. However, sustainable growth requires an appropriate development strategy and effective public policy of post-socialist countries aimed at strengthening market forces in the post-socialist transformation. In this context, it is not enough to address the "old problems" associated with the restructuring of the real economy and institutional reforms. It is also necessary to use the opportunities offered by the new stage of development of the world economy, called the smart-economy.

Research Problem

In the context of globalization, the growing problems initiate the formation of a new stage in the development of economic relations smart (intellectual) economy.

The necessity of transition to the smart-economy is caused by the underlying reasons, which determined the vector of transformation of all spheres of society. One of the reasons can include significant changes in the structure of consumer, corporate and public demand. So, in modern conditions the consumer's demand for spiritual values is growing, the way and style of life, adequate, set, and quality of services, organization of business climate, life and recreation are important for the members of society. The implementation of consumer choice takes place on the basis of advantages, formed as a result of changes in the sociocultural development of society. The conducted research shows that consumer preferences are increasingly dominated by high-quality goods, capable of satisfying the increased aesthetic demands of consumers.

As for the corporate demand, employees with a wide range of competencies are becoming more and more relevant for enterprises and organizations, allowing to solve problems of increasing added value, increasing productivity, generating new knowledge and incorporating it into production processes, implementing innovative processes at the local and integral level. As it allows to achieve sustainable stable development. There is an urgent need to use the latest technologies, primarily information and communication, which condition the transformational processes and contribute to the implementation of strategic and tactical objectives of enterprises. On the part of the state in postsocialist countries, there is an increasing demand for the rational use of material, labor, intellectual resources, the solution of national and global problems. This refers to changes in the nature of labor, strengthening its innovative component, the growth of participation in production processes of intellectual workers. New technologies persistently demand the formation of an information culture, as well as the creation of flexible organizational structures that facilitate adaptation and quick reaction to conjunctural changes. Another reason for the formation of smart-economy in post-socialist countries is globalization, which actualizes the possibility of maintaining system manageability and balance by coordinating the dependence of individual countries on the global level of development of world processes - political, economic, financial and social. Globalization implies first of all an expansion of the openness of economic entities, liberalization of markets, creation of structures adapted to the external influences of the economic, social, cultural and informational environment. The processes of global synchronization and standardization of world development determine new interrelationships and specific perspectives for individuals, corporations or states to regulate mechanisms for preventing and reducing losses in the course of globalization. Thus, a global structure of independent but dependent regional and local networks of exchange of knowledge, information, technology, qualifications, and experience is taking shape. This process is multidimensional and contradictory. On the one hand, it strengthens the opportunities of an individual, country, or region through the action of multipliers of a global scale, and on the other hand, it keeps them within the local, although not the only place of implementation.

Research Focus

In general, this study focuses on the study of peculiarities of SMART-economy development in post-socialist countries, which have chosen different vectors of development. As well as the study of the features of socio-economic development of the selected countries in the period from 1990 to 2020 and the definition of the main prospects for the formation of smart-economy.

Research Aim and Research Questions

The purpose of this work is to study the peculiarities of smart-economy development in post-socialist countries on the basis of the vectors of their socio-economic development.

The following tasks contribute to the achievement of these goals:

- study of the features of socio-economic development of the selected countries in the period from 1990 to 2020;
- identification of the elements inherent in the smart economy existing in the studied countries;
- determination of the main goals of the formation of a smart economy in post-socialist countries;
- allocation of the main elements whose development will contribute to the formation of the smart economy in the studied countries.

Research Methodology

General Background

The solution of the tasks set in the study was carried out on the basis of the application of general scientific research methods in the framework of comparative, logical, and statistical analysis, as well as by analyzing the structure and dynamics, graphical interpretation of information, etc.

Instrument and Procedures

The study of the development of the smart-economy in post-socialist countries is based on a qualitative combination of general scientific methods. In particular, the following methods were used in the study: analysis (logical and statistical analysis, as well as analysis of the structure and dynamics), synthesis, induction, deduction, concretization, methods of generalization, analogy, and methods of graphic interpretation of information.

Data Analysis

The basis for this study of smart-economy development in post-socialist countries is the works of famous scientists, statistical information, and international rankings data. Despite the extensive study of problems of development of post-socialist countries in the modern world in the scientific literature, it should be noted that the problems of development of SMART-economy in post-socialist countries need further research.

