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Traditional Economy Influences on Intellectual Capital Development

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ABSTRACT

During econometric analysis conducted by the authors the following hypotheses were substantiated. First of all we found the most pronounced correlation between the amount of innovative products, works and services in the total amount of shipped goods, performed activities and technological innovation costs per one person. This demonstrates the need for planning and implementing state programs on raising intellectual capital in multicultural regions with traditional economics. Secondly there is a correlation between life expectancy and population density in ethnic regions. This demonstrates low level of life in the regions with low population density and strong influence of traditional economy. Creation of hi - tech companies and larger amounts of goods fabrication requires creation of local unions, developing the share of scientists and entrepreneurs and formation of government programs: these are the most important success factors. In order to achieve that we must create a cooperation program covering all parties participating in intellectual capital development in the region. State regulation of intellectual capital development must take into consideration peculiar features of social and cultural development of ethnical multicultural region strongly influenced by traditional economy. This direction of regional development will be available only in case of equal dialogue between business and authorities. Suggested options for using traditional knowledge for developing intellectual capital can improve economic position of the region, create new workplaces and, therefore, improve the level of life of population in the regions strongly influenced by traditional economy.

INTRODUCTION

Globalization and informational revolution weaken states and support national self - understanding all over the world as well as support the trend towards increasing the number of actors at the international stage under the banner of national self - realization. Before the World War II there were around 50 countries in the world, now we have over 250. At the moment of its creation UN featured 51 country whereas now it has 190 members. Some experts believe that in future national minorities will find it easier to create their own states. According to some evaluations in a quarter of a century there might be as many as 500 countries on Earth. The problem is that majority of new countries appeared after the WW II entered XXI century as a community of states with serious economic, social and cultural problems. They are the source of most part of present problems in the field of politics, social, economic sand even ecological aspects. The 1st decades were abundant with examples of "developing" and new countries shutting themselves in their undeveloped state. This is a frequent thing in Africa and Asia, but also seen at the territory of the former Soviet Union. Mid eastern republics of which spent decades thriving on resources, technological and intellectual potential of Russia are now nothing but resource based economics supplemented by semi feudal political system. As life shows low human potential of citizens in many developing and new states, authoritatity of their leaders, as well as significant decrease of resource value caused by modern globalization alongside with growing importance of technology and knowledge are the factors hindering successful development of these countries (Kiausiene, Streimikiene, 2013; (Ciegis, Dilius, Mikalauskiene, 2015; Vveihardt, Andriukaitiene, 2015; Sueldo, Streimikiene, 2016). They are the most vivid example of lagging, stagnation and even degradation of intellectual capital. Regress of these regions aggravates the problem of international inequality; violence taking place there creates billions of refugees; disoriented population becomes a favorable environment for spreading extremists and terrorist ideas.

Transition to innovative type of economic development requires more favorable environment for forming intellectual capital considering peculiarities of traditional lifestyles in different countries (Balcerzak and Pietrzak, 2016, Balcerzak, 2016).

Nowadays there are virtually no research works devoted to the analysis of intellectual development peculiar features in the regions inhabited by original population and influence of theses peculiarities on the functioning of ethnically marked regional innovative system. Solution for this problem is particularly relevant in such an ethnically rich country as the Russian Federation. Analysis of this problem would allow not only for significantly increasing intellectual capital level in the regions strongly influenced by traditional economics but also for involving small ethnic groups of aboriginal population into innovative development.

The aim of this research is to formulate mechanisms of intellectual capital development in those ethnical regions of the Russian Federation that retain significant influence of traditional economy.

1. RESEARCH PROCEDURES

In the context of new economic challenges it is innovation development that provides sustainable development of economic agents inside the company and in the interaction with external environment, as well as be more effective in meeting the requirements in certain types of resources with the aim of the most optimal organization of production activities (Streimikiene, Mikalauskiene, Barakauskaite-Jakubauskiene, 2011; (Piekarczyk, 2016; Pohulak-Żołędowska, 2016).

In their future research authors pointed out such peculiar aspects of northern regions of Russia development as prevailing mining industries; low population density and high population

dispersion, high territory maintenance costs which predetermines low level of human capital and low innovation activity of economic agents of the northern regions of Russia (Panikarova, 2015).

Huge mineral and mining resources are one of the most important factors defining competitiveness and development of economics in the northern and arctic regions of Russia. Besides that some scientists think that at present mining industry can and must act as a driving force of innovation development of the Russian economy (Selin & Zukerman, 2013).

