

ZN WSH Zarządzanie 2016 (1), s. 135-148

**Oryginalny artykuł naukowy**  
**Original Article**

*Data wpływu/Received:* 29.10.2015

*Data recenzji/Accepted:* 5.01.2016/13.01.2016

*Data publikacji/Published:* 2.03.2016

Źródła finansowania publikacji: środki własne Autorów

**DOI: 10.5604/18998658.1199368**

**Authors' Contribution:**

- (A) Study Design (projekt badania)
- (B) Data Collection (zbieranie danych)
- (C) Statistical Analysis (analiza statystyczna)
- (D) Data Interpretation (interpretacja danych)
- (E) Manuscript Preparation (redagowanie opracowania)
- (F) Literature Search (badania literaturowe)

*Dr hab. profesor Lesia Petkova* <sup>ABCDEF</sup>

*Dr Marina Leshchenko* <sup>ABCDEF</sup>

*Dr Wladislav Pasenko* <sup>ABCDEF</sup>

*Państwowy Uniwersytet Technologiczny w Czerkasach, Ukraina*

**THE MAIN FEATURES OF NATIONAL ECONOMIES'  
INTEGRATION TO THE GLOBAL INNOVATION SPACE**

**GŁÓWNE CECHY INTEGRACJI GOSPODAREK  
NARODOWYCH PRZY GLOBAL INNOVATION SPACE**

**Abstract:** Relevance of innovative development of the modern world economy and its main components are determined in the article. The main assessment methods of innovative potential of the countries of the world are determined. The main macroeconomic indicators of development of the countries of the world in the context of formation of innovative potential are analysed. The main features of a global innovative environment formation in the context of the world economy's

globalization are determined in the article. The main indicators of national economies' innovative development are analyzed. The authors explore the features of Global Innovation Index' indicators for different national economies.

**Keywords:** globalization, integration, national economies, indicators, innovative space, Global Innovation Index

**Streszczenie:** W artykule podjęto problematykę innowacyjnego rozwoju nowoczesnej gospodarki światowej i jej podstawowych komponentów. Określono podstawowe metody oceny innowacyjnego potencjału państw świata. Przeanalizowano podstawowe makroekonomiczne wskaźniki rozwoju państw w kontekście tworzenia innowacyjnego potencjału. W artykule poddano analizie także podstawowe cechy tworzenia globalnego innowacyjnego środowiska w kontekście globalizacji światowej gospodarki oraz podstawowe wskaźniki innowacyjnego rozwoju państwowych gospodarek. Autorzy zbadali cechy wskaźników globalnego indeksu innowacyjności dla różnych gospodarek państwowych.

**Słowa kluczowe:** globalizacja, integracja, gospodarki narodowe, wskaźniki, innowacyjna przestrzeń, globalny wskaźnik innowacyjności

## Introduction

The modern world economic system is characterized by need of continuous growth of productivity in the conditions of limitation of primary resources. Therefore, in this system is constantly carried out a reorganization of its compound components, communications between them for the purpose of increase of efficiency of resources use. It is reached due to continuous innovative activity in different sectors and at the different structural levels of economy of the countries, regions and all world economy in general. For this reason, recently a large number of scientific researches is devoted to a subject of innovations and their role in further development of the world economy.

The current state of world economy proves that the level of development and dynamism of the innovative sphere – science, new technologies, the knowledge-intensive branches and the companies provides a basis of sustainable economic development of society, defines a role and position of the state in system of the international relations, degree of its economic security. In the last decades accumulation of rates of scientific and technical progress, rapid development of the knowledge-intensive productions gave a new shock to intensive scientific researches of innovations and innovative development.

According to the experts today in innovative production a quarter of a gross world product is created. Innovative production is characterized by the highest level of added value and profit consequently. Thus a certain subject of research is extremely actual for today.

At the same time, dynamism of modern innovative development predetermines need of continuous monitoring of key prerequisites and indicators of modern innovative development. Besides, as the different countries of the world are at the different levels of economic development, separate attention need researches of various components which

in details characterize innovative development of the countries of the world. Research purpose is definition and the analysis of the main indicators of integration of national economies to world innovative space. During the purpose the following objectives were put and executed: to generalize theoretical bases of world innovative development, to define the main assessment methods of innovative potential in the countries of the world, to analyse the main indicators of macroeconomic development of the countries of the world which influence formation of innovative potential; to analyse positions of the countries in a world rating on indicators of innovative development.