Research Results

Post-socialist transformations have played a significant role among the developments of the late twentieth and early twenty-first centuries. They affected nearly three dozen countries, among them: Estonia, Poland, Czech Republic, Lithuania, Latvia, Bulgaria, Slovenia, Hungary, Montenegro, Croatia, Romania, Slovakia, Albania, Serbia, Azerbaijan, Kazakhstan, Georgia, Armenia, Ukraine, Moldova, Tajikistan, Kyrgyzstan, and others. All post-socialist countries at the moment of change of their development direction had planned economic system, developed under conditions of strict state management, centralized distribution, and redistribution of resources, economic good,s and incomes of economic subjects proceeding from the general state interests. The high level of centralized management seemed to be an important advantage of a socialist country's economy in comparison with other countries. Socialist-type countries exhibited a closed economy, limiting their international

relations. As a consequence of such policies pursued by the party bureaucracy, the national economies of socialist countries were practically "on the sidelines" of world civilization at the beginning of reforms.

At the end of the first decade of the 21st century, the formation of the smart-economy began. Smart-economy is characterized by intellectualization, institutionalization, socialization, and ecologization in all areas of society.

In the course of our study, we will consider the economic development of a set of post-socialist countries, conditionally divided into three groups.

The first group includes the bulk of the Commonwealth of Independent States (CIS) countries: Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Uzbekistan, and Tajikistan. Turkmenistan is also included in this group because it has the status of an associate member of the CIS. The second group is Georgia and Ukraine, which have embarked on a course to join the European Union (EU). The third group is the Baltic states, which are already members of the EU (Latvia, Lithuania, and Estonia).

For objective evaluation of the results of socio-economic development, we consider it advisable to cover the period from 1990 to 2020 and dwell on the main aspects of the development of the post-socialist countries. 1990 is the last year of the planned economic system.

The determining factor of the scale of state production is the quantity and quality of labor resources. The main indicator of their availability in the country is the population. Table 1 shows the dynamics of population in some post-socialist countries for the period 1990-2020.

Table 1

Population dynamics of the studied part of the post-socialist countries in the period from 1990 to 2020

Countries	1990		2020		Growth, 1990-2020		Forecast 2100	
	Th.per.	%	Th.per.	%	Th.per.	%	Th.per.	%
1	2	3	4	5	6	7	8	9
CIS countries								
Azerbaijan	7 200	5,1	9 731	6,5	2 531	35,2	9559	6,1
Armenia	3 377	2,4	2 984	2,0	-393	-11,6	1794	1,2
Belarus	10 201	7,3	9 492	6,4	-709	-7,0	7605	4,9
Kazakhstan	16 398	11,7	18 272	12,2	1 874	11,4	25738	16,5
Kyrgyzstan	4 382	3,1	6 140	4,1	1 758	40,1	8852	5,7
Moldova	4 394	3,1	3 551	2,4	-843	-19,2	1856	1,2
Uzbekistan	20 530	14,6	32 512	21,8	11 982	58,4	38142	24,5
Tajikistan	5 272	3,8	9031	6,0	3 759	71,3	18928	12,2
1	2	3	4	5	6	7	8	9
Turkmenistan	3658	2,6	5 758	3,9	2 100	57,4	8324	5,3
Total	75 412	53,7	97 471	65	22 059	29,3	120 798	77,6
Countries not included in the CIS								
Ukraine	51 622	36,8	42 099	28,2	-9 523	-18,4	28184	18,1
Georgia	5 426	3,9	3730	2,5	-1 696	-31,3	2438	1,6
Total	57 048	40,6	45 829	31	-11 219	-19,7	30 622	19,7
EU countries								
Latvia	2664	1,9	1932	1,3	-732	-27,5	1278	0,8
Lithuania	3695	2,6	2813	1,9	-882	-23,9	2013	1,3
Estonia	1 569	1,1	1 319	0,9	-250	-15,9	904	0,6
Total	7928	5,6	6064	4,1	-1864	-23,5	4195	2,7
TOTAL	140 388	100,0	149 364	100	8 976	6,4	155 615	100,0

Source (Countrymeters, 2020; Human Development Report, 1990; Human Development Report, 2020)

Analysis of population dynamics over 30 years showed that by early 2020 there was a decrease in population in 8 countries. Especially it concerns Ukraine (the number decreased by 9.5 million people

or 18.4%), Georgia (31.2%), and the Baltic countries, where the population decreased by 1.9 million people. (24,0%). Population growth occurred in Asian countries and Azerbaijan, where the annual growth rate was between 40% and 70%. According to experts, this trend will continue until the end of the XXI century.