There are many publications devoted to the topic of innovation potential changes, innovation development and innovation climate in different regions in Russia starting from 2005 when the policy of stimulating academic and technical development of the country entered its active stage. At present there are different systems of region's innovation development evaluation aimed at defining leaders of innovation development in Russia (Bortnik at all, 2013; Zemtsov at all., 2016).

Specific characteristic of the northern regions defining peculiar features of their innovation development is manifested in the following factors: resource economics; space burden and higher costs of territory maintenance (Ivanova & Shishaev, 2014).

Economics of northern regions is based on the work of major vertically integrated corporations whose interests are concentrated on mining and initial refining of natural resources. Slower mechanism of technological development of economics in resource – rich regions (Balatzky, 2012) is facilitated by "poverty trap" which implies formation of self- sustaining non-innovation functioning mechanism hindering technological modernization. Competition for investments from resource and innovation industries which demonstrate low level of hi-tech in resource mining both in Russia and abroad leads to technological stagnation and eventually to decreased internal market potential (Dementjev, 2014).

Russia is characterized by high cross regional differentiation in all key economic and social characteristics which is largely explained by natural differences, geographical evolution of the state, stages of economic development of the territory of the country and result of the previous stages.

A large part of the Russian regions are poly-ethnic regions. Of 85 Russian Federation regions only 33 have more than 90% of ethnic Russian population. Russian Federation includes 22 republics, 4 autonomous areas and several regions that should be considered poly-ethnic just because of their population: Ulianovsk region, Tuymen region, Astrakhan region. Besides that we must consider ethnic territories within the boundaries of the Russian Federation regions that were formed because of region growth (Taymyr, Evenkia, former Komi Permyatsky, Ust Ordynsky, Agino Buryatsky and Koryaksky autonomous areas).

Poly-ethnic regions in the system of the Russian economics regional organization are extremely diverse. Statistic analysis allows for identifying existing differentiation not only in terms of social and economic development basic features, but also in terms of economic development.

The topic of measuring innovation potential, development and climate in the regions of the Russian Federation are covered in many publications. At present there are different systems of evaluating innovative development of Russian Federation regions aimed at defining leaders of innovation development in Russia. Majority of existing evaluation systems (ratings) is based on European innovation survey approach (European Innovation Survey, Regional innovation survey и Union innovation survey),whereas Rosstat data is used as the database for Russian regions.

Table 1 presents positions of poly-ethnic regions in three ratings: Association of Innovative Regions of Russia (AIRR); Higher school of Economics (HSE), National Association for Innovations and Informational Technologies Development (NAIITD) for 2015.

Table 1. Poly-ethnic regions in innovative development ratings

№	*Region of the Federation*	*HSE*		*AIRR*		*NAIITD*		*Average*	
		Ranking among Russian Federation regions	*Ranking among poly-ethnic regions*	*Ranking among Russian Federation regions*	*Ranking among poly-ethnic regions*	*Ranking among Russian Federation regions*	*Ranking among poly-ethnic regions*	*Ranking among Russian Federation regions*	*Ranking among poly-ethnic regions*
1	Tatarstan	2	1	3	1	2	1	2	1
2	Bashkortostan	20	6	16	3	11	3	16	2
3	Uljanovsk region	11	3	12	2	27	5	17	3
4	Chuvashia	5	2	18	4	37	8	20	4
5	Mordovia	17	4	20	5	28	6	22	5
6	Tuymen region	18	5	40	8	10	2	23	6
7	Crimea	-	-	-	-	30	7	30	7
8	Khanty Mansi autonomous area	32	7	68	17	26	4	42	8
9	Komi	36	9	48	9	52	12	45	9
10	Yamalo-Nenetz autonomous area	34	8	77	23	38	9	50	10
11	Astrakhan region	49	11	61	12	44	10	51	11-12
12	Udmurtia	67	17	38	7	47	11	51	11-12
13	Mariy El	57	14	31	6	70	19	53	13
14	Bouryatia	48	10	52	11	72	20	57	14
15	Adugeya	66	16	47	10	67	17	60	15
16	Sakha	55	12	65	15	63	15	61	16
17	Karelia	68	18	63	13	58	13	63	17
18	Altay	56	13	75	21	62	14	64	18
19	Northern Ossetiya - Alaniya	64	15	70	18	64	16	66	19
20	Kabardino-Balkaria	69	19	64	14	78	24	70	20
21	Dagestan	72	21	67	16	77	23	72	21
22	Tyva	74	22	80	25	68	18	74	22
23	Khakassiya	71	20	73	20	81	27	75	23
24	Chukotka autonomous area	75	23	72	19	80	26	76	24
25	Kalmykiya	78	24	76	22	75	22	77	25
26	Karachayevo - Cherkessia	81	26	78	24	79	25	79	26-27
27	Chechen Republic	82	27	83	28	73	21	79	26-27
28	Nenetz Republic	79	25	81	26	85	29	82	28
29	Ingushetiya	83	28	82	27	84	28	83	29

