

## INNOVATION DEVELOPMENT AND COMPETITIVENESS OF COUNTRIES IN THE WORLD ECONOMY: POSITIONS OF RUSSIA AND CENTRAL EASTERN EUROPE COUNTRIES – THE NEW EU MEMBERS

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The positions of Russia and countries of Central Eastern Europe – the new EU members are revealed in ranking tables by aggregated indices which characterize the readiness of the countries to transfer their economies to the innovative development. The connection between usage of information technologies and national economic development on the basis of innovative economy formation is revealed. The authors characterize the positions of Russia and the new EU members by the international indices, including the Global Competitiveness Index.

### PROBLEM STATEMENT

Development of the latest technologies, implementation of scientific achievements in production and in this regard the increase of efficiency and other quality indicators of production have affected the industrial composition of the world manufacturing towards the development of hi-tech productions (Rodionova, 2009; Rodionova, Gordeeva, Kokuytseva, 2010). Many countries have become more integrated into global chains of production of value added and industrial networks due to the accelerated methods of technology transfer and a faster access to sales markets.

There were the highest growth rates in production of means of communication (radio, TV and communication equipment), computer, office and electrical equipment in the world industry as a whole and the industries of the advanced countries in recent decades. In the group of developing countries the most intensive processes have occurred in recent decades in China, Mexico, Brazil, India and the Asian countries of „new industrialization“ (where the remarkable rates of development were in sub-branches of mechanical engineering and chemistry industries).

So, for example, in 1995 the main sectors of the world manufacturing industry were the following: production of drinks and food (11,8 %), chemicals and products of the chemical industry (10 %), but by 2010 the share of production of means of communication had increased to 20,7 % due to a sharp increase in demand for them (radio-, TV and communication equipment) in the world market (Industrial De-

velopment Report, 2011. pp.144). Nowadays it is a leader in an industrial composition of the world manufacturing industry.

According to forecasts, in developed countries technological systems with adaptive management and self-training technological systems will be practiced on a wide scale, as well there will be directly developed methods of permanent designing of cars (developing cars) and production systems in which rules of self-organized production (a way of production with the help of self-organized cars and materials) will be carried out. Thereafter the role of high-efficiency knowledge-intensive equipment will increase if the competitive production is organized.

This article is a part of a series of the authors' ones. Previously we characterized Russia's positions in international rankings (Rodionova, Gordeeva, Kokuytseva, 2010) and in comparison with the CIS countries where it is still an obvious leader (Rodionova, Gordeeva, 2010; 2011). In this article Russia's positions are compared against the countries of Central Eastern Europe (CEE) – the new EU members, which previously were behind Russia by all economic indicators.

It is necessary to remind that there were complicated processes in recent years in the former Soviet Union countries, especially in the economy of Eastern Europe (Poland, Hungary, the Czech Republic, etc.) and the CIS (Commonwealth of Independent States) countries (including Russia) where economy restructuring upon transition „from plan to market“ was carried out, and transformational processes proceed nowadays. Several countries of Eastern Europe have managed to overcome crisis years, inter alia due to joining the European Union, and changed considerably the model of their participation in the global economy. At the same time it should be noted that over the past 20 years Russia and other CIS countries couldn't carry out structural transformation of economy towards development of knowledge-intensive branches and information technologies. And though resource-based export policy of Russia is quite effective in providing with high indicators of economic growth at current high prices for energy, but in a long-term prospect - it is pernicious for national economy. Natural resource potential as a whole and especially stocks of fuel and energy resources isn't renewable.

Therefore development of new and modernization of existing tools and mechanisms of implementation of innovative technologies in industrial production, the increase of innovative activity of organizations, state support of hi-tech sector of economy, attraction of financial resources, as well as distribution of hi-tech products of Russia, Poland and other Eastern Europe countries to the world market are very actual.