## **1. Rationale for Innovation-Driven Development**

In modern world economy is actively formed the new paradigm of development which leans on innovative sources of growth. The new paradigm of development of the world economy is based on use of knowledge and innovations as important economic resources. For today innovations become a strategic factor of economic growth and significantly influence structure of a social production.

In scientific thought were formed some points of view concerning components of innovative development. Thus, for example, M. Rohoza and K. Verhal<sup>1</sup>, relying on two microeconomic approaches to definition of innovative development (according to which this type of development is, on the one hand, the mechanism of realization of internal potential, and on the other hand - series of steps concerning introduction of innovations), consider components of this development the innovative potential and innovative process which is under way.

Similar approach offers also O. Moroz<sup>2</sup>, specifying thus, that it is expediently to consider innovative potential as series of an innovative susceptibility (that is abilities of production and economic system to introduction and use in the activity of any innovations) and degrees of innovation of the enterprises (an indicator which characterizes possibility of transformation of scientific and technical development into novation, and then in innovation). At the same time Yu. Shypulina and S. Illyashenko insist on importance of ensuring a certain level not just an innovative potential, but potential of innovative development which consists of three potentials-subsystems: innovative, production and distributive, market-based and which is offered for considering from two positions: as the certain resource pool necessary and sufficient for innovative development, as ability and opportunity to realize these resources. They emphasise that the success of innovative development substantially depends on a human factor and, as a result, on innovative culture in the country and its intellectual capital in general.<sup>3</sup> In other words, not com-

<sup>1</sup> M.Y.E. Rohoza, *Strategic innovative development of the enterprises: models and mechanisms: monograph*, „Poltava university of economy and trade” 2011, p. 136.

<sup>2</sup> O.S. Moroz, *Formation of system of indicators for estimation of innovative development of the enterprise*, “Economy of the Crimea” 2012, No 3 (40), p. 263-266.

<sup>3</sup> Yu.S. Shypulina *Development of the theoretic-methodological principles of transition of the enterprises on the innovative way of development*, 2011, B. 1, No. 4, p. 103-112.

pound, but actually obligatory prerequisites for innovative development is existence of the corresponding potential and the intellectual capital on which influences the innovative culture, in other words the accumulated knowledge, experience, belief, features of relationship of the state and the enterprises or organizations, system of motivation.

Rapid development of technologies caused formation in the countries of “National Innovation Systems” (NIS). Thus, K. Friman defines national innovation system as system of institutes in public and private sectors, activity and interaction between which are directed on initiation, import, modification and diffusion of new technologies<sup>4</sup>.

Besides, variants of the organization of innovative processes and the directions of innovative activity are influenced by a big number of factors, including valuable aspect of innovations, competition existence, etc. Reasonably to carve out investments for implementation of innovative processes, it is necessary to realize the main signs and the principal content of all variety of novations and innovations. Their classification by basic signs and other characteristics will help in making decisions on management of innovations, definition of the directions of innovation activity<sup>5</sup>.

Innovation activity is influenced by factors of the external and internal environment. Realization of strategy of management of innovation activity is influenced by such groups of factors: purposes, tasks and strategy, qualification, insurance and qualitative structure of workers; management and organizational structures, their information and resource support, assessment of internal and external opportunities and restrictions. Realization of innovative potential provides existence of such stages: preparatory stage, change of a control system, stabilization. Introduction of methods of realization of innovative potential provides that use of economic methods has to be followed by effective mechanisms of their state support and formation of financial and legislative incentives for implementation of innovative technologies and business activity in the sphere of science and scientific and technical activity which is the most important direction of state regulation in the innovative sphere<sup>6</sup>.

Thus, the considered designations of the directions of innovative activity needs attraction of investments. The accruing inflow of investment resources which promotes activization of innovative activity becomes an original expression of internal economic force and financial safety of the country. Attraction of internal and foreign investments into the innovative sphere will allow many enterprises to have effective instruments of acceleration of development of the priority spheres of a production activity directed on achievement of the set innovative goals.