As we can see form Table 1 positions of poly-ethnic regions as compared to other Russian Federation regions demonstrate significantly different numbers. This is particularly true for the following regions: Chuvash Republic (5th place in HSE rating and only 37 in NAIITD), Tuymen region (10th place in NAIITD rating and 40th in AIRR), Khanty Mansi autonomous area (26th place in NAIITD rating and 68th place in AIRR rating), Yamalo Nenetz autonomous area (34th place in HSE rating and 77th in AIRR rating). Researchers are unanimous concerning the regions of Siberia, Far East and the Northern Caucasus. According to integrated evaluations results poly-ethnic regions generally lag behind in terms of innovative development. Comparison of poly-ethnic regions' positions to each other in the presented ratings frequently demonstrates less pronounced spread of rankings, particularly concerning less innovatively developed regions.

The reasons behind the lag of ethnic regions in innovative development have not been sufficiently studied. In order to provide foundation for actors of innovative development of territories inhabited by aboriginal peoples the authors formulated the following hypotheses:

1. There is a correlation between the amount of innovative goods and services in the total amount of shipped goods, performed works and costs for technological innovation per one person.
2. There is a correlation between the number of small enterprises per 1000 people and the share of Russian ethnic population in ethnic regions.

3. There is a correlation between the life span and population density in ethnic regions.

Informational basis of the research is the data from Federal Statistics Agency of the Russian Federation.

2. RESULTS OF EMPIRICAL RESEARCH

During the research the authors received the following correlation dependencies (Table 2.)

Table 2. The results of correlation analysis of ethnic regions' innovation development factors

	Life expectancy	Number of smaller enterprises for 1000 people	Amount of innovative goods and services in an overall amount of goods and services
Costs of technological innovation per one person	-0,72236	-0,30764	0,74505
Share of the Russian population in ethnic multicultural regions	0,23890	0,72387	-0,08268
Population density in ethnic regions	0,60976	0,26849	-0,10506

During author's econometric research the following hypotheses were supported:

First of all, the greatest correlation was found between the amount of innovative goods and services and the total amount of goods and services and costs of technological innovation per one person. This demonstrates the need for planning and implementing state programs on upgrading intellectual capital in multicultural regions with traditional economy. Secondly we have identified clear dependence between the number of smaller enterprises per 1000 people and the share of Russian population in ethnic multicultural regions. Therefore the influence of Russian nationality supports formation of entrepreneurial culture in ethnic regions and sustainable development of intellectual capital. Thirdly, there is a correlation between life expectancy and population density in ethnic regions. This demonstrates low level of life of population with low population density and strong influence of traditional economy.

One of the reasons behind the lag of poly-ethnic regions in terms of innovation development in authors' opinion is insufficient implementation of aboriginal people's intellectual capital. Intellectual capital (further IC) was first mentioned in the beginning of 1960th and the term was coined by G. Halbright. At that time companies cared little for the presence and state of their knowledge resource but in the 1980th companies' opinion started to change under the influence of external environment which required new competitive advantages (Nikiforova, 2010). In case of adequate identification of its components and skilled management IC (Dumay J. & Tatiana Garanina T., 2013; Mondal & Ghosh, 2012; Fedotova at all., 2016) can be such advantage. Economy sectors related to software, telecommunication, IT developments already used intellectual capital though did not declare it openly as they did not have extensive tangible assets and relied upon experience, knowledge and skills of employees.

An important breakthrough in IC concept development was provided by appearance of multiple research in different countries by such authors as K.E. Swaybe, T. Stewart. Many of the researchers were practitioners and conducted their research for companies and only after that published academic papers available for all economic society for development, criticism and concept development. In order to make sure what to understand by IC in this paper we will use two

concepts: cost and resource, according to which definitions can be divided into two large groups. From the pi\point of view of resource approach IC is a unique resource effective management of which can give company super profit. This approach is supported by E. Brooking, D. Ties, G. Ross, N. Bontis, etc.