The basis of the research is the information of prestigious international publications and analytical reports of the World Bank, World Economic Forum and scientific research papers of the authors. Theoretical base of this research is the numerous scientific works of domestic and foreign authors devoted to the analysis of problems and tendencies of development of the countries of Central Eastern Europe and the former USSR after disintegration of a socialism system in transition period in their economy in 1990-2000. So, for example, in „Transition report 2004“ European Bank for Reconstruction and Development (EBRD) seeks to foster the transition to an open market-oriented economy and to promote private and entrepreneurial initiative in Central Eastern Europe and the Baltic States, South-Eastern Europe and the Commonwealth of Independent States. To perform this task effectively, the Bank needs

to analyze and understand the process of transition. The purpose of this Report is to advance this understanding and to share our analysis with our partners (Transition report, 2004). The articles about a situation in this region, published in a foreign journal „Economics of Transition“, „Beyond Transition Newsletter“and others represent a scientific interest.<sup>1</sup>

Many of the authors wrote about this fact. The transition from socialism to a market economy has transformed the lives of many people. Young people have a much more favorable view than older people. And there is robust support for both democracy and the market economy. Young people tend to support these trends the most. However, major challenges lie ahead, even in some of the most advanced countries in the region, including a strong urban/rural divide and scarcer private sector services in rural areas. And politicians face a particularly strong challenge in raising the level of public trust in institutions, such as the government and parliament, and in fighting corruption (Life in Transition, 2007).

Human development indicators underwent large swings during and after crisis, correlating strongly with movements in income. Authors of one of articles have detected significant differences among countries in terms of the human development responses to income shocks. „Researchers attribute a good part of this variation to differences in cushions to income (e.g., accumulated wealth, uncorrelated shadow economy income) and the efficiency of the social safety net. The results suggest that the unfolding impact of the global crisis is shaping up to be substantial, lasting, and particularly adverse for disadvantaged regions and social groups. Thus, the crisis is likely to cause a substantial setback to progress achieved so far towards improving human development indicators“ (Losing the gains, 2009).

„The Regional Human Development Report on Social Inclusion“ Bratislava, 2011“ has presented an integrated conceptual framework for social inclusion and human development. It has put forth a new measure for analysing social exclusion that goes beyond income, thus offering a more comprehensive perspective. It integrates individual risks, drivers, and local context to create a policy-relevant tool for assessing social exclusion and its causes. Economic growth has not always translated into increased job opportunities, improved social services or greater opportunities for civic participation. Despite the region’s heterogeneity in growth and development levels, the intensity of social exclusion is similar across countries. Large parts of the population have not been able to adapt to the new demands of the labour market. It is very interesting conclusion. The report also points out that governments play an instrumental role in the process of social exclusion and inclusion. During transition the state underwent a significant transformation ‘on the run’. As a result, state responsibilities shrank considerably, but this left huge grey areas without a clear division of labour among government, emerging civil society and the business sector. This led to weak governance, law enforcement and, in some countries, entrenched corruption

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<sup>1</sup> „Economics of Transition“. The European Bank for Reconstruction and Development. Edited By: Managing Editors: Philippe Aghion and Wendy Carlin. URL: [http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)). [online]. [cit. 27.07.2012]. „Beyond Transition“. The Newsletter About Reforming Economies. URL: <http://www.worldbank.org/transitionnewsletter> [online]. [cit. 27.07.2012].

- all serving to foster social exclusion. The changing views on the role of the state contribute to policy swings that diminish the efficiency of social inclusion interventions (Regional Human Development Report, 2011).

One of the most in-depth studies, in our opinion, is three languid edition „Central Eastern Europe in the second half of the XX century“ in which it was noted that a transformation recession was less deep, than in Russia in the early 1990s was in CEE countries, and the social and economic situation in the majority of them is better now, than in Russia (Central Eastern Europe..., 2000-2002). Especially it concerns Slovenia, the Czech Republic, Hungary and Poland. In these countries an economic growth has begun since 1992-1994. In many works it is emphasized that the history of the countries of Central Eastern Europe is inseparably linked with their participation in various regional associations or unions. Since 1949 they were members of the Council for Mutual Economic Aid (CMEA), and their way to the European Union began after the collapse of a socialist system. Financial help was already rendered to the states of CEE during preparation for their membership in the EU and increased after joining of them to the union. It is planned to direct 200 out of 862 billion euro from the total amount of the EU budget for 2007-2013 on development of the new member countries, and about 60 billion euro will be received by Poland (Orlik, 2009). In other words, the accession to the EU has become a powerful incentive to economic growth of the states of CEE. But the EU membership doesn't mean an automatic solution of a complex of problems of the countries of this region. Many researchers note that it is prematurely to speak about a fast achievement the level of economically developed European countries by new members of the EU. „The problem of achievement the level of competitiveness of the developed European states remains future business for new members of the EU as its decision is connected with overcoming of a considerable backlog in a degree of stability of economic and institutional development, in a level of its efficiency and innovativeness“ (Glinkina, 2007). Researchers characterize the features of influence of the recent world crisis on the economy sectors of the countries - the new EU members.

