



FINANCIAL UNIVERSITY
UNDER THE GOVERNMENT OF THE RUSSIAN FEDERATION

Specifics of Russian “knowledge economy” development under geopolitical sanctions

Ekaterina N. Kharitohova

DSc, Professor,
General Management Department

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The Federal Law of December 31, 2014 № 488-FZ "On industrial policy in the Russian Federation"

1

- the formation of a high-tech, competitive industry in Russia

2

- ensuring national defense and state security

3

- the provision of employment and living standards improvement for the citizens of the Russian Federation

The basic principles of industrial policy (paragraph 3 of Article 4 of the Law № 488-FZ):

- 1) program-target method of strategic planning documents formation in the field of industry;
- 2) measurable objectives of industrial development and measurable implementation results of stimulation of stakeholders in the industry;
- 3) effectiveness monitoring of industrial policy and control over its implementation;
- 4) the application of measures to stimulate activity in the industry to achieve indicators established by the strategic planning documents;
- 5) coordination of measures to stimulate activity in the industry, conducted by public authorities of the Russian Federation on all levels of government – federal, regional and local;
- 6) rational combination of forms and methods of state regulation and market economy, measures of direct and indirect stimulation of activity in the industry;
- 7) availability of resources and their concentration on the development of priority sectors of industry;
- 8) information transparency in the development of industrial policy and the application of measures to stimulate activity in the industry in the interests of national security;
- 9) equal access for stakeholders in the industry to receive state support in accordance with the terms of its provision;
- 10) the integration of science, education and industry;
- 11) consideration of the interests of the Russian Federation regions on issues of functioning and development of the defense industry complex, subject to federal interests priority.

Tobin's q for Russian companies over 2010-2014

	Company	2010	2011	2012	2013	2014
Retail	DIXY Group	1,73	0,99	0,99	0,97	1,37
	OJSC "Kopeyka"	1,31	1,74	1,83	0,64	0,45
	OJSC "Magnit"	0,82	0,98	1,32	1,58	1,89
	JSC «The Seventh Continent»	0,72	0,67	0,62	0,53	Data n/a
	LENTA	Data n/a	0,42	0,29	0,22	0,19
Transportation	AEROFLOT – Russian Airlines	1,13	0,86	0,83	0,97	0,72
	Ural Airlines	0,92	0,97	0,92	0,90	Data n/a
	S7 Airlines	0,67	0,69	0,75	0,88	Data n/a
	Utair	0,28	0,65	1,42	1,165	1,64
	Transaero	1,05	1,81	1,61	3,15	Data n/a
	Russian Railways	0,14	0,16	0,16	0,82	0,19
Telecommunications	MegaFon»	1.047	1.097	1.106	1.32	1.09
	Beeline	1,33	1,18	1,098	0,99	1,10
	Rostelecom	1,46	1,44	0,80	0,72	0,64
	TNT-Teleset	9,02	7,78	7,32	5,95	5,26
	Tattelecom	0, 57	0, 58	0, 52	0, 47	0, 45
	MTS	1,447	1,344	1,087	1,110	1,341
Power industry	OJSC "Mosenergo"	0,61	0,305	0,26	0,14	0,084
	OJSC "Rusgidro"	1,74	1,11	0,98	0,71	0,90
	OJSC "Bashkirenergo"	0,46	1,16	0,33	0,40	0,45
	OJSC "VESC"	0,29	0,02	0,44	0,19	0,01 ₆
	Inter RAOUES	0,29	0,37	0,71	0,57	0,37
	NTEK	1,15	0,54	1,2	0,69	Data n/a

Tobin's q for Russian companies over 2010-2014

Company		2010	2011	2012	2013	2014
Food industry	JSC Moscow Confectionary Factory "Red October"	0,62	0,44	0,40	0,41	0,35
	Uniconf	0,39	0,33	0,31	0,33	0,36
Pharmaceutical industry	Akrikhin	2,41	1,89	1,43	1,25	Data n/a
	Pharmstandard	2,66	1,77	1,37	1,22	Data n/a
	JSC "Dalkhimpharm"	1,95	1,85	1,30	1,24	Data n/a
	JSC "Moskhimpharm-reparats"	1,37	1,002	0,66	0,86	Data n/a
	Pharmacy "36.6"	0,77	0,55	0,54	0,9	Data n/a
Banks	AlfaBank	0,58	0,57	0,56	0,54	0,54
	VTB 24	0,60	0,52	0,51	0,51	Data n/a
	SberBank	0,75	0,65	0,55	0,54	0,52
	Moscow Bank	Data n/a	0,593	0,56	0,55	0,61
	Bank "Zenit"	0,64	0,54	0,64	0,63	0,63
	OJSC "VTB"	0,65	0,91	0,9	0,53	0,53
	Bank "Petrocommerts"	0,53	0,52	0,52	0,54	0,51
Insurance	Ingosstrakh	0,43	0,43	0,43	0,44	0,44
	UGORIA Insurance Company	0,45	0,45	0,50	0,42	0,43