<sup>4</sup> C. Freeman, *Technological Infrastructure and International Competitiveness*: Retrieved from: [http://redesist.ie.ufrj.br/globelics/pdfs/GLOBELICS\\_0079\\_Freeman.pdf](http://redesist.ie.ufrj.br/globelics/pdfs/GLOBELICS_0079_Freeman.pdf)

<sup>5</sup> N. Sharif. *Emergence and development of the National Innovation Systems concept*, „Research Policy” 2006, 35, p. 75.

<sup>6</sup> V.I. Kocherov, N.S. Sapronova, *Main components of innovative activity*, Donetsk, DonNTU, 2010, p. 97.

## **2. Indicators of Global Innovative Development**

In world practice the assessment of level of innovative potential is carried out generally at the national level. Such indicators are the most used:

1) Index of scientific and technical potential as component of an integrated indicator of an assessment of level of competitiveness of the country. Here the world indicator of national competitiveness is defined by experts of the World Economic Forum on the basis of three components: index of the macroeconomic environment, index of the state institutes, index of scientific and technical potential. Index of scientific and technical potential is calculated on the basis of the following data: number of patents for 1 million people; a country position after the level of technological development; contribution of foreign investments into innovative activity of local firms; user count of Internet on 10 thousand people and so on.

2) System of an assessment of innovative activity of the country after the indicators of the European Innovation Scoreboard.

3) System of indicators of assessment of innovative activity of the countries by the OECD method. Unlike the European system which estimates innovative potential only of the developed countries, experts of the OECD provide data also on the separate countries which aren't their members. The assessment of the level of innovative development of the country according to method of the OECD is carried out after the following directions: creation and dissemination of knowledge: investments into knowledge (sum of expenses on scientific researches and development, expenses on the higher education and software); number of the granted patents; number of the occupied in the sphere of science and high technologies; others; information economy: investments into the telecommunication equipment and software; user count of Internet; contribution of telecommunication sector to international trade; global integration of economic activity; international trade; volume of direct foreign investments; others; productivity and structure of economy: labor productivity on branches; growth rates of labor productivity; trade in high-tech industries.

The Global Innovation Index is the general indicator for measurement of level of innovations in the country. The Global Innovation Index was developed by Boston Consulting Group, National Association of Producers and University of Production. The assessment of the Global Innovation Index is a part of big research in which are considered as commercial results of innovative activity in the countries, and activity of the governments concerning encouragement and support of innovative activity in the state policy.

The rating on indicators of the Global Innovation Index is counted, proceeding from the average size of two subindexes. The subindex of innovative expenses allows to estimate elements of national economy, in which incarnate activity in the sphere of innovations, divided into five main groups: institutes; human capital and research; infrastructure; development of the market and development of business. The subindex of production of innovations displays the actual results of such activity shared into two main groups: results in field of knowledge and technologies and results in the field of creativity. All specified groups are formed on the basis of 94 variables.

Scientific and technical progress, innovative activity and technical advantages depend on funds which are allocated for R&D and scales of their distribution and use. R&D spending in the world economy quickly grew, advancing rates of a gain of capital investments. In the modern period costs on development of production knowledge exceed capital investment in active elements of nominal capital in many leading companies. According to data of World bank, the percent of R&D spending from GDP (Table 1) has rather excellent values in the different countries of the world.

Table 1. R&amp;D spending (% from GDP)

Tabela 1. Wydatki B+R (% z PKB)

Country	1996	2000	2007	2008	2009	2010	2011	2012
Great Britain	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,7
EU	1,8	1,8	1,8	1,9	2,0	2,0	2,0	2,1
Israel	2,7	4,2	4,5	4,4	4,2	4,0	4,0	3,9
India	0,6	0,7	0,8	0,8	0,8	0,8	0,8	x
China	0,6	0,9	1,4	1,5	1,7	1,8	1,8	2,0
Madagascar	x	0,1	0,1	0,1	0,1	0,1	0,1	x
Germany	2,2	2,5	2,5	2,7	2,8	2,8	2,9	2,9
Poland	0,7	0,6	0,6	0,6	0,7	0,7	0,8	0,9
Russia	1,0	1,0	1,1	1,0	1,3	1,1	1,1	1,1
Singapore	1,3	1,9	2,4	2,6	2,2	2,1	2,2	2,1
USA	2,4	2,6	2,6	2,8	2,8	2,7	2,8	2,8
Ukraine	x	1,0	0,9	0,8	0,9	0,8	0,7	x
France	2,3	2,2	2,1	2,1	2,3	2,2	2,2	2,3
Sweden	x	x	3,4	3,7	3,6	3,4	3,4	3,4
Japan	2,8	3,0	3,5	3,5	3,4	3,3	3,4	x