The aim of this work is to assess the impact of financial crises on output for 11 European transition economies (CEECs). „The main results of the paper can be summarized as follows: 1. Financial crises have a significant impact on output both in the short and in the long run. In particular, financial crises are found to lower output by 1 percent after one year and by 12-17 percent after 5 years. 2. Comparing the effect of financial crises between the CEEC and the EU-15 economies, results suggest that the effect is greater for the CEECs. 3. Controlling for structural heterogeneity among CEECs, the impact of financial crises is larger for smaller countries, in which the banking sector shows greater disequilibria. 4. The impact of financial crises on growth performance is mostly influenced by fiscal policy (in terms of increases in government spending), whereas the effect of monetary policy is rather modest. Flexible exchange rates attenuate the impact of the crises in the short to medium term but tend to amplify the effect in the long run. Finally, foreign financial aid (in terms of IMF credits and loans) is found to attenuate the effect of the crises in the long run“ (Furceri, Zdzienicka, 2011).

It is worth noting other scientific works of Russian and foreign scientists as well (Demographic consequences, 2003; Economic and humanitarian coop-

eration, 2007; Klugman, Scott, 2009; Hagemeyer, Tyrowicz, 2012; Lehmann, Muravyev, 2012, etc.).

The fundamental economic and social reforms in the transition countries are among the most important that the world has experienced. Researchers note that in many ways the transition enabled a broadening of people's choices in ways that were never possible under the old regime, but the reforms also brought huge challenges. The region was broadly characterized by good development outcomes relative to incomes, especially in poorer countries. However, throughout the region, the early years of transition saw tremendous socio-economic hardship. Since then, some countries have experienced a significant economic bounce-back—which started earlier for countries such as Poland, Slovakia, and Slovenia. Three countries in particular, Moldova, the Russian Federation and Tajikistan, which experienced human development setbacks in the 1990s, are still behind where their HDI was in 1990, even before incorporating data reflecting the impact of the recent economic crisis (Klugman, Scott, 2009).

We completely agree with the data stated in these articles. But in this article we are interested in some development aspects of the countries of this region. *The purpose of the article* is to reveal problem aspects of modernization of economies of these countries which are on the way to the innovative development. The authors attempt to understand what is necessary to undertake to make our countries closer to the world leading ones by means of formulation of their own innovative paradigms of national development.

*Methodology of research.* We have chosen some international rankings which reflect the readiness of the countries to knowledge-based economy and the level of introduction of ICT for our analysis. The assessment of their representativeness is carried out and calculations of correlation dependence between indexes of the CEE countries and Russia in the international ratings and the level of their economic development are done (on the basis of four indicators: gross domestic product per capita, gross domestic product per person employed, gross value added of hi-tech production and ICT sector per capita). Further there is a comparison of the positions of the world leading countries, CEE and Russia in the international ratings.

## CALCULATIONS OF CORRELATION RATIOS

Now several complex indicators (aggregated indices) characterizing the level of development of economy, based on knowledge, are known. These aggregated indices show what distinguish countries by innovations and information technologies. In order to show the influence of information technologies on economic growth and development of the countries we have calculated the correlation ratios between pairs of indicators.

We have calculated the correlation ratios and found a direct correlation between all the indices mentioned above – „Knowledge Economy Index, KEI“, „Networked Readiness Index, NRI“, „Informational Society Index“, „Global Innovation Index, GII“. We have calculated the correlation ratios and revealed a direct correlation between all indices and economic indicators. The correlation between the indices and GDP per capita of the countries is 0,86-0,93; between the indices and real GDP per

an employee is 0,80-0,85; between the indices and high-tech production per capita is 0,57-0,67 in the analyzed countries (Rodionova, Gordeeva, 2011; Rodionova, Gordeeva, Kokuytseva, 2010). Firstly it indicates at a high representation of integral indices. Secondly, it represents that nowadays only countries of high socio-economic development are prepared to network economy (knowledge economy and widespread use of ICT). Thirdly, it indicates that the leaders in the world high-tech production are those countries that use knowledge and ICT as the advantages for their economies.