According to forecasts, in the future, there will be a further decline in the proportion of the population of postsocialist space. The same situation is predicted for Ukraine, Belarus, and the Baltic States (Human Development Report, 2020). At the same time, there will be a significant increase in the number and proportion of people aged over 65 years, which is of particular concern. In the post-socialist space, population growth will occur only in Asian countries. However, high rates of population growth, being an extensive factor of economic growth, do not reflect the well-being of either the state itself or the quality of life of its population. The analysis confirms this hypothesis. Thus, Asian countries, where the birth rate is usually high, have been and remain the favorites in terms of population growth rates. However, this raises the question: to what extent does the nature of the demographic situation correlate with macroeconomic indicators, the level and quality of life of the population? To answer this question, let us analyze the dynamics of gross domestic product (GDP) per capita and indicators of the standard of living and quality of life. GDP is an important, but not the only indicator assessing the achieved level of socio-economic development of countries since it measures the current production of goods and services, rather than the degree to which economies contribute to broader socio-economic progress. New research shows that success measured by GDP alone can be unreliable. For a more complete and objective assessment in recent years, economists have used an alternative system for evaluating countries' economic development, based on the calculation and analysis of the Inclusive Development Index (presented in 2018 at the World Economic Forum in Davos). The Inclusive Development Index is based on 12 indicators grouped into three groups: growth and development; inclusiveness; lasting equity and sustainability (The Inclusive Development Index, 2020). A comparison of the Inclusion Index of post-socialist countries for 2020 showed that none of the countries fell into the category of developed economies of the world. They are classified as developing countries, with Lithuania in the first place. The degree of the well-being of the population is usually determined by GDP per capita. Along with it, such indicators as the level of wages and the human development index were used to assess the level and quality of life (Table 2).

Table 2

Indicators of Living Standards and Quality of Life in Post-Socialist Countries

Countries	GDP per capita					Average salary		HDI 2020
	1990		2020			2020		
	dollars US	In % to the world level	dollars US	In % to the world level	Place in the world	dollars US	In % to the level of Switzerland	
CIS countries								
Azerbaijan	4639	90	4569	40,2	103	346	9	0,756
Armenia	6066	118	4169	36,7	109	378	9,8	0,776
Belarus	7194	140	6306	55,5	88	545	14,1	0,823
Kazakhstan	7458	145	9236	81,3	71	486	12,6	0,825
Kyrgyzstan	3602	70	1268	11,2	154	253	6,7	0,697
Moldova	6 170	120	3218	28,3	124	437	11,3	0,75
Uzbekistan	4 260	83	1263	11,1	155	184	4,8	0,72
Tajikistan	3013	58	826	7,2	169	155	4,7	0,668
Turkmenistan	7 616	148	7646	67,3	78	3:06	9,2	0,715
Countries not included in the CIS								
Ukraine	6027	117	2963	26,1	127	460	11,9	0,668
Georgia	7 616	148	4400	38,7	87	458	11,9	0,812
EU countries								
Latvia	9 916	192	18032	158,8	44	1217	31,5	0,866
Lithuania	8 663	169	19143	168,5	42	1419	36,8	0,882
Estonia	10	210	22990	202,4	37	1560	40,4	0,892

Source (IMF, 2020; World Bank, 2020)

The data in the table showed that during the years of reforms in the post-socialist space there has been a significant decrease in GDP per capita. So, in 2020, with the exception of the EU member countries of the Baltic states, not a single country was able to reach the average world level. A similar picture emerged with the level of average wages. The analysis is done in comparison with the level of wages in Switzerland, which in 2020 is ranked first in the world by this indicator. Unfortunately, all post-socialist countries studied do not provide a decent level of wages and, above all, it concerns Asian countries with high rates of population growth and low levels of GDP. The Human Development Index (HDI) is an integral indicator reflecting the most important aspects of the socio-economic development of the state (life expectancy, literacy rate, GDP per capita). The latest version of the Human Development Index, released in 2020, shows that none of the surveyed post-socialist countries ranked among the top 10 best or the top 10 worst countries. Seven countries were in the group of countries with a high level of SCI and eight countries were in the group with an average level of SCI (Human Development Report, 2020).