Source: own's work based on data from: <http://data.worldbank.org>

Thus, expenses of Great Britain which takes the second place in the Global innovation index, in 1996 submitted 1,8% from GDP, as well as in 2000, and in 2012 these expenses equaled 1,7%. As we can see percent of expenses during the period from 1996 to 2012 had no considerable hesitations, but this indicator has negative dynamics. Expenses decreased by 0,1%. The European Union and its member states actively invest in research and innovations within many decades. The general indicator of expenses of the EU on R&D didn't experience big changes, but, unlike Great Britain, it tends to increase - from 1,8% in 1996 to 2,1% in 2012. At this stage of costs of R&D in the countries of the European Union submit on average 1,9% from GDP. The main part of national allocations for R&D (about 60%) comes from private sector (in Sweden, Finland and Ireland – 75-70%, in Belgium,

Germany, France – 65-55%). Public funds in financing of R&D most use Portugal – about 70%, Greece, Poland, Hungary – 50% and more.

Japan is one of the top countries by expenses on R&D. It should be noted that in Japan the scientific and technical and innovative policy of the state is a component of industrial policy. During crisis (2007-2008) part of expenses on R&D represented 3,5% from GDP that is the highest indicator for the studied period, but till 2012 the country not considerably lower the positions, expenses were represented by 3,4%. Recently is observed the tendency to strengthening of a regulation of financing of R&D and increase in their structure of part of expenses on basic researches, and also striving of Japan to pursue the scientific and technical policy abroad.

Note that the USA aim huge amounts of money at the development of modern science and technology. Though in some other countries the part of expenses in structure of GDP on these purposes exceeds the corresponding part of America, the absolute sizes of the American expenses big and grow from year to year. Expenses of the USA on R&D in 1996 represented 2,4%, and in 2012 – 2,8%. Jump is not considerable, but positive dynamics is observed, it testifies that ensuring of scientific and technical leadership of the USA in the world remains one of the fundamental priorities of the economic program of the American government.

To use the maximum advantages of the scientific researches and development and other innovative actions which are carried out in the countries, conditions of structure which stimulate innovations are vital. The major condition is existence of a large educational supply of the human capital which helps the countries to accelerate technological development and competitiveness. Scientific and technical progress and its component characterize the human capital as a factor of the general qualitative and growth in volumes of economy.

As one of indicators of innovative development of the countries is number of researchers in scientific researches and development (Table 2).

Table 2. Number of researchers involved in scientific researches and development (mln people)

Tabela 2. Liczba naukowców zaangażowanych w badania naukowe i rozwój (mln osób)

Country	1996	2000	2007	2008	2009	2010	2011	2012
Great Britain	2488,2	2893,1	4143,8	4107,6	4151,1	4134,0	4026,4	4024,2
EU	2024,3	2261,2	2920,5	3063,1	3124,8	3210,7	3223,8	3155,8
Israel	x	x	x	x	x	x	6602,3	x
India	153,4	111,2	x	x	x	159,9	x	x
China	439,1	542,8	1066,7	1186,0	852,8	890,4	963,2	1019,6
Madagascar	x	15,2	48,4	46,7	45,4	52,1	51,0	
Germany	2760,4	3087,9	3480,0	3627,6	3813,6	3950,4	4084,9	4138,9
Poland	1363,7	1438,6	1607,7	1618,4	1599,9	1688,8	1678,7	1753,4

Russia	3788,2	3450,6	3265,4	3140,5	3077,9	3078,1	3120,4	3096,1
Singapore	2551,2	4245,0	5769,4	5742,0	6149,9	6306,5	6494,1	6437,7
USA	3102,3	3454,8	3731,4	3883,9	4042,1	3837,6	3978,7	x
Ukraine	x	x	1446,7	1419,0	1337,0	1320,5	1252,9	x
France	2659,5	2905,9	3566,1	3639,8	3726,7	3851,5	3917,6	x
Sweden	x	x	5001,8	5438,3	5065,4	5255,9	5142,3	5181,2
Japan	4947,0	5151,1	5377,7	5157,7	5147,4	5151,3	5157,5	x

Source: own's work based on data from: <http://data.worldbank.org>

Obvious leaders in this indicator are Singapore and Sweden, in 2012 they reached indicators 6437,7 and 5181,2 researches on one million people accordingly. Japan, EU countries, Great Britain and the USA run for them. The key to success of these countries is high education level, as a result – existence of highly skilled personnel, high appeal of foreign investments and support of innovative activity by the state.