Countries with a high level of ICT development reach great results in the increase of the welfare of the citizens (GDP per capita). However, this effect appears only when the country reaches a certain level of ICT use while managing its socio-economic development.

### THE POSITIONS OF RUSSIA AND NEW EU MEMBERS IN THE INTERNATIONAL RANKINGS

The Knowledge Economy Index is calculated with the help of the Knowledge Assessment Methodology, developed by the World Bank to characterize the ability of countries to create, accept and extend knowledge (Knowledge Economy Index, 2012). Table 1 shows data of the Knowledge Economy Index and its pillars, including the Knowledge Index.

Table 1

*The Knowledge Economy Index and its pillars, 2012*

Rank	Country	Knowledge Economy Index	Pillars			
			Institutional factors	Innovations	Education	ICT
1	Sweden	9.43	9.58	9.74	8.92	9.49
2	Finland	9.33	9.65	9.66	8.77	9.22
3	Denmark	9.16	9.63	9.49	8.63	8.88
4	Netherlands	9.11	8.79	9.46	8.75	9.45
5	Norway	9.11	9.47	9.01	9.43	8.53
...						
26	Czech Republic	8.14	8.53	7.90	8.15	7.96
27	Hungary	8.02	8.28	8.15	8.42	7.23
28	Slovenia	8.01	8.31	8.50	7.42	7.80
38	Poland	7.41	8.01	7.16	7.76	6.70
...						
55	Russia	5.78	2.23	6.93	6.79	7.16

Compiled by: (Knowledge Economy Index, 2012)

The analysis of the data presented in the table 1 allows to estimate positions of the new EU members and Russia in the world ranking as not so high (by the Knowledge Economy Index – from 26<sup>th</sup> up to 55<sup>th</sup> positions out of 145 respectively), as well as to reveal their positions in comparison with other countries by the pillars of aggregated indices (including such important ones, as innovations, education, information and communication technologies – ICT). In the ranking Poland is followed by the Czech Republic (26<sup>th</sup>), Hungary and Slovenia. Russia is followed by many countries of Central Eastern Europe, including Slovakia, Croatia, Romania, Bulgaria and Serbia, that is very regrettable. At the same time many CIS countries placed even lower positions (from 56<sup>th</sup> position of Ukraine to 106<sup>th</sup> of Tajikistan). Russia and other CIS countries have low indicators by the following pillars of the Index: institutional factors, innovations and use of information technologies.

In the international ranking by Global Innovation Index (GII, 2012) the positions of the new EU members are the following: Slovenia – 26<sup>th</sup>, the Czech Republic – 27<sup>th</sup>, Hungary – 31<sup>st</sup>, Poland – 44, Russia – 51<sup>st</sup> (The Global Innovation Index, 2012).

Strong connection between the implementation of information and communication technologies and economic prosperity of the state was noted at the World Economic Forum in 2001 (Networked Readiness Index, 2012). Since then countries are annually ranged by the Networked Readiness Index (NRI) by 7-point scale. Let's characterize the positions of the leading countries, the developing countries with the highest growth rates in Eastern Europe and Russia (Table 2).

Table 2

*The ranking of countries by the Networked Readiness Index (NRI), 2012*

2009			2012		
Rank	Country	NRI	Rank	Country	NRI
1	Denmark	5,85	1	Sweden	5,94
2	Sweden	5,84	2	Singapore	5,86
3	USA	5,68	3	Finland	5,81
4	Singapore	5,67	4	Denmark	5,70
5	Switzerland	5,58	5	Switzerland	5,61
...					
31	Slovenia	4,57	37	Slovenia	4,62
32	Czech Republic	4,53	42	Czech Republic	4,33
41	Hungary	4,28	43	Hungary	4,30
69	Poland	3,80	49	Poland	4,16
...					
74	Russia	3,77	56	Russia	4,02

Compiled by: (Networked Readiness Index, 2012)

It should be noted that there has been considerable changes in the ranking by the Networked Readiness Index in 2012 in comparison with the one in 2009. The number of analyzed countries has also increased from 134 to 142 in 2009-2012. In the group

of leaders only small shifts are noted. Nevertheless, the USA fell down from 3<sup>rd</sup> to 8<sup>th</sup> position. Singapore gained two places and became 2<sup>nd</sup> after Sweden.