Table 3 shows the ratings of post-socialist countries, characterizing the ease of doing business, the level of perception of corruption, the degree of economic freedom, and, as a result, global competitiveness. Scientists have proved and practically confirmed a close correlation between the rate of economic growth and these factors. To assess them, the systems of indicators were used, and the country ratings developed by international organizations (the World Bank, Transparency International, the Heritage Foundation Research Center, the World Economic Forum).

Table 3

Development ratings of post-socialist countries

Countries	Ranking of countries by ease of doing business (190 countries)		Ranking of countries by corruption perception (180 countries)		Ranking of countries by degree of economic freedom (180 countries)		Ranking of countries by global competitiveness (141 countries)	
	points	place	points	place	points	place	points	place
CIS countries								
Azerbaijan	76,7	34	30	126	69,3	44	62,7	58
Armenia	74,5	47	42	64	70,6	34	61,3	69
Belarus	74, 3	49	45	72	61,7	88	н/д	н/д
Kazakhstan	79,6	25	34	114	69,6	39	62,9	55
Kyrgyzstan	67,8	80	30	128	62,9	81	54,0	96
Moldova	74,4	48	32	120	62,0	87	56,7	86
Uzbekistan	69,9	69	25	157	57,2	114	н/д	н/д
Tajikistan	61,3	106	25	156	52,5	156	52,4	104
Turkmenistan	н/д	н/д	19	167	46,5	170	46,5	170
Countries that are not included in the CIS								
Ukraine	70,2	64	30	129	54,9	134	57,0	85
Georgia	83,7	7	56	46	77,1	12	60,6	74
EU countries								
Latvia	80,3	19	56	47	71,9	32	67,0	41
Lithuania	81,6	11	60	37,7	76,7	16	68,4	39
Estonia	80,6	18	74	18	77,7	10	70,9	31

Source (World Bank, 2020; Transparency International 2020, World Economic Forum 2020)

Without dwelling on the methodology of ranking, we note that their analysis confirmed the hypothesis about the influence of factors on economic growth in post-socialist countries. Assessment of general conditions of doing business (the rating of ease of doing business, which includes 190 countries)

in 2020 shows a higher index in such countries as Georgia (7th place in the world) and Lithuania (11th place in the world). The first places are taken by New Zealand, Singapore, Hong Kong, Denmark, South Korea, and the USA. As for the ratings of perception of corruption and economic freedom, almost all of the analyzed post-Soviet countries have low positions. Moreover, we can say that these two factors remain among the most serious obstacles to economic growth.

A high position in the ratings means that the country is open, doing business is organized simply and safely, and there is no corruption. As a result, the competitiveness of such a country will be high. Unfortunately, none of the post-socialist countries studied are in the top 10 in any of the rankings. In the ranking of countries by level of global competitiveness, Estonia takes the highest place (31st place), followed by Lithuania (39th place) and Latvia (41st place). At the bottom of the ranking is Turkmenistan (170th place).

The study showed that the best development indicators are demonstrated by the countries that have chosen the Western-style development path. Thus, among the countries studied the leaders in terms of the indexes of inclusive and human development, the ratings of countries on the ease of doing business on the level of perception of corruption, the degree of economic freedom and the level of global competitiveness are the EU members. Ukraine and Georgia, which at this stage are not members of this union, although they have chosen the path of European integration, are generally ahead of most other CIS countries in their intellectual and innovative development.

The analysis of the ranking of countries according to the Global Innovation Index, 2020, showed that the level of their innovative development remains relatively low: none of the studied countries was included in the first twenty.

It goes without saying that the creation of an innovative environment, including national innovation systems, will be able to ensure the competitiveness of states in the context of globalization and the development of the smart-economy. This is possible both at the expense of breakthrough development through the formation of a common scientific, technological, innovation space by increasing the cost of science, education, and active building of their own scientific and technological potential, and through cooperation and integration with other countries.