Tobin's q for Russian companies over 2010-2014

Company		2010	2011	2012	2013	2014
Oil and gas industry	OJSC "Surgutneftegas"	0,56	0,58	0,6	0,6	Data n/a
	OJSC "Gazprom Neft"	1,47	1,2	1,03	0,87	0,7
	OJSC "Rosneft"	0,87	0,79	0,85	0,65	0,56
	OJSC "Novatek"	2,72	3,51	2,70	2,18	Data n/a
	OJSC "Tatneft"	0,80	0,81	0,92	0,95	Data n/a
Automobile industry	OJSC "KAMAZ"	Data n/a	0,54	0,54	0,61	0,47
	OJSC "AutoVAZ"	0,57	0,42	0,42	0,34	Data n/a
	OJSC "Sollers"	0,60	0,68	0,54	0,68	0,77
Iron-and-steel industry	OJSC "Magnitogorsk Iron & Steel Works"	1,20	0,41	0,36	0,31	0,40
	OJSC "Novolipetsk Iron & Steel Works"	2,19	0,84	0,77	0,70	0,78

The express method to evaluate the intellectual capital cost of industry companies

$$C_{IntA} = C_{CorpCult} + C_{StrA} + C_{ConsA}, \quad \text{or} \quad C_{IntA} = C_{CorpCult} + C_{IP} + C_{OrgStr} + C_{ConsA},$$

where C_{IntA} is the cost of the intellectual assets of an industry company; $C_{CorpCult}$ is the cost of its corporate culture; C_{StrA} is the cost of the structural assets; C_{ConsA} represents the cost of the consumer assets; C_{IP} is the cost of the intellectual property and C_{OrgStr} is the cost of the organization structure.

Since $C_G = C_{CorpCult} + C_{OrgStr} + C_{ConsA}$, it is that $C_{IntA} = C_{IP} + C_G$,

where C_G is the cost of the industrial company goodwill.

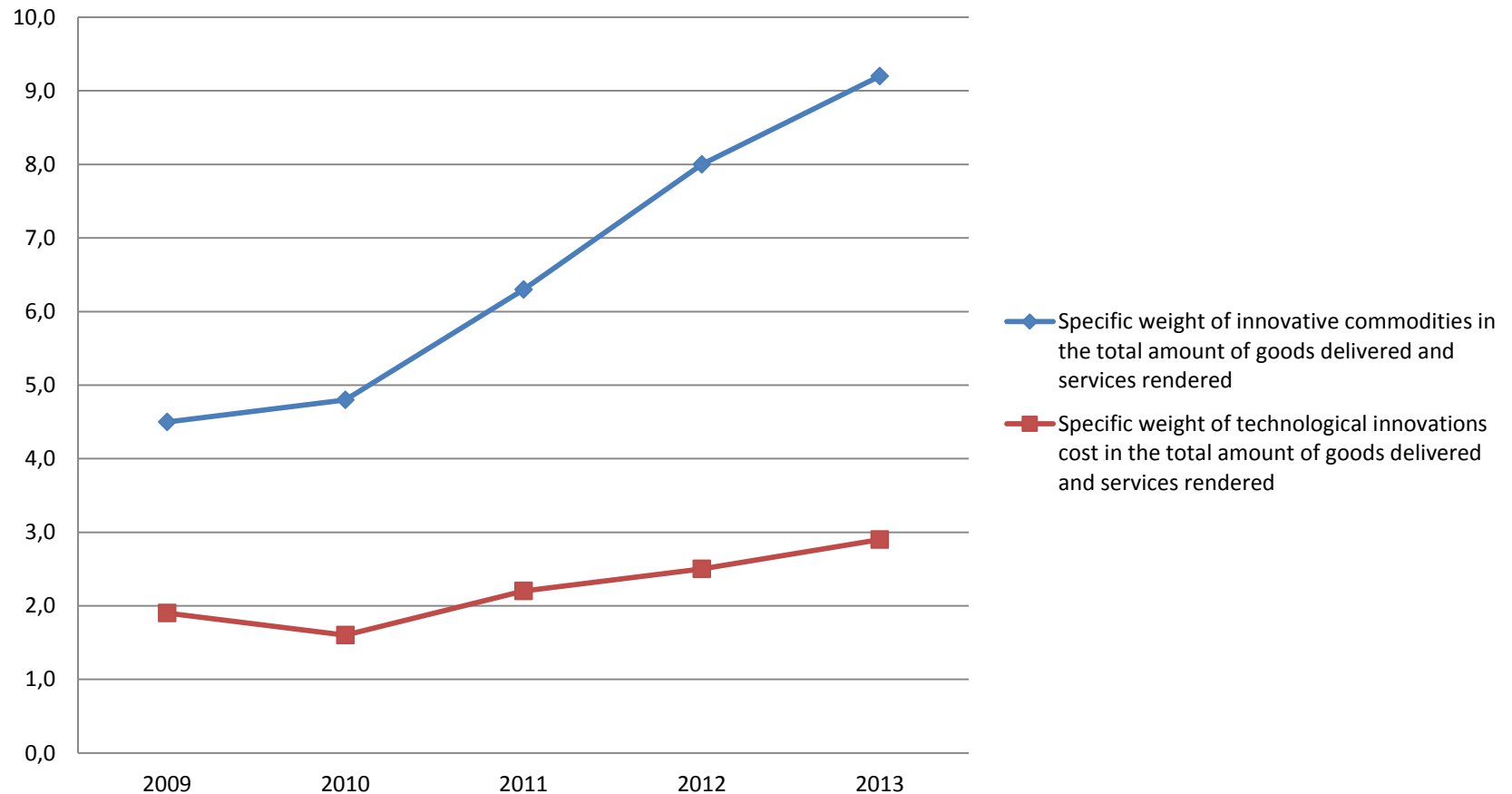
The express method to evaluate the intellectual capital cost of industry companies