It is important to note that Poland considerably strengthened its positions, moved up from 69<sup>th</sup> to 49<sup>th</sup> position. Earlier (in the ranking of 2009) it was followed by Romania, Brazil, Turkey and Mexico. Nowadays Poland is much above these and many other countries in a ranking. Among the CIS countries Kazakhstan has moved up from 73<sup>rd</sup> to 55<sup>th</sup> position, still slightly advancing Russia which places 56<sup>th</sup> (in comparison with 74<sup>th</sup> position in 2009). It should be also noted that China advances all CIS countries in this ranking, placing 51<sup>st</sup>.

## THE GLOBAL COMPETITIVENESS INDEX

Let's also characterize positions of the CEE countries and Russia in the ranking of the Global Competitiveness Index calculated for 139 countries where indicators of an aggregated index are converted on a scale of 1 to 7 (the GCI characterizes three main subindexes: basic requirements, efficiency enhancers and innovation and sophistication factors). The World Economic Forum defines competitiveness as a set of institutes, political measures and the factors stipulating the level of the country productivity. It is emphasized that more competitive countries are capable to provide higher level of income for the citizens (Report about the competitive power of Russia, 2011; The Global Competitiveness Report, 2011-2012). Information about the pillars of the GCI and the positions of Russia, the Czech Republic and Poland in the international ranking by each of analyzed positions is important as well (Table 3).

Table 3

*Pillars of the Global Competitiveness Index (GCI), 2010-2011, Russia, Poland, Czech Republic*

Pillars of the Global Competitiveness Index	Russia		Poland		Czech Republic	
	Rank	Index	Rank	Index	Rank	Index
<b>Global Competitiveness Index 2010-2011</b>	<b>63</b>	<b>4,2</b>	<b>39</b>	<b>4,5</b>	<b>36</b>	<b>4,6</b>
<b>Basic requirements</b>	<b>65</b>	<b>4,5</b>	<b>56</b>	<b>4,7</b>	<b>44</b>	<b>4,9</b>
1 pillar: Intuitions	118	3,2	54	4,2	72	3,9
2 pillar: Infrastructure	47	4,5	72	3,8	39	4,8
3 pillar: Macroeconomic environment	79	4,5	61	4,7	48	4,9
4 pillar: Health and elementary education	53	5,9	39	6,1	43	6,1
<b>Efficiency enhancers</b>	<b>53</b>	<b>4,2</b>	<b>30</b>	<b>4,6</b>	<b>28</b>	<b>4,7</b>
5 pillar: Higher education and training	50	4,6	26	5,0	24	5,1
6 pillar: Goods market efficiency	123	3,6	45	4,4	35	4,6
7 pillar: Labor market efficiency	57	4,5	53	4,6	33	4,7

8 pillar: Financial market development	125	3,2	32	4,7	48	4,5
9 pillar: Technological readiness	69	3,6	47	4,0	32	4,5
10 pillar: Market size	8	5,7	21	5,1	42	4,5
<b>Innovation and sophistication factors</b>	<b>80</b>	<b>3,4</b>	<b>50</b>	<b>3,8</b>	<b>30</b>	<b>4,2</b>
11 pillar: Business sophistication	101	3,5	50	4,2	22	5,4
12 pillar: Innovation	57	3,2	54	3,3	27	3,9

Composed by: (Report about the competitive power of Russia, 2011. World Economic Forum. Committed To Improving The State Of The World. 2011, pp. 115-117 and 175-177 and 203-205)

The Global Competitiveness Index consist of 113 variables (12 pillars), which characterize in details competitiveness of countries. It is important to note that any factor separately unable to improve or provide high competitiveness of economy of any country. So, the effect from the increase of expenses for education can be lowered, for example, because of an inefficiency of the labor market, etc. Or there will be no good results if graduates are not employed in an appropriate way. Further, the attempts to optimize control over public finances will be successful only in the absence of corruption, transparency of a control system of finance, etc. It is important to consider the fact that businessmen will start to invest in research and development and to introduce new technologies in production only if the potential profit exceed essential investments etc.