The study highlighted the components of smart-economy development in Ukraine, Georgia, and the Baltic states:

- infrastructure, including technical means, information storage, processing and conversion centers, information transmission centers, software, telecommunication means;
- electronic services of legislative and executive authorities and administration;
- business processes of business entities using computer networks in conditions of virtual interactions between market subjects;
- electronic commerce, which is currently one of the largest segments of the digital economy.

The study made it possible to identify the main goals of the formation of Smart-economy in post-socialist countries, these include:

- Restoring economic growth after the global crisis and ensuring it in the long term.

- Achieving high labor productivity. According to analysts, the decline in labor productivity in recent years was due, in particular, to the high level of state regulation, especially in the services sector.

- Preparation and widespread introduction of intellectual workers in the production of new products and services. For example, in the UK, the task is currently set to bring the level of employment of intellectual workers to 50% by 2025 (*Kalenyuk, & Uninets*, 2020).

- Formation of an innovative ecosystem.

- Introduction of the latest technologies in all sectors of the economy to ensure quick access to information and knowledge, and generation of new ideas with their further implementation in the production of products and services with increased added value and intellectual component.

- Creating and ensuring a productive business environment to increase the degree of innovation, and optimal use of natural, energy, and material-saving technologies.

- Ensuring social stability.

- Development of the “green economy”.

The study shows the insufficient level of development of the smart-economy in post-socialist countries, even among countries with a high level of economic development. Smart-economy is characterized by intellectualization, institutionalization, socialization and ecologization in all areas of society, the development of these areas in postsocialist countries will contribute to the formation and development of the smart-economy.

Thus, the development of intellectualization in postsocialist countries involves the growth of research and development with their subsequent introduction into production on an innovative basis, the development of the intellectual potential of the individual and enterprises, the creation and development of intellectual needs, stimulation of the creativity, creative approach to the tasks, the constant increase of knowledge in the process. continuous education based on international standards.

Institutionalization means the activation of post-socialist countries in the field of structural transformation of property relations, creation of an effective system of intellectual property rights protection, improvement of the legislative legal framework regulating research and development and innovation processes, and stimulation of environmental activities of economic entities.

Ecologization of post-socialist countries should be aimed at the realization of ecological and economic interests, ensuring the integrity of natural systems, environmental protection, its reproduction and rational use of natural resources, improvement of ecological infrastructure, increasing the level of ecological culture of the population.

Socialization is aimed at achieving joint well-being and collective security in an increasingly interconnected world, the movement towards universal values, socially-oriented coordination of actions, formation of a set of new socio-cultural and economic values, ensuring the realization of adequate relationships within civil society, ensuring people's confidence in professional education, quality health care, adequate employment, adequate remuneration for work, access to other social benefits.

The determining direction of the vector of transformations in the smart-economy of post-socialist countries should be the preferential creation and consumption not of material goods, but of intellectual values, including their embodied form as goods with a high intellectual component. Indeed, in terms of engineering solutions, the modern car differs little from the prototypes of the beginning of the last century - it is still the same vehicle that can drive. Their fundamental difference lies in the amount of embodied knowledge and information - the last examples of car manufacturing are equipped with onboard computers, composite materials and plastics not found in nature are used in production, salons are equipped with air conditioners, cellular communication equipment with Internet access, and so on. As a result, the price of a car is determined primarily by the value of the information and knowledge concentrated in it, rather than the iron.

The main components of the smart-economy of post-socialist countries today should be e-commerce, investment in innovative development, public administration, export-import activities.

The broad development of smart-economy in post-socialist countries is now complicated. In order to activate it, it is necessary to prepare the ground, including the following elements:

- formation of a regulatory framework that creates a dynamic business environment and allows businesses and households to fully use digital technologies to compete and innovate, reduce various costs, and improve the comfort of the environment;

- development of skills that will allow business and civil servants to use the opportunities of information technology;

- development of institutions (government agencies and private companies) that will help to use information technologies.

Consequently, it is necessary to be careful and build a smart-economy step by step, taking into account the historical, technological, and socio-economic characteristics of each individual state.