- 1) Determination of industrial company intellectual property value (by value of property listed in the balance-sheet as intangible assets);**
- 2) Determination of industrial company goodwill value (by its market capitalization, or by “average industry profit”);**
- 3) Determination of industrial company intellectual capital total value (by the sum of cost estimates of industrial company goodwill and its intellectual property).**

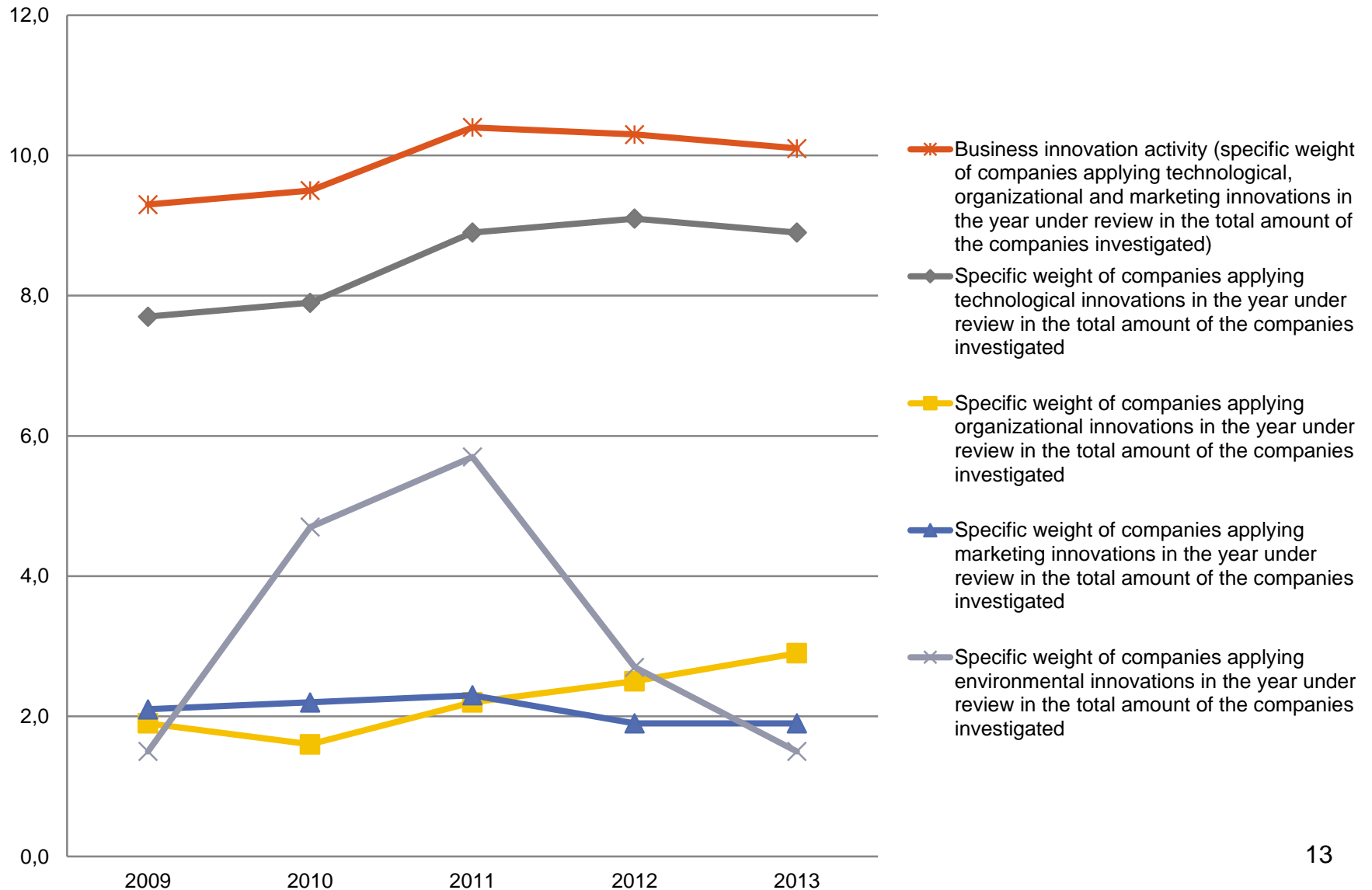
Estimated cost of intellectual capital (“brain capital”) of the metallurgical works investigated