Let's compare positions of two countries on the basis of the ranking of the Global Competitiveness Index in 2010 and 2012. So, in a ranking of the GCI (2010-2011) Russia was on 63<sup>rd</sup> position. The Czech Republic and Poland achieved higher scores and were on 36<sup>th</sup> and 39<sup>th</sup> positions respectively. It should be noted that on an average GCI both countries lag behind the OECD countries (the index of the OECD countries is 4,9 out of 7 points, Russia – 4,2, Poland – 4,5 and the Czech Republic – 4,6). There was some improvement of indicators before the world financial crisis (in comparison with the GCI ranking in 2008) but during the post-crisis period the positions of these countries worsened a little (Report about the competitive power of Russia, 2011, pp. 17). So, according to the Global Competitiveness Report data (2011-2012) the Czech Republic dropped two places to 38<sup>st</sup> position, Poland dropped two places to 41<sup>st</sup> position, Hungary – up to 48<sup>st</sup> position, Slovenia – fell down to 57<sup>st</sup> position, and Russia fell from 63<sup>rd</sup> to 66<sup>th</sup> position (The Global Competitiveness Report, 2011-2012). The leading countries are Switzerland, Singapore, Sweden, Finland, the USA, Germany and other developed countries. It is important to note that China moves already up to 26<sup>h</sup> position, having reached the Republic of Korea (24<sup>th</sup>). Both states considerably advance Russia and other CEE countries – the new EU members by many analyzed indicators.

What factors made the most considerable impact on development of the CEE countries and Russia in the last two decades and what are the reasons of so different positions of these states in the international ratings? Success in ICT development in separate CEE countries, in our opinion, is connected, firstly, with the existence of a private sector in these states till 1990 when they started transformation of economy

at faster rates. In Russia there were absolutely other conditions after the 70-year period of socialist development of planned economy, moreover there was inaction of institutes and society that disturbed changes. Secondly, the favorable economic and geographical position of the countries of this region (proximity to the developed countries of Western Europe, first of all to Germany) was an important factor, as well as a transit allocation on a way of trading streams from Russia and other CIS countries to Europe. Thirdly, the fact of their accession to the EU render a positive influence, considering that they prepared for it during some years, they received and receive significant financial assistance from more developed European Union countries nowadays. Fourthly, most of capacities or multinational corporation branches from more developed countries of Western Europe were moved to CEE where labor cost was much lower, and the level of its qualification was quite worthy that allowed these countries to reach considerable growth rates of production. Due to it, CEE states (first of all, the Czech Republic, Hungary and Poland) are integrated into the world and European economy more successfully, than Russia, after 20 years of transformations. The list of factors which have influenced the development of economy, certainly, can be continued.

## CONCLUSION

Today ICTs play a fundamental role in the world production and introduction of innovation, raising productivity and competitiveness, they promote economic diversification and stimulate business activity.

ICT development in analyzed countries as in other post-socialistic countries of the Central Eastern Europe and the CIS is still behind the level of ICT use in developed countries that affects their positions in the international rankings. Main advantages of Russia and the CEE countries – the new EU members in ICT development are connected with high indicators of elementary education and a share of population with secondary and higher education. But at the same time the most indicative feature of Russian economy is natural resources endowment and its resource-based export orientation that is a deterrent of its development. A problem of development of the institutional environment is among urgent tasks to be tackled in Russia to increase its competitiveness. Financial markets lag behind the level of the OECD countries by both efficiency and reliability.

Countries of Central Eastern Europe - new EU members (the Czech Republic, Hungary, Poland and Slovenia) are faster in transition to a knowledge-based economy (that is shown by high positions of the country in the world rankings), but competitiveness of the companies of Russia and these countries is still much lower, than in the developed countries. At the same time the key problems for business in Russia are the following: corruption, access to financing, tax legislation, crime, inefficiency of the state machinery activity, a level of taxes, low qualification of labor, unsatisfactory labor ethics, inadequacy of infrastructure, etc. But for one for Poland – the following problems are more important: tax legislation, inefficiency of the state machinery activity, labor legislation, access to financing, taxation problems. As a whole it is required to do a deeper and detailed studying of all pillars of the Global Competitiveness Index of the countries.

Nevertheless, it is important that Russia and the new EU members have serious plans on improvement of the structure of economy and transition to an innovative way of development. Complexity of formation of the national innovative system and implementation of innovative policy is explained by the necessity of quality changes for public consciousness, involvement of a large number of organizations in the process of integration of science, business and education.