Separately it should be noted that specialization on hi-tech products is often used for occupation of technological export. The developing countries even more often become exporters of hi-tech products, and some can even be one of the most deeply specialized countries in branch of export of hi-tech goods.

The highest indicator of hi-tech export has China (Table 3). Also China made the greatest break in this indicator – from USD 15,8 billion in 1996 to USD 584,7 billion in 2013. One of the reasons of such success is that in the territory of China there are foreign innovative enterprises.

Table 3. Volume of hi-tech export (USD billion)

Tabela 3. Wolumen eksportu hi-tech (w mld USD)

Country	1988	1996	2000	2007	2010	2011	2012	2013
Great Britain	28,4	55,5	71,7	57,6	60,2	69,6	67,8	24,2
EU	x	262,6	392,8	551,6	574,9	651,4	636,7	584,7
Israel	0,8	3,2	5,0	3,1	8,0	8,8	9,2	9,6
India	0,4	1,7	2,1	6,0	10,1	12,9	12,4	16,7
China	x	15,8	41,7	302,8	406,1	457,1	505,6	560,1
Madagascar	x	0,0	0,0	0,0	0,0	0,1	0,0	0,0
Germany	33,6	61,0	85,5	153,4	158,5	183,4	183,4	193,1
Poland	x	0,5	0,8	3,4	8,3	8,6	9,6	12,1
Russia	x	2,2	3,9	4,1	5,1	5,4	7,1	8,7
Singapore	x	58,0	73,9	102,9	127,0	126,4	128,2	135,6
USA	x	138,1	197,5	218,1	145,5	145,3	148,8	147,8
Ukraine	x	0,4	0,5	1,3	1,4	1,9	2,6	2,2



France	19,6	42,6	58,8	78,8	99,7	105,1	108,4	113,0
Sweden	5,1	12,0	16,2	15,1	16,2	18,5	16,6	17,0
Japan	61,0	101,8	128,9	117,9	122,1	126,5	123,4	105,1

Source: own's work based on data from: <http://data.worldbank.org>

The most stable and successful in an indicator of hi-tech export are USA, Japan, Singapore, Germany and France. But the biggest jump made Singapore (USD 58,0 billion in 1996 – USD 135,6 billion in 2013), Germany (USD 33,6 billion in 1988 – USD 193,1 billion in 2013) and France (USD 19,6 billion in 1998 – USD 113,0 billion in 2013).

The separate role in modern innovative development plays the trade in intangible assets. In particular, according to the number of patent demands from residents the leading countries are China (704,9 thousand in 2013), the USA (287,8 thousand in 2013) and Japan (271,7 thousand in 2013). EU countries also increase this indicator, but with smaller rates – from 96,7 thousand in 1988 to 108,5 thousand in 2013. Such countries as Sweden, Israel, Poland, Singapore, Ukraine and India have rather low indicators which don't exceed 4 thousand. Only India managed to increase considerably number of patent demands from residents from 1,0 thousand in 1988 to 10,7 thousand in 2013.

According to the number of patent demands from nonresidents leaders are also the USA, China and Japan, and Poland, Ukraine, France, Sweden and Madagascar has the lowest indicators. India considerably moved up in this indicator if the number of the submitted applications by residents in 2013 was represented by 10,7 thousand, nonresidents – 32,4 thousand. Also Germany increases potential on this indicator for which in 2000 the number of patent demands from nonresidents was represented by 10,4 thousand and following the results of 2013 their quantity increased to 15,8 thousand.

According to specialists of INSEAD business school which are displayed in the Global innovation index (GII), in general, economic growth was and remains uneven between the developing markets and developed economies (Table 4).