Item №	Indicators	as of 31.12.06	as of 31.12.07	as of 31.12.08	as of 31.12.09	as of 31.12.10	as of 31.12.11	as of 31.12.12	as of 31.12.13	as of 31.12.14
Open Joint Stock Company Magnitogorsk Iron & Steel Works										
1	Total assets, mln. roubles	123 224	203 235	232 401	243 370	303 626	332 721	328 621	267 319	291 973
2	Intellectual property assets, mln. roubles	868	859	878	277	225	244	479	535	531
2.1	Percentage of intellectual property assets in total assets	0,70%	0,42%	0,38%	0,11%	0,07%	0,07%	0,15%	0,20%	0,18%
3	Market capitalization, mln. roubles	244 091	354 684	167 840	280 587	364 942	137 243	116 716	82 377	117 286
4	Goodwill, mln. roubles	120 867	151 449	-64 561	37 218	61 316	-195 478	-211 905	-184 942	-174 687
5	Intellectual capital (estimated cost), mln. roubles	121 735	152 309	-63 683	37 495	61 541	-195 234	-211 426	-184 407	-174 155
6	Estimated cost of intellectual capital to total assets ratio	98,79%	74,94%	-27,40%	15,41%	20,27%	-58,68%	-64,34%	-68,98%	-59,65%
Open Joint Stock Company Novolipetsk Iron & Steel Works										
1	Total assets, mln. roubles	173 210	224 349	327 950	339 210	390 236	449 857	471 225	469 104	502 357
2	Intellectual property assets, mln. roubles	4	6	9	9	230	338	2 810	293	377
2.1	Percentage of intellectual property assets in total assets	0,002%	0,003%	0,003%	0,003%	0,06%	0,08%	0,60%	0,06%	0,08%
3	Market capitalization, mln. roubles	369 201	597 465	133 229	496 299	853 196	376 974	364 988	328 189	389 859
4	Goodwill, mln. roubles	195 991	373 116	-194 720	157 089	462 960	-72 883	-106 238	-140 915	-112 498
5	Intellectual capital (estimated cost), mln. roubles	195 995	373 122	-194 711	157 098	463 190	-72 545	-103 428	-140 622	-112 121
6	Estimated cost of intellectual capital to total assets ratio	113,15%	166,31%	-59,37%	46,31%	118,70%	-16,13%	-21,95%	-29,98%	-22,32%

The specific weight of innovative products shipped and the cost of technological innovation, %



