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Index Assessment of Readiness of the Countries of BRICS Group for Information Society

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Abstract

In article the index assessment of readiness of the countries of BRICS group for information society in the conditions of integration information and financial spheres is carried out. The assessment was carried out on the indexes offered by government bodies of management of Russia for creation of the monitoring system. Influence of introduction of ICT on economic growth and development of the countries of the world is established by calculations of indexes of correlation between couples of indicators: GDP per capita (GNI) and the considered composite indexes.

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Keywords: Information society, composite indexes, monitoring system, BRICS, economic growth

1. Introduction

Prompt development of the information and communication technologies (ICT) and increase in their influence on economic growth, demanded comparison of a level of development of ICT in the different countries of the world. For this purpose scientists offer techniques of drawing up indexes and ratings of the countries on the level of informatization and participation of ICT in economic activity and readiness for the information society (IS).

The level of informatization is the most important indicator of competitiveness of the countries in modern global economy. Extensive methodical and statistical literature is devoted to measurement of quality of ICT [1-5]. Now it

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is known some composite (integrated) indexes characterizing conditions in which national economy and society in general develops, the economic and legal environment, quality of regulation and development of business and a private initiative, ability of society and its institutes to effective use available and to creation of new knowledge, widespread introduction of ICT is estimated.

In Russia the system of monitoring of development of IS in pursuance of provisions of Strategy of development of information society in the Russian Federation – 2020, approved as the Russian President of 07.02.2008. № Pr-212, and minutes of Security Council of the Russian Federation of 31.08 is created. 2007. № Pr-1574.The purpose of creation of this system of monitoring – information and analytical providing policy of federal and regional public authorities on development of ICT, readiness for IS and formation of the electronic government. In the offered system of indicators the following international composite indexes are considered (table 1).

Table 1.International integrated (composite) indexes

Name index	Designation index	Organization, Providing information
Index of development of ICT	IDI	International union of telecommunication (ITU)
Basket of service prices of ICT	IPB	International union of telecommunication (ITU)
Index of network readiness	NRI	World economic forum (WEF)
Index of a level of development of the electronic government	EGRI	United Nations (UN)
Index of economy of knowledge	KEI	World Bank (WB)
Index of knowledge	KI	World Bank (WB)

The special place is taken by an index of readiness of regions of Russia for information society and places of territorial subjects of the Russian Federation in a rating represented by Institute of development of information society since 2005.

In the table 2 values of indexes, a place of the countries are given in a rating, quantity of the sub indexes which are a part composite and number of the countries by which these researches are conducted.

Table 2 . The comparative analysis of composite indexes over BRICS countries for 2014 year

Countries	Composite indexes					
	IDI/rank	IPB/rank	NRI/rank	EGRI/rank	KEI/rank	KI/rank
Brazil	5,5/65	3,0/90	3,98/60	0,6008/57	5.58/60	6.05/60
Russia	6,7/42	0,5/8	4,30/50	0,7296 / 27	5.78/55	6.96/55
India	2,53/129	2,6/84	3,85/68	0.3834/118	3.06/110	2.89/110
China	4,64/86	1,7/63	4,05/62	0.5450/70	4,37/84	4,57/84
Republic of South Africa (RSA)	4,42/90	3,2/93	3,98/70	0.4869/93	5.21/67	5.11/67
Leader	8,86/ Denmark	0,2/ Macau	6,04/ Finland	0,9462/ Res. Korea	9,43 / Sweden	9,38 / Sweden
Outsider	0,96/CAR	70,2/Malawi	2,22 / Chad	0.0139/Somalia	0.96 /Myanmar	1.22/Myanmar
Quantity of subindexes	3	3	4	3	4	3
Quantity of podindexes	11	5	10	15	12	9
Number of countries	166	166	148	193	145	145

Source: it is made by the authors on the basis of [1-6].

2. Result

On an index of development of ICT – IDI, the Russian Federation advances BRICS countries, but considerably lags behind the countries of leaders, such as South Korea, Denmark, Sweden, Finland. In the CIS countries leaders – Russia, Belarus and Kazakhstan have the best dynamics of indicators of the IDI index for 2002 – 2014 yr.

On a value index of a basket of service prices of ICT – IPB, the Russian Federation outpace countries of BRICS and takes a worthy 8th place in a rating of 166 countries, but lags behind the countries of leaders – Macau, Hong Kong, Monaco, Liechtenstein. It is worth noticing, the Russian Federation being on rather high place, has rather low GNI level, it has to be at the level of USD 20000, it can be explained by the high level of income differentiation and social differentiation of population.. Dependence of IPB on GNI has the return character, that is, the about above

rating on IPB, the cost of access to them is lower. Therefore, in the developed countries with the high GNI level the cost of access to services ICT to be at the lowest level, it explains broad coverage of the population with high-speed fixed and mobile communication, high percent of use of the broadband Internet and speed of data transmission (so in the Republic of Korea 100% of subscribers have speed more than 10 mbit/s).

On an index of network readiness – NRI, Russia in 2014 came out on top in BRICS group. The countries of BRICS have no considerable dispersion of values on this index, for them low growth rates are characteristic, considerably lag behind the countries of leaders – Finland, Denmark and Sweden who are leaders the last five years. On the last place all decade to be the poorest country of the world – Chad.