Cost approach sees IC from the point of view of end profit that can be gained by the company by using it. Besides that this approach does not give IC its own value but calls it a production factor capable of generating such value. Cost approach was created by T. Stewart, and the concept is supported by K E.. Swaybe, L. Edvinsson, M. Malone, etc. This research work uses definition of IC formulated by G. Kristandle and N. Bontis which characterizes IC from the point of resource concept that is a resource which should have VRIN characteristics: 1) Valuable – resources should generate value for the company; 2) Rare – resources should be evenly spread over the company and be difficult to access for competitors; 3) Inimitable – the risk of resources being copied by competitors should be minimal; 4) on-transferable – competitors should not have analogous resources. Therefore IC is a strategic resource of the territory which has VRIN characteristics and allowing regions to create sustainable value (Kristandl & Bontis 2007).

The authors point out the following specific features typical of IC of aboriginal peoples:

- *Cultural heritage.* Cultural heritage is an important element of aboriginal peoples' intellectual activities.
- *Autonomy.* Entrepreneurs from aboriginal population are oriented towards autonomous development of business within the community or family network. This can be a barrier for potential stakeholders and investors.
- *Traditional knowledge.* In its perfect form IC of aboriginal peoples is a sensible combination of technical and cultural skills and knowledge.
- *Economic strategies.* Entrepreneurial behavior of aboriginal peoples' representatives is seen by the community as a component of economic development of a community rather than as individual entrepreneurial initiative.

Fig. 1. Variants of aboriginal peoples' economy transformation

Scope (trend) of transformation	*Low level of inclusion or absence*	*Global economy products consumers (import is much larger than export)*	*Global economy suppliers (export is much larger than import)*
Postindustrial		6. Modernization and catching up development (import of innovation, knowledge, technologies, institutions, etc.)	7. Postindustrial economy (export of traditional knowledge, cultural heritage, tourist impressions, spiritual practices, etc.)
Industrial		4. Industrialization of aboriginal peoples' economies (imported production means, machinery and equipment)	5. Raw material oriented development of aboriginal peoples' economy (export of natural resources)
Preindustrial	1. Isolation (tribe and community living by what they grow themselves)	2. Borrowing (aboriginal communities supported by state programs and international projects)	3. Non - traditional economy (manufacture of ecological products and eco - friendly nature use)

The format of aboriginal peoples' inclusion into global economy

Of all possible variants of transforming aboriginal peoples' economy development and use of IC is more related to postindustrial transformation (export of traditional knowledge, cultural herit-

age, tourist impressions, spiritual practices, etc.) or development of non - traditional economy (production of ecological agricultural goods and eco - friendly exploitation of natural resources) (Fig. 1.).

CONCLUSION

The authors formulated the main principles of intellectual capital development for territories inhabited by aboriginal peoples:

- Sustainable development concept is a good basis for modernization of aboriginal peoples' economy, as the lifestyle of aboriginal peoples is mainly defined by characteristics of ecosystem, and quality of life is directly related to the state of nature.
- Strategic priorities of IC development of aboriginal peoples are related to improving level and quality of life, development of human and social capital, nature preservation.
- In the choice of options for transforming aboriginal peoples' economy priority is given to postindustrial transformation rather than traditional economy support and to traditional economy rather than industrial development model.
- Organization of economic space at the territories inhabited by aboriginal peoples should provide network effect (developed communication channels; single basic institutions, developed cooperation system; variety of network elements).
- Productivity of aboriginal peoples' economy is seen as a determinant of ecological stability. Opportunities of nature capital and ecosystems are limited and have objective limitations (unlike productivity in market economy when resource limitations can be overcome by means of using new technologies and interchange of resources).
- Economic efficacy of traditional economy of aboriginal peoples depends not only on production of goods and services and related institutions, but also non market goods and services. We should take into consideration the value of human, nature, and social capital when evaluating efficacy.

Creation of Hi-Tech industries and larger supply of goods require creating local unions, developing the share of scientists and entrepreneurs among aboriginal population representatives and forming state programs – these are the main success factors. State regulation of intellectual capital development should take into consideration peculiarities of social and economic development of ethnic multicultural region strongly influenced by traditional economy. This way of regional development will be available only with equal dialogue between representatives of government, society and business.

Suggested options for using traditional knowledge and traditional economy for developing intellectual capital can improve economic position of the region, create new workplaces and therefore improve the level of life of ethnic regions population and ensure their sustainable development.

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