Specific weight of organizations engaged in innovation, %

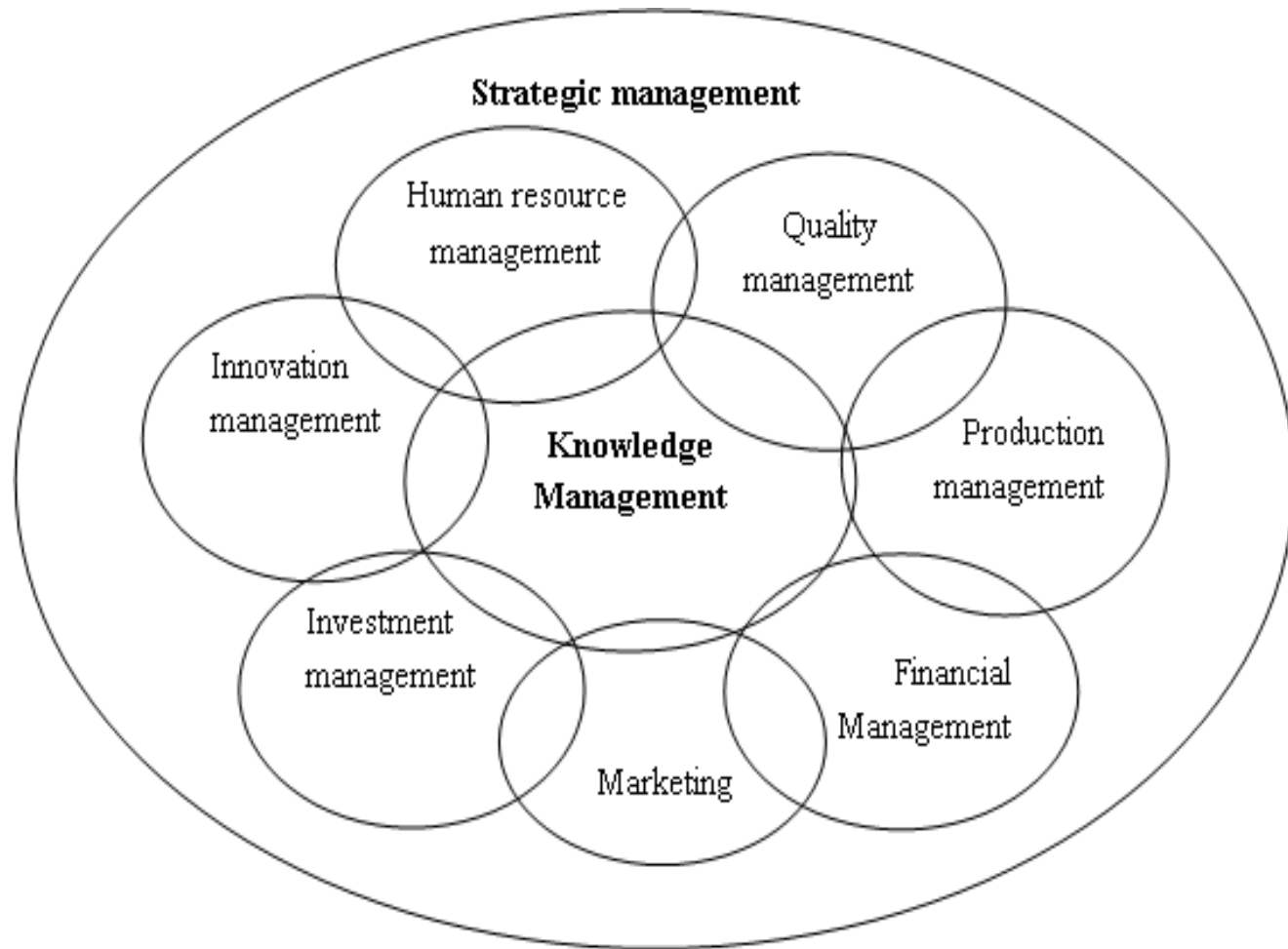


High-technology exports, % of manufactured exports

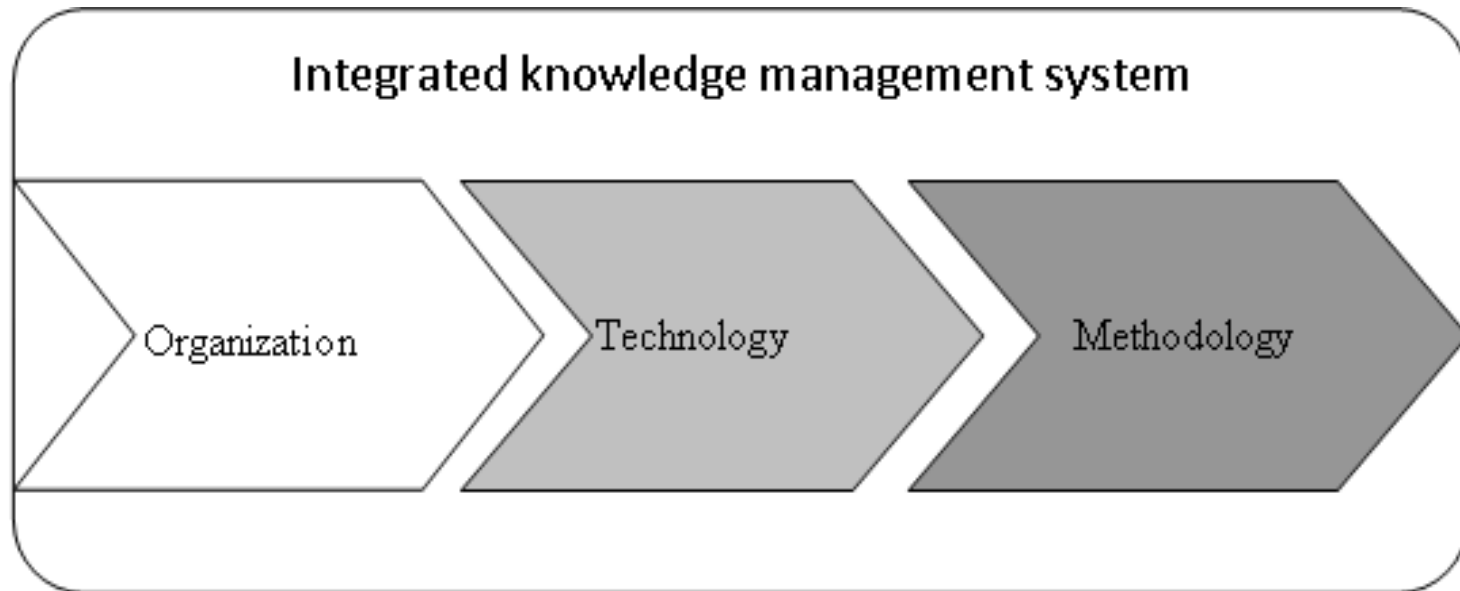
Country name	2010	2011	2012	2013
<u>Argentina</u>	8	7	8	10
<u>Australia</u>	12	13	13	13
<u>Austria</u>	12	12	13	14
<u>Bolivia</u>	8	13	9	9
<u>Brazil</u>	11	10	10	10
<u>Canada</u>	14	13	12	14
<u>China</u>	28	26	26	27
<u>Czech Republic</u>	15	16	16	15
<u>Denmark</u>	14	14	14	14
<u>Finland</u>	11	9	9	7
<u>France</u>	25	24	25	26
<u>Germany</u>	15	15	16	16
<u>Greece</u>	10	10	9	8
<u>Hungary</u>	24	23	18	16
<u>India</u>	7	7	7	8
<u>Ireland</u>	21	22	23	22
<u>Israel</u>	15	14	16	16
<u>Japan</u>	18	17	17	17
<u>Kazakhstan</u>	34	25	30	37
<u>Malaysia</u>	45	43	44	44
<u>Malta</u>	47	47	46	39

Country name	2010	2011	2012	2013
<u>Mexico</u>	17	17	16	16
<u>Mozambique</u>	1	26	25	13
<u>Netherlands</u>	21	20	20	20
<u>New Zealand</u>	9	9	10	10
<u>Norway</u>	16	18	19	19
<u>Peru</u>	7	6	3	4
<u>Philippines</u>	55	46	49	47
<u>Poland</u>	7	6	7	8
<u>Portugal</u>	3	4	4	4
<u>Russian Federation</u>	9	8	8	10
<u>Sweden</u>	14	13	13	14
<u>Switzerland</u>	25	25	26	27
<u>Thailand</u>	24	21	21	20
<u>Turkey</u>	2	2	2	2
<u>Uganda</u>	2	22	21	2
<u>Ukraine</u>	4	4	6	6
<u>United Kingdom</u>	21	21	22	16
<u>United States</u>	20	18	18	18
<u>Vietnam</u>	9	14	20	28
Average	9,42	9,71	9,71	9,98

Correlation of corporate knowledge management with other subsystems of the enterprise



The three elements of the knowledge management system model



The Integrated Knowledge Management System (the IKMS)

IKMS relationship with the other control subsystems

Areas of activity within the framework of knowledge management

Strategic Management

- 1) Formation of competence of the company.
- 2) Approval of the organizational competences individual.

Human Resource Management

- 1) Creation of a "culture of knowledge".
- 2) Training and development of employees.
- 3) Employee motivation.
- 4) Organization of communications.

Quality Management

- 1) Create a formal sources of knowledge - standards guidelines, etc.
- 2) The operation of "quality circles».

Production Management

- 1) Education in the process.
- 2) Optimization of teams.
- 3) Provide the necessary knowledge of employees.
- 4) Transfer of knowledge in the manufacturing process.