Thus, the current stage of economic development in post-socialist countries is characterized not just by structural and technological changes, but by the transformation of the entire economic process, the formation of a new development paradigm.

The reduction of intellectual resources to the rank of the main factor of production generates many problems in a theoretical and practical plan, in particular, such as the gap between the market and balance sheet value of the enterprise, the assessment of the share of GDP caused by the use of intellectual resources, high profitability of "intellectual companies", the formation of supply and demand in the market of high technology goods, the measurement of intangible assets, the mechanism of value added by intellectual resources, etc.

Discussion

The study of economic development models is important from different points of view, first of all to identify the world's most successful practices for their development and application. It is also necessary for building economic relations and expanding mutually beneficial cooperation with developing countries, for a better understanding of their interests and opportunities for mutual adaptation of economies.

According to scholars (Roland, 2018; Sviržić Gotovac, Podgorelec, & Villa, 2021) post-socialist transformation processes occurred against the background of the growing globalization of the world economy of innovative and smart technology development, which had implications for their external component: - Post-socialist countries abandoned the state monopoly on foreign trade because it isolated them from the global economy. Legislative acts regulating the activity of foreign investors were adopted (in the planned economy they were actually absent). Thus, these countries became direct participants of the globalization process; - Globalization as a process of the mutual intertwining of national economies (i.e., increasing their dependence on each other) has a significant impact on the general nature of reforms in post-socialist countries.

In her research, S. Kalinkova emphasizes that since globalization was born as a result of the increasing internationalization of economic activity in the capitalist part of the world, postsocialist countries needed to integrate into the system with the already established rules of the game. Obviously, enterprises in the developed industrial countries had already accumulated a wealth of experience in functioning in an internationally competitive environment. Under these conditions, postsocialist countries could hardly play key roles in innovation processes and smart technology development (Kalinkova, 2019).

This explains the weak position of post-socialist countries in the modern world of the smart economy compared to the leaders. At the same time, it is impossible not to note a certain success of Central Eastern European countries (CEE), almost without raw material resources, were able to achieve steady growth in exports and the development of smart technologies. This fact indicates a gradual increase in their international competitiveness as a result of smart transformations. The inflow of foreign direct investment in this region is growing, which indicates the increased investment attractiveness of its member countries. The participation of other post-socialist countries in the process

of forming the smart economy can hardly be considered successful at the moment. The relatively small volume of smart technology development indicates a low level of international competitiveness (Borzenko, 2019). The attracted volumes of FDI (especially considering the size of the markets) also do not speak in favor of the international investment attractiveness of the CIS and former socialist countries of Asia.

Thus, the chances offered by the process of smart economy development were even better used by the CEE countries than by other post-socialist countries. This conclusion is confirmed by the data of international competitiveness rankings.

In post-socialist countries, the factors of economic growth operate in the conditions of transition from one economic system to another based on market relations. In addition to direct factors of economic growth, institutional factors have a significant influence on the level and rates of socioeconomic development. Post-socialist countries have market rules of the game and established market institutions, but the question arises as to how effective they are and how well they correspond to the modern model of an efficient intellectual economy. Researchers N. Mikiashvili and G. Karmowska note that in the modern economy there can be both efficient and inefficient rules of behavior. In the case of an underdeveloped economic system, inefficient rules of behavior are often more stable than efficient ones, leading to the existence of institutional traps (Mikiashvili, & Karmowska, 2020). Corruption, short-term goal prioritization, institutional property traps, and taxpayer behavior all hinder sustainable economic growth and national competitiveness.

A study of the literature (Mammadova, (2020); Borzenko, 2019) showed that post-socialist countries do not occupy top positions in the ranking of international competitiveness, which in itself reduces their chances of benefiting in the process of smart-economy development. The highest international competitiveness ratings among the post-socialist countries of Europe are in the CEE countries, including those with the highest export and FDI attraction rates (Estonia, Poland, Czech Republic, Lithuania, Latvia, Hungary). Bulgaria's clear progress and Slovakia's steep fall in international competitiveness ratings are noteworthy. Relatively low ratings of the CIS countries and post-socialist Asian countries.

Western economists G. Roland (2018), D. Sikora-Fernandez, (2018) emphasize that the division between traditional and new economies is due to the fact that information and telecommunication technologies have radically transformed the way knowledge is generated and distributed, significantly reduced the marginal cost of obtaining it. , storage and transmission.