Table 4. Rating of the countries on indicators of the Global innovation index  
Tabela 4. Ocena krajów na podstawie globalnego wskaźnika innowacyjności

Country	Place in a rating 2014	Assessment	Place in a rating 2013	Assessment
Switzerland	1	64,78	1	66,59
Great Britain	2	62,37	3	61,25
Sweden	3	62,29	2	61,36
Finland	4	60,67	6	59,51
Netherlands	5	60,59	4	61,14
USA	6	60,09	5	60,31
Germany	13	56,02	15	55,98

Israel	15	55,46	14	55,83
Japan	21	52,41	22	52,23
China	29	46,57	35	44,66
Russia	49	39,14	62	37,20
Belarus	58	37,10	77	34,62
Brazil	61	36,29	64	36,33
Ukraine	63	36,26	71	35,78
India	76	33,70	66	36,17
Guinea	139	20,25	126	25,7
Myanmar	140	19,64	x	x
Yemen	141	19,59	142	19,32
Togo	142	17,65	139	23,04
Sudan	143	12,66	141	19,81

Source: own's work based on data from: <https://www.globalinnovationindex.org/userfiles/file/reportpdf/GII-2014-v5.pdf>

Note that leaders and outsiders of this rating practically don't change in recent years. So, Switzerland, Great Britain, Sweden, Finland, the Netherlands and the USA are already again included into a Top-6 leading countries by innovative development. Outsiders are the countries of Africa, such as Guinea, Myanmar, Togo, Yemen and Sudan. The assessment of their index doesn't exceed 25,14 points.

It should be noted separately that the three leaders in indicators of a subindex of expenses on innovations includes such countries: Singapore with an assessment 73,60 points (72,27 in 2013), the second place was taken by Hong Kong (China) - 68,57 points (70,65 in 2013) and on the third place grown up Great Britain with an assessment 68,21 points. The USA, in turn, lost one position, from the third place in 2013 with an assessment 69,19 points and came down on the 4th position in 2014 with an assessment 67,92 points.

Switzerland, the Netherlands, Sweden, Great Britain and Luxembourg are leaders by indicators of a subindex of productivity of innovations though assessments of the leading countries by this subindex increased only at Sweden, Great Britain and Luxembourg. The USA came up from the 12th place in 2013 on the seventh. Germany also increases its positions, from the 9th place with an assessment 52,14 in 2013 came up on eighth step with an assessment 51,74 points. Israel conversely lost three positions, so, in 2013 it took the 10th place and in 2014 - the 13th place. China, Japan, Ukraine, Belarus and Russia made considerable jump, for example, Russia and Belarus managed to improve their places on 34 and 29 positions respectively. India conversely lost 23 positions, in 2013 it took the 42nd place with an assessment 36,56 points and in 2014 - the 65th place (30,42 points). Outsiders of this subindex in 2014 are Yemen, Tadjikistan, Burundi, Togo and

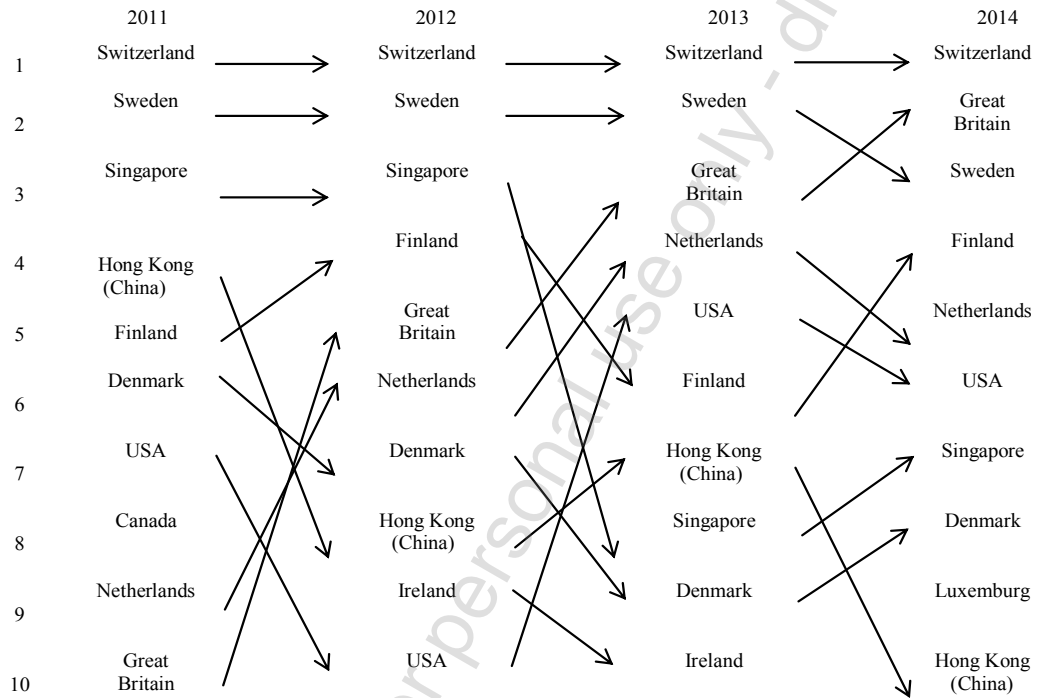
Sudan. In comparison with 2013 most of all positions were lost by Tadjikistan - the 89th place in 2013 and 140 in 2014 when the assessment decreased almost in half.

