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REGIONAL INTELLECTUAL CAPITAL MANAGEMENT

During last decades a production was changed: the increasing share in created products is taken by such intangible component as knowledge, which needs considerable expenses for receiving and application and which, as a result, gives to a product most of its value [1]. The increasing role of organization's intellectual resources also boosts their importance for regional development.

Thus new approaches to regional intellectual potential estimation and management are required. Applying of the intellectual capital concept to regional level could be considered as one of them. Regional intellectual capital could be defined as a term for the set of elements including human potential and internal and external development factors of knowledge generating, transfer and application in a region. According to this vision, intellectual capital has following structure.

1. Human capital — knowledge, competences and motivation of individuals. It is the core element of intellectual capital because effectiveness of knowledge generation and implementation depends on population.

2. Structural capital includes various aspects of the regional innovative infrastructure: scientific development, effectiveness of regional authorities and development of information technologies.

3. Relational capital depends of region's position in external environment: an involvement into the international cooperation and competitiveness of its production on international markets.

There are two directions of regional intellectual capital research. The first one is an elaboration of indicators for its assessment and then study of intellectual capital properties such as its impact on economic growth or its relation with regional development [2; 3]. Another important though less studied direction is development of regional intellectual capital management techniques [5].

Most managerial researches are reduced to intellectual capital monitoring without mentioning questions of management and development. So, it is important to consider intellectual capital management on regional level in more detail.

First of all, it is necessary to define content of the «regional intellectual capital management» concept. Due to intangible nature of intellectual capital it can't be directly controlled. But it is possible to create conditions at which intellectual capital elements will develop, so we can speak about regional intellectual capital management as an elaboration of the basis for decision making about elements which need to be improved, i.e. what kind of intellectual capital is important for regional development.

In this regard, correct definition and estimation of intellectual capital elements is crucial point and causes need for detailed analysis and identification of the intellectual capital structure. Thus, the perspective of regional intellectual capital management is inseparable from questions of its assessment.

Despite the fact that most intellectual capital researches are concerned with its assessment, the majority of offered methods inapplicable by the management perspective, because they tend to consider intellectual capital structure without detailed elaboration. Decomposition of the intellectual capital structure at least to a second level taking into account regional specifics (tab. 1) is an important stage since efficiency of the further analysis depends on its quality and reliability.

The deeper decomposition of regional intellectual capital seems to be perspective direction of this concept development that will allow increasing management effectiveness. Accent on regional specifics doesn't mean that different regions will have essentially differing intellectual capital structure — some of elements can be rather universal.

Table 1

2nd level decomposition of regional intellectual capital (on example of Vladimir region)

0 level	1 level elements	2nd level elements
Intellectual capital	Human capital	HC-1. Education
		HC-2. Health
		HC-3. Social stability
	Structural capital	SC-1. Regional authorities effectiveness
		SC-2. IT-infrastructure
		SC-3. Scientific potential
	Relational capital	RC-1. Attractiveness for investment
		RC-2. Export potential

After intellectual capital elements are defined, it is necessary to estimate their condition. Existing researches of decomposed regional intellectual capital assessment use the expert method. Despite that, indicators based on statistics are preferable since they allow increasing comparability and reproducibility of these estimates. Used indicators could have different dimension, for their transformation to the comparable form the linear scaling method is applicable (f. 1-2) [4].

If relation between element and measure is positive

$$I_C = \sum \frac{\tilde{O}_i - X_{\min}}{X_{\max} - X_{\min}} \quad (1)$$

If relation between element and measure is negative

$$I_C = \sum \frac{\tilde{O}_{\max} - X_i}{X_{\max} - X_{\min}} \quad (2)$$

I_{IC} – intellectual capital element index; X_j – actual value of the indicator describing

i -th element; X_{\min} and X_{\max} – min and max value of the indicator describing i -th element;

i – number of measures.

The set of indicators applied to an assessment, as their extreme values, is defined after the structure of the regional intellectual capital is specified. So, for example given above, the following set of indicators can be used (tab. 2).