On an index of readiness for the electronic government – EGRI, the Russian Federation advances BRICS countries, but considerably lags behind the maximum value of this composite index equal – unit.

On an index of development of economy of knowledge - to KEI and an index of knowledge – KI, Russia advances all countries of BRICS, lag of the Russian Federation from the leader – Sweden, is connected with low indicators of a sub index – Institutes which does not enter an index of knowledge – KI. Values of this index on all groups are characterized by very low growth rates and stable distribution of places. Therefore, lag of Russia from the countries of leaders is in many respects connected with insufficient development of institutes, infrastructures though the level of knowledge, skills and the human capital remain at the high level, but for the last five years and on them the negative tendency was outlined. In fig. 1 the petal chart is submitted (for descriptive reasons EGRI value is multiplied by 10). In it the IPB index as unlike other indexes is not presented. Its value and a rank are multidirectional and it has the most wide spacing in values [0,2-74,4]. The ITU began to count this index only since 2008. It has accumulated a small statistical base, as it complements the IDI index.

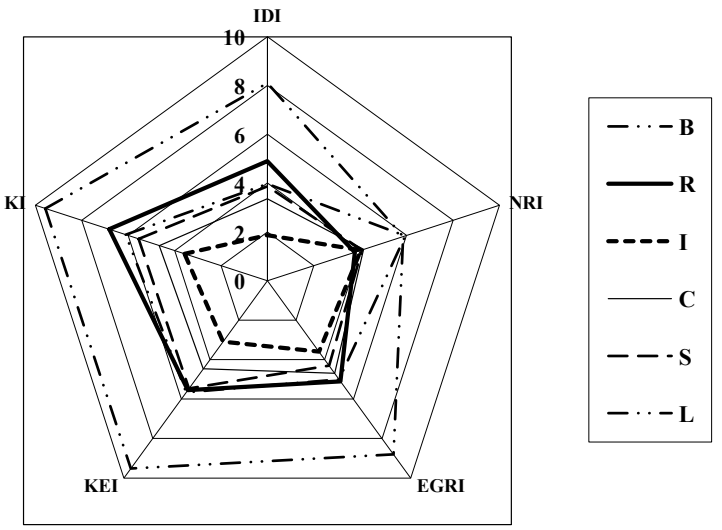

Fig. 1. International composite indexes of the countries of BRICS group and the world leader in 2013.

To show influence of introduction of ICT on economic growth and development of the countries of the world we carried out calculations of indexes of correlation between couples of indicators: GDP per capita (GNI) and the listed above composite indexes, values are given in table 3.

Table 3. Values of pair indexes of correlation for 2013 year

Indexes	GNI	IDI	IPB	NRI	EGRI	KEI	KI
GNI	**1,000**	0,807	- 0,510	0,794	0,621	0,760	0,735
IDI	0,960	**1,000**	- 0,709	0,922	0,960	0,950	0,971
IPB	- 0,510	- 0,709	**1,000**	- 0,625	- 0,745	- 0,672	- 0,738

NRI	0,794	0,922	- 0,625	**1,000**	0,919	0,915	0,895
EGRI	0,621	0,960	- 0,745	0,919	**1,000**	0,934	0,940
KEI	0,760	0,950	- 0,672	0,915	0,934	**1,000**	0,987
KI	0,735	0,971	- 0,738	0,895	0,940	0,987	**1,000**

Source: it is made and calculated by the authors on the basis of [1-5].

Indexes of correlation are in limits [0,621 – 0,987] that speaks about a stable relation between these indicators, also direct dependence between five the indexes noted above and GNI and inverse relationship with the IPB index is revealed**.**

It testifies: first, about a high representativeness of these composite indexes (as it is investigated from 145 to 190 countries); secondly, that now only the states with the highest level of social and economic development are ready to develop of information economy (to network economy and wide use of ICT) (from the level GNI = USD 10000); thirdly, that leaders in production of hi-tech production are those countries which extensive use knowledge, ICT and knowledge institutes thanks to what they also take the leading positions in world economy.

3. Conclusion

The countries with the high level of distribution of ICT reach big and steady results in increase in welfare of citizens (GDP growth per capita). However this effect affects only when the country thanks to management of social and economic development reaches a certain threshold of use of ICT. Such effect can be gained first of all due to use of ICT where there is the main growth of labor productivity and GDP growth, namely in the industry. Unfortunately, because of slow restoration of the industry and insignificant use of ICT in Russia it is not reached yet the necessary critical threshold at which ICT start influencing national economy directly. The role of Russia in the world market of hi-tech production is rather small though in this direction there is a considerable potential of competitive and innovative development.

The strengths of Russia, according to experts, are the high level of mobile penetration and adult literacy. However the undeveloped market, the inefficiency of legal system and a weak susceptibility of the companies and government institutions to introduction of information technologies prevent the country to rise in a rating above [6].

In the developed countries there is a close correlation connection between ICT and economic growth rates. The structural analysis of 60 countries which is carried out by Economist Intelligence Unit in general confirms that point of view that in the developed countries of ICT are strongly interconnected with economic growth rates. At the same time in developing countries influence of ICT is not enough. The carried-out analysis suggests an hypothesis that ICTs are beginning to provide growth of GDP per capita only reaches a certain threshold in its development. At the same time the report supports widespread opinion that expansion and use of ICT starts influencing economic growth only after some period of adaptation.

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