## 2. Key Trends of the Global Innovation Index Dynamics

For the period from 2011 - 2014 Switzerland wins first place in the Global innovation index (fig. 1).

Rysunek 1. Zmiany w Top-10 globalnego wskaźnika innowacyjności

Figure 1. Changes in Top-10 of the Global innovation index



Source: own's work based on data from: <https://www.globalinnovationindex.org/userfiles/file/reportpdf/GII-2014-v5.pdf>

The second place during 2011-2013 was taken by Sweden, but in 2014 it lowered its position and came to be on the 3rd place. The second place in 2014 is taken by Great Britain which strengthens its positions every year. Thus, in 2011 Great Britain took the 10th place, in 2012 - 5, and in 2013 - the 3rd place. Singapore from the third position in 2011 came down on the seventh position in 2014, the greatest bust took place in 2013, then Singapore took the 8th place in the Global innovation index. Hong Kong (China) has the worst dynamics, in 2011 it gradually comes down from 4 position on the tenth position. The Top-5 countries according to the Global innovation index in 2011 assigned Finland. In 2012 its positions improved a little (the 4th place), but in 2013 the position decreased to the 6th place. In 2014 Finland again returned on the 4th place.

The separate attention is deserved by expenses of the countries on research and development. Thus world gross expenses on scientific researches and development (R&D) during 2012-2013 grew on 2,7% (from USD 1517 billion by parity of purchasing power to USD 1558 billion), and up to the end of the year their growth is provided, in comparison with 2013, even on 3,9% (to USD 1618 billion). In comparison with pre-crisis 2007 they grew in 2013 on 38,6% (world gross R&D expenses in 2007 represented USD 1123,9 billion)<sup>7</sup>.

## Conclusion

Thus, it is necessary to sum up that in recent years leaders of modern world innovative development practically didn't change. Lack of balance in innovative development don't allow to satisfy needs of development for those regions where they are most obvious, that leads to accumulation of financial and economic and trade contradictions and deepening of imbalances between the developed countries and the developing countries.

Paradoxically, acceleration of innovative development became a field which feeds an innovative gap. The main point of this phenomenon consists in reduction of an innovative cycle, search of more effective innovative models, an intensification of innovative policy which is realized by the states and the international organizations. Rates of innovative acceleration are set by the developed countries, which are extremely occupied with questions of savings of its competitive advantages in the innovative sphere.

The growing rates of innovative development which are generated by leaders of world economy, generate for the majority of the developing states a problem of innovative lag. The certain states, such as China, India or Brazil, deal with it completely successfully. In others, for example, in the African region national innovative systems are absent absolutely.

Innovation has to define today not only a development paradigm, but also the general paradigm of assistance in development. Enough brightly it is traced in search of new funding mechanisms of innovative development for initiatives of the UNO. According to nature methods of reduction of innovative disproportions in a global scale are not than another, as way of assistance to innovative development in the format "state-state", "international organization-state". These methods are directed on activation of factors of innovative development through a project financing, consulting services and technical assistance in creation of effective innovative system and infrastructure. Thus, at the level of Group of World bank, UNCTAD, UNIDO is saved up the certain experience from providing assistance in development of national innovative systems in the developing countries. A noticeable role in alignment of global innovative development plays World Intellectual Property Organization (WIPO), which goes for integration of the developing countries and the least developed countries to global innovative process by reduction of a rupture of knowledge through their active distribution and ensuring access to them, without mentioning activity in the sphere of legal protection and protection of innovations.