Table 2

Estimation of intellectual capital elements, 2010

Element	Indicator	Value*			Index**
		2010	min	max	2010
HC-1	Share of population with higher and post-higher education, %	24,1	20	30	0,45
	Share of employed population taking additional education, %	14,9	10	20	
HC-2	Disease, cases on 1000 people.	926	400	1100	0,38
	Life expectancy at birth, age	66,9	55	80	
HC-3	Income differentiation coefficient	10,8	8	16,5	0,63
	Unemployment level, %	6,2	2	12	
SC-1	Regional authorities effectiveness index	0,68	0,55	0,75	0,65
SC-2	IT usage for regional development, index	0,41	0,2	0,58	0,55
SC-3	Share of researchers, %	0,6	0	2	0,50
	Expenditures on R&D, % of GRP	1,6	0	3	
	Patent applications, on 10000 people	1,9	0	3	
RC-1	Investment per capita, million rubles	33,0	0	100	0,38
	International investment per capita, thousand dol.	529,7	0	1200	
RC-2	Export per capita, dol.	371,1	0	1000	0,37

* Data collected from Rosstat reports [6]

** Within this research the following interpretation of extreme values of indices is accepted: 0 – the worst value of an indicator in comparison with other subjects of the Russian

*Federation if such comparison is possible (education level, life expectancy, etc.); in cases when comparison is impossible — zero value of an indicator;
1 – if direct comparison is possible, the maximum value on the considered sample, in other cases reflects some target reference point achievable in short-term period.*

After assessment of intellectual capital actual state, follows the search of directions for its further development. As in regional government intellectual capital management practice is still little presented, formation of the base directions is limited to derivation from theoretical provisions. Two opposite views on intellectual capital structure could be defined and used to create theoretical framework:

- 1) the structure of intellectual capital should correspond to regional economic and social situation features;
- 2) regional development should be balanced, so it is impossible to completely refuse development any of regional intellectual capital elements.

Proceeding from these preconditions, three main directions of regional intellectual capital development are allocated (see fig. 1):

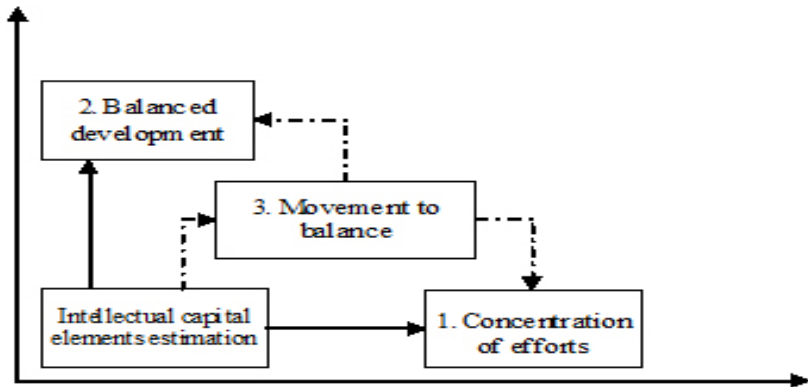


Fig. 1. Directions of regional intellectual capital improvement

- 1) concentration of efforts — priority development of intellectual capital elements connected with key sectors of regional development;
- 2) balanced development of elements and creation of the region's competitive advantage on this basis;
- 3) movement to balance — when disproportions in intellectual capital structure are observed, it is necessary to eliminate them.

The offered directions of development are, first of all, conceptual approaches demanding specification, e.g. concentrating efforts it is necessary to consider need of harmonious development of a region.

However, the elements demanding development can't be determined only by their assessment. The received measures should be analyzed from the point of view of region development. Here various approaches could be used. In given example, elements were defined on a basis of their mutual influence analysis that showed imbalance of

their structure and allowed to define the elements which development fosters balance (education, health, scientific potential), i.e. the third direction was implemented.

Thus regional intellectual capital management could be considered as the analysis method, allowing to look from other point of view on problems of regional development and to introduce new vision in approaches to their solving. The recommendations received during the analysis, should be coordinated with the general strategy of regional development, which in itself can already include certain approaches for development in offered directions.

References

1. Andriessen D., Stam C. The Intellectual Capital of the European Union: Measuring the Lisbon Agenda. Available at: http://www.intellectualcapital.nl/artikelen/ICofEU_2004.pdf
2. Bontis N. National Intellectual Capital Index: a United nations initiative for the Arab region // Journal of Intellectual Capital. — 2004. — № 1. — P. 13-39.
3. Edvinsson L., Yeh-Yun Lin C. National intellectual capital: comparison of 40 countries. — New-York: Springer. — 392 p.
4. Human development: new vision of social-economic progress. — M.: Human rights, 2008. — 636 p.
5. Nagel C., Mauch S. Regionale Wissensbilanz Ortenaukreis. Available at: http://www.nagel-kollegen.de/sites/default/files/Wissensbilanz_Ortenau.pdf
6. Rosstat. Russian regions. Socio-economic figures 2010. Available at: <http://www.gks.ru>