Financial Management

- 1) Intellectual capital evaluation.
 - 2) Accumulation of commercially successful projects experience.
 - 3) Funding for knowledge management
 - 4) Estimation of economic efficiency of projects
- Knowledge Management

Marketing

- 1) The accumulation of knowledge about customers, markets, etc.
- 2) Accumulation of successful PR-campaigns experience

Investment Management

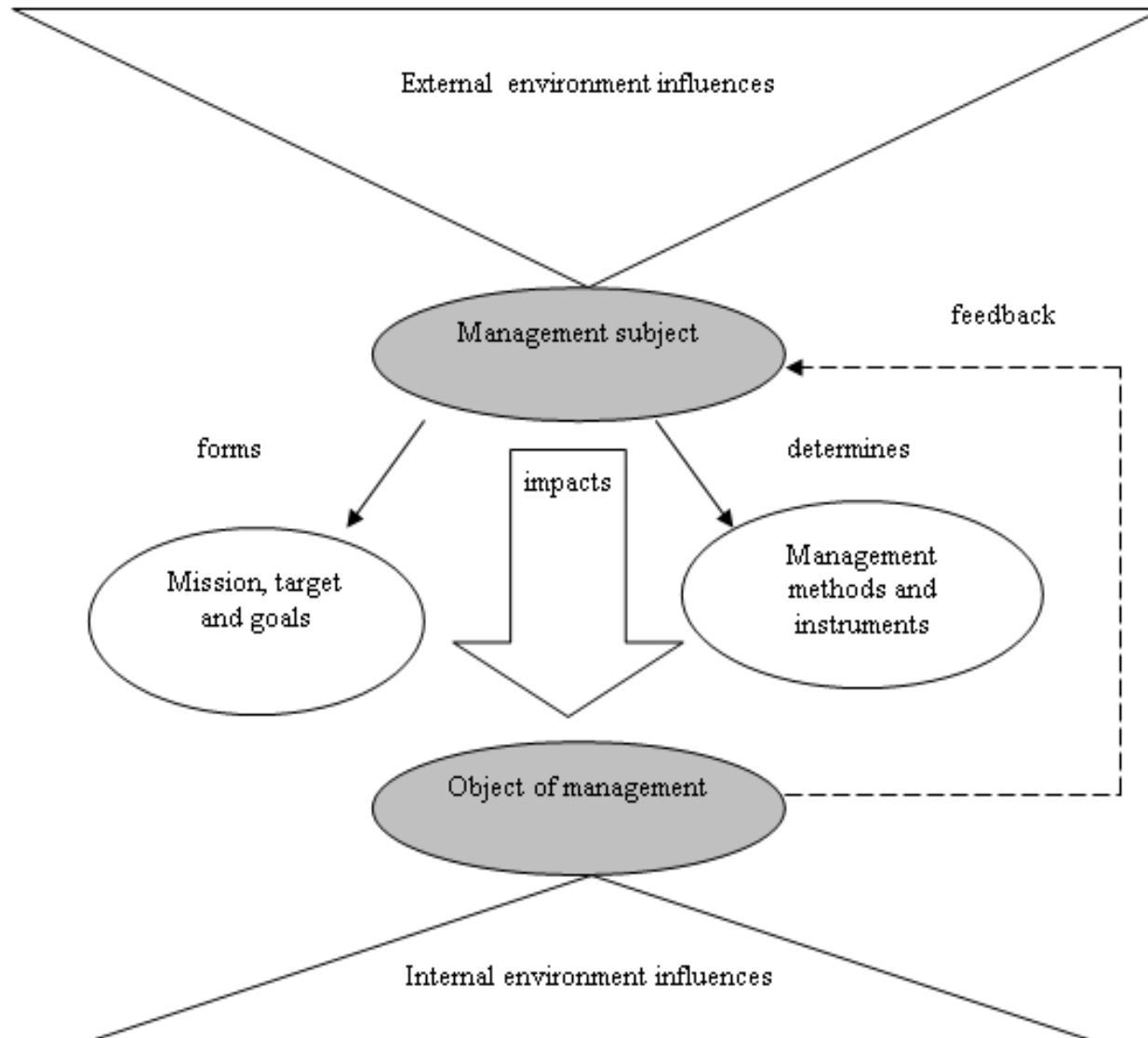
- 1) Analysis of the experience of the best investment projects.
- 2) Investments in knowledge management activities.