Certainly, there is no universal model of innovative development for all states. Innovative policy depends on the level of social and economic development of the country and is stipulated by it. Experience of more developed countries on formation of national innovative system allows proposing some basic statements which are necessarily to be considered in Russia. In the conditions of globalization and strengthening of competition in the world markets of industrial goods and services it is necessary to concentrate efforts on the policy of creation of competitive hi-tech goods and services. Thus it is necessary to develop a range of measures to attract long-term foreign investments into research and development and hi-tech industries, to support small and medium business. It is also necessary to allocate the most competitive spheres of private business which could enter with national capital into the world largest multinational corporations (Rodionova, Chyrsin, 2011, pp. 20-21).

In other words, innovative stable development in the modern world is impossible without carefully thought incremental realization of innovative and investment policy, minimization of influence of external and internal risks, etc. Investments in ICT and liberal policy of telecommunication openness are of considerable importance for the growth of competitiveness of the economies in transition. Innovative development is a pledge of strengthening of economic power at all levels of production. Realization of effective innovative and investment policy will allow Russia and the countries of the Central Eastern Europe – the new EU members - to take more rightful places in the global economy during the post-crisis period and further.

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## ИНОВАЦИОННОТО РАЗВИТИЕ И КОНКУРЕНТОСПОСОБНОСТТА В ГЛОБАЛНАТА ИКОНОМИКА: МЯСТОТО НА РУСИЯ И СТРАНИТЕ ОТ ЦЕНТРАЛНА И ИЗТОЧНА ЕВРОПА – НОВИ ЧЛЕНКИ НА ЕВРОПЕЙСКИЯ СЪЮЗ

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### (Р е з ю м е)

Целта на настоящото изследване е въз основа на анализа на мястото на Русия и страните от ЦИЕ в рейтингите, основани на интегрални показатели, оценяващи готовността на страните за преминаване към иновативно развитие, да се посочат проблемите в стопанската модернизация на тези страни при прехода им към икономика, основана на знанието. Особено важно е да се разбере какво

трябва да се направи, така, че благодарение на разработването на собствени иновационни парадигми за национално развитие, анализиранияте страни да се доближат до лидерите в световната икономика.

За анализа са избрани няколко международни рейтинги, отразяващи готовността на страните към развиване на икономика, основана на знанието и нивото им на внедряване на информационно-комуникационните технологии (ИКТ). Извършена е оценка на представителността на изходните данни и са разчетени стойностите на корелациите между показателите на индексите на страните в избраните международни рейтинги и нивото на икономическото им развитие. За да се покаже високото ниво на репрезентативност на интегралните индекси, най-напред са изчислени коефициентите на корелация между показателите на всеки от дадените индекси в рейтинговите таблици за изследваните страни („Индекс за изграждане на икономика на знанието“ – Knowledge Economy Index, KEI, „Индекс за мрежова готовност“ – Networked Readiness Index, NRI, „Индекс за информатизация на обществото“ – Informational Society Index, „Глобален иновационен индекс“ – Global Innovation Index, GIИ).

Днес лидери в производството на високотехнологична продукция са именно страните, поставили знанието и ИКТ в служба на икономиките си, благодарение на което те са и водещи в световното стопанство. Доказателство за това са получените високи стойности на коефициента на корелация, потвърждаващи пряката зависимост: а) между стойностите на избраните индекси и БВП на глава от населението в изследваните страни; б) между стойностите на индексите и БВП на един зает в тези страни; в) между стойностите на индексите по страни и данните за обема на произведената продукция от високотехнологичните отрасли и сектора на информационните технологии, изчислени на човек от населението в анализиранияте страни. Извършено е съпоставяне на местата на страните лидери в световната икономика, страните от ЦИЕ и Русия в международните рейтинги.

В резултат от проведеня анализ е формулиран изводът, че стабилното иновационно развитие в съвременния свят е невъзможно без реализация на внимателно премислена инвестиционно-иновационна политика. Необходимо е усилията да се съсредоточат в разработването на политика по създаването на конкурентоспособни високотехнологични стоки и услуги, което ще позволи на Русия и източноевропейските страни в бъдеще да заемат по-достойно място в глобалната икономика.