<sup>7</sup> *Global R&D funding forecast*, 2014, [http://www.battelle.org/docs/tpp/2014\\_global\\_rd\\_funding\\_forecast.pdf](http://www.battelle.org/docs/tpp/2014_global_rd_funding_forecast.pdf)

As the perspective directions of this research it is possible to allocate comparison of technological and innovative ruptures of the countries of the world, development of scenarios of dynamics of a global innovative gap, specification of policy of the states and international organizations in the sphere of its reduction, delineation of strategy of safe and mutually profitable innovative development.

## Bibliography

- Rohoza M.Y.E., *Strategic innovative development of the enterprises: models and mechanisms: monograph*, «Poltava university of economy and trade» 2011.
- Moroz O.S., *Formation of system of indicators for estimation of innovative development of the enterprise*, „Economy of the Crimea” 2012, No. 3 (40).
- Shypulina Yu.S. *Development of the theoretic-methodological principles of transition of the enterprises on the innovative way of development*, 2011, B. 1, No. 4.
- Freeman C., *Technological Infrastructure and International Competitiveness*: Retrieved from: [http://redesist.ie.ufrj.br/globelics/pdfs/GLOBELICS\\_0079\\_Freeman.pdf](http://redesist.ie.ufrj.br/globelics/pdfs/GLOBELICS_0079_Freeman.pdf)
- Sharif N. *Emergence and development of the National Innovation Systems concept*, „Research Policy” 2006, 35.
- Kocherov V.I., Sapronova N.S. *Main components of innovative activity*, Donetsk, DonNTU, 2010. <http://data.worldbank.org>  
<https://www.globalinnovationindex.org/userfiles/file/reportpdf/GII-2014-v5.pdf>
- Global R&D funding forecast*, 2014, [http://www.battelle.org/docs/tpp/2014\\_global\\_rd\\_funding\\_forecast.pdf](http://www.battelle.org/docs/tpp/2014_global_rd_funding_forecast.pdf)

### Author's resume:

**Lesia Petkova**, Ph.D in Economics, professor. Research include: international economic relations, global innovative development and economic growth policies. Professor Petkova heads the department of International Economics and Business in Cherkasy State Technological University.

**Marina Leshchenko**, Ph.D, Lecturer, Research interests include transnationalization of economic development, features mergers and acquisitions in international business. Department of International Economics and Business, Cherkasy State Technological University.

**Wladislaw Pasenko**, Ph.D, Associate professor. Research interests include international investment and innovation policy. Department of International Economics and Business, Cherkasy State Technological University.

### Noty o Autorach:

**Lesia Petkova**, profesor, dr hab. – kierownik Zakładu Gospodarki Międzynarodowej i Biznesu Państwowego Uniwersytetu Technologicznego w Czerkasach, Ukraina. Zainteresowania naukowe: międzynarodowe stosunki gospodarcze, innowacyjny rozwój globalny i polityka wzrostu gospodarczego.

**Marina Leshchenko, dr** – starszy wykładowca Zakładu Gospodarki Międzynarodowej i Biznesu Państwowego Uniwersytetu Technologicznego w Czerkasach, Ukraina. Zainteresowania naukowe: umiędzynarodowienie rozwoju gospodarczego, cechy fuzji i przejęć w biznesie międzynarodowym.

**Władisław Pasenko, dr** – adiunkt w Zakładzie Gospodarki Międzynarodowej i Biznesu Państwowego Uniwersytetu Technologicznego w Czerkasach, Ukraina. Zainteresowania naukowe: inwestycje międzynarodowe i polityka innowacji.

**Contact/Kontakt**

Prof. dr. Lesia Petkova

Państwowy Uniwersytet Technologiczny w Czerkasach, Ukraina

bul. Szewchenka, 460

18000 Czerkasy

email: l\_petkova@ukr.net

**The contribution of particular co-authors to preparation of the paper:**

**Wkład poszczególnych autorów w przygotowanie publikacji:**

Lesia Petkova – 33,4%; Marina Leshchenko – 33,3%; Władisław Pasenko – 33,3%