Innovation Management

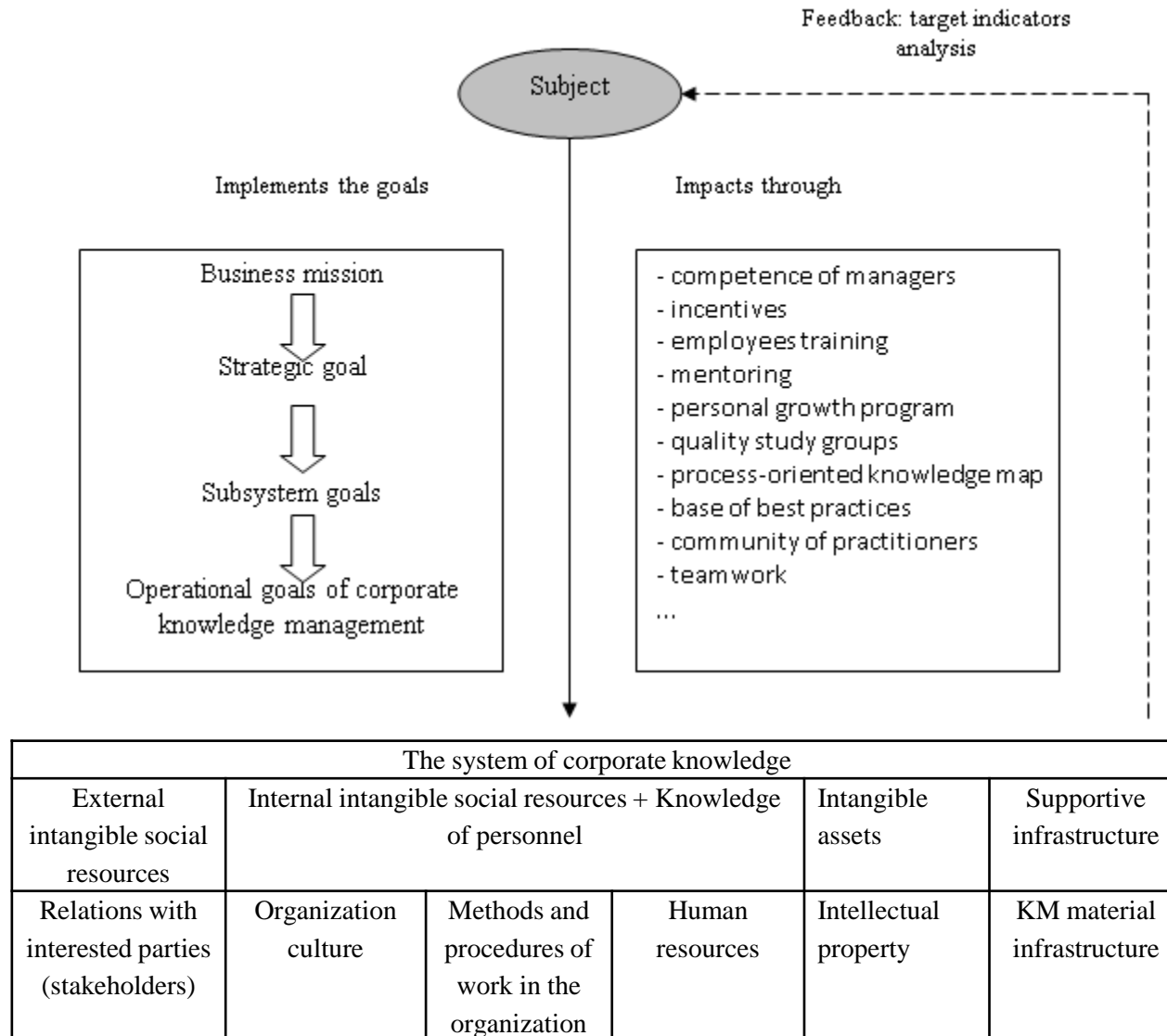
- 1) The development and selection of new ideas.
- 2) the commercialization of new ideas.

Information and communication technologies

The general functioning scheme of an organizational economic controlling mechanism



Organizational economic mechanism of knowledge management



Structure of the subject of enterprise knowledge management

Item №	Control objects	Target implemented	The tools used	Objects affected
1	Executives	Long-term business mission	Core competencies of the company and employees	Organizational culture, business philosophy, accepted standards and norms of business and other elements of intellectual resources
2	Middle-level managers	Medium-term	Incentive and human resources development system, knowledge map, the IT, result assessing system	Intellectual property, the culture of knowledge, relationships with stakeholders
3	Low-level managers	Operational	Mentoring, personal growth programs, communities of practice, knowledge base, the base of best practices	Human resources, physical infrastructure
4	Separate operatives	Operational, medium-term, long-term	Exchange and formalization of knowledge, the knowledge base, the community and others.	The individual elements of intellectual resources, depending on the field

Conclusion

- 1. An efficient implementation of the complex industry policy stipulated by the Law № 448-FZ will provide for Russian economy escape from crisis phenomena and the development of an existing “knowledge economy” potential.**
- 2. Authors’ express-method of industrial companies intellectual capital cost estimates enables to receive additional data for the analysis of intellectual potential of economic agents under review.**
- 3. To overcome the national economy backlog in the innovation development the authors suggest that the complex knowledge management system should be introduced to the general practice of industrial companies.**

Contact information

Kharitonova Ekaterina Nikolaevna

+ 7-926-228-91-26

kharitonova_e.n@rambler.ru