Almost all researchers of a modern stage of development of economy name information and knowledge or intellectual resources as the main economic resource. Adequate use of intellectual resources is of fundamental importance for solving the problems of qualitative modernization of the economy, expanding the production of goods and services that meet the requirements of material, labor and energy saving, innovative development, increasing competitive advantages, sustainable economic growth, etc. (*Sikora-Fernandez*, 2018; *Zucman*, 2019; *Lin, & Tjio*, 2020; *Kristoffersen, Blomsma, & Mikalef*, 2020)

In modern conditions, intellectual resources are widely used in terms of structural changes, the creation of new forms of entrepreneurship, and innovative corporate relationships, as well as to increase the competitive advantages of the firm. For example, in the U.S. and Europe firms are created that use little or no fixed capital, but only intellectual capital (they are called “knowledge companies” - knowledge companies). Such companies sell knowledge rather than produce traditional goods. Half of the fast-growing companies are knowledge companies (Sotnyk, Zavrazhnyi, Kasianenko, Roubík, & Sidorov, 2020).

The term knowledge workers appeared - intellectual workers who generate new knowledge. A recognized expert in the field of management P. Druker argues that if in the XX century leadership in the world economy depended on the ability to achieve high productivity of physical labor, then in the XXI

century, this leadership will pass to the countries that manage to increase the productivity of mental labor most systematically and most effectively. Druker, 2020, p. 210-211).

According to I. Uninets, in 2019, about 45 percent of those employed in the U.S. economy were "intellectual workers." Characteristically, the largest increase in such workers for 2019 (by 57%) came from medium-sized companies with 100 to 999 employees, while the share of "intelligent workers" in large companies remained unchanged. By using the labor of "intelligent workers," firms save up to $5,000 per year per employee (Uninets, 2021). intelligent labor of a long-established form of employment - remote work - but at a higher level of productivity.

So, the study of different approaches showed that the problem of integration into the modern system of the world economy on the basis of smart-technology is still acute for most of the studied post-socialist countries. Only CEE countries oriented towards the European vector of development managed to achieve relative success in solving it at this stage. Many of them have made progress in the markets of goods and investments have gained membership in the EU, but their level of smart-economy development is not at a high enough level compared to the leading states and requires further significant improvement.

Conclusions and Implications

The conducted research of features of smart-economy development in post-socialist countries has allowed allocating a number of features, in particular among a set of the investigated countries the tendency of the prevalence of a level of development of the countries focused on the European integration over the CIS members is clearly traced. The CIS countries and the former socialist countries of Asia (with positive dynamics of some indicators in certain periods) still occupy a modest position in the modern system of world economic relations.

The analysis revealed the following picture. At the beginning of reforms, all former socialist countries faced an identical task: to integrate into the system of world economic relations on a new (market) basis. Developed industrialized states, as well as a number of developing countries, had a peculiar historical background, i.e., more experience of functioning within the system of international economic relations established on the basis of market principles. Despite the similarity of problems of post-socialist countries, the trends of development of their national economies are varied. The differences are caused, in particular, by such factors as the availability of resources, period of market reforms, awareness of historical perspectives, and individual decisions of individual politicians.

The problem of integration into the system of world economic ties and the formation of the smart-economy has been solved quite successfully (against the general background) in the CEE countries. Many of them have made progress in the markets for goods and investments and gained membership in the EU, but their level of smart-economy development is at a low level compared to the leading states.

It is obvious that the problems of competitiveness growth, an increase of investment attractiveness, and strengthening of positions in international markets are still acute for the vast majority of post-socialist countries. The carried-out research has allowed defining the basic purposes of the formation of smart economy in the post-socialist countries, to allocate the basic existing components of smart economy of the post-socialist countries, and to generate prospects of their development which to a great extent depend on how these problems will be solved at a level of introduction of modern innovative and smart technologies. The study proposes the main directions of development of post-socialist countries, which will contribute to the formation of smart-economy and lead to their comprehensive development. The practical significance of this study lies in the possibility of using its results for further research aimed at developing specific recommendations and programs for the development of smart-economy in post-socialist countries.

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