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The Analysis of Intellectual Property Use in the Ecomonic Turnover of Russian Enterprises

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Abstract: The property rights market on intellectual activity results takes a special place in the national economy. The article analyses and assesses the key figures that characterize the activities of Russian enterprises engaged in intellectual property development and integration into economic turnover. The main trends of the intellectual property market in Russia have been emphasized and quantified.

Key words: Intellectual property · Intellectual property market · Russian enterprises · Property rights on intellectual activity results

INTRODUCTION

A special place in the national innovation system (NIS) in any country is taken up by the intellectual property market (IP) which ensures the interaction of the intellectual property rights holders (IPR) and potential customers of commercially attractive ideas, therefore supporting their transformation into innovations. The transfer of technological solutions leads to a dynamic innovation process.

IP is not only a legal but an economic category. It plays an active role in calculating the value added, especially in advanced technology sectors, contributes into the total cost of business assets, increases its market value as well as participating in the investment process. In such a case, IP can not only be an object of capital investment but a subject of charge that provides secure obligations in investment loans.

Countries with a well-developed IP market have a significant volume of trading in rights. Thus, for instance, IP sales make up to 10% of the GDP in WTO countries.

Unfortunately, Russia as a participant of the World IP market takes one of the lowest positions. The Russian IP market is underdeveloped and Russian business does not have any motivation for making IP transactions or deals. A significant gap between the volume of newly developed ideas and the process of their commercialization turns out to be a strategically important problem that is well-recognized by the Russian and World economic community. Recent studies indicate an excess of suspended patent rights against the new ones and estimate their commercial turnover at no more than 2%.

A multiple number of aspects and debates connected with the problem of IP accumulation as an element of intellectual capital as well as its economic turnover as a product determine lead to discussions among Russian [1-3] and foreign [4-7] academic economists of different scientific branches and practitioners whose professional competence correlates with creation, legal protection and the commercial use of IP.

However, notwithstanding a considerable number of articles dedicated to the innovation development process, there is still a deficit of comprehensive scientific research that reveals different aspects of IP commercialization. The conceptual, methodological and organizational aspects of IP creation and commercialization in the real sector of economy have not been sufficiently analyzed and demand further elaboration and systematization.

The present article illustrates the key figures of Russian business innovation activities, the place for the intellectual property rights market in the NIS structure as well as the analysis of IP use in the economic turnover of Russian enterprises.

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MATERIALS AND METHODS

The object of the present research is the real sector of Russian economy and its enterprises as functional and potential participants of the IP market. Among the methods of research dynamic and structural analysis, logical schemes construction, table and graphical visualization of theoretical information and empiric evidence have been used.

The informative and empiric basis of the present research has been formed using the statistics of the Federal Service for Intellectual Property (the Russian Agency for Patents and Trademarks), the Federal State Statistics Service (ROSSTAT), the World Intellectual Property Organization, research results of the World Economic Forum and the Sberbank of the Russian Federation as well as information materials on the IP market situation published in periodic and special journals.

Main points. Economic globalization allows to raise the issue of the scientific and technical progress global influence on ideology, strategy and the property status of enterprises. The latter includes the structural growth shifts of intangible assets in the cost of the property complex as well as the strategic role of intellectual capital in providing competitiveness and value appreciation of business in general.

How much does the situation in Russian industry agree with these trends? The present article contains the key figures analysis results of the innovation process and intellectual property turnover of Russian business. Among the sources of information are ROSSTAT (statistics on innovation dynamics) [8, 9] and the Russian Agency for Patents and Trademarks – data on applications dynamics, patents issuing and registration of contracts with subjects of intellectual rights [10, 11].

In 2003-2011 the share of Russian companies involved in technological innovations was slightly over 9% of the total number of companies (Table 1) that cannot be definitely admitted as sufficient.

There is a direct dependence between company size and its innovation activities. According to ROSSTAT in 2010 only 4,8% enterprises with a the number of employees under 200 brought technological innovations into effect; the number of innovation-active enterprises with a staff of 1000-4999 people increased up to 42% and the percentage of large corporations with more than 10000 employees involved in technological innovations was 80,9%.

Considering that the main financial source of a company's innovation activity is its own proprietary funds, the main reason for such a correlation appears to be an increase of capital availability together with a business scale growth. First of all, large corporations receive an annual income that many times exceeds the one of medium-size companies; secondly, they can use the opportunities of the internal capital market by transferring the capital from one participant of the integrated corporate structure into another one; thirdly, as a rule, they are more attractive to external investors and creditors.

During 2003-2011 there was a notable growth of revenue from innovative products sales in current prices; only recessionary 2009 became an exception (Table 1). Still the share of innovative products in the total amount of goods dispatched (work performed, services rendered) is very little.

The proportion of all technological innovations costs in the total amount of goods dispatched (works, services) was less than 1,5% during the majority of yearlong intervals within the given period (Table 1). The maximum (1,9%) of costs share spent on innovations from the company revenue was in 2009. During 2003-2011 there was a constant increase in the dynamics of companys' costs on technological innovations in current prices. An exception was in 2010 when the costs on technological innovations decreased by 2,6%.

The analysis of costs structure shows that more than 50% is made up from the purchase of foreign equipment. This can be confirmed by the results of statistics observation correlated with companies' innovation activities (Table 2) and the increasing volume of equipment import.

In the context of capital assets wear and tear factor reduction this can be considered as a positive trend without any doubt. Yet such a way will not solve the tasks of changing the course into innovative economic development. Most of new capital machinery assets are purchased from foreign producers and cannot be regarded as the last generation of engineering and technology.

There are at least three negative effects of such a situation:

- Firstly, increase of import dependence;
- Secondly, lack of demand of national scientific results and, consequently, no use for its potential in terms of economic development;
- Thirdly, competitiveness loss of knowledge-intensive processing industries, the product of which can be characterized by the high value added.

Table 1: Dynamics of Innovation Activity in Industry

Index	2003	2004	2005	2006	2007	2008	2009	2010	2011
Share of enterprises involved in technological innovations in total number of enterprises, %	10,3	10,5	9,3	9,4	9,4	9,6	9,4	9,3	9,6
Volume of dispatched innovative goods, works, services, bln. RUR	312,7	433,0	545,5	714,0	916,1	1047,0	877,7	1165,7	1847,4
Chain rate of increase,%	-	138,5	126,0	130,9	128,3	114,3	83,8	132,8	158,5
Share of innovative goods, works, services in gross volume of goods, works, services, %	4,7	5,4	5,0	5,5	5,5	5,1	4,6	4,9	6,3
Share of costs on technological innovations in gross volume of goods, works, services, %	1,6	1,5	1,2	1,4	1,2	1,4	1,9	1,25	1,5
Costs on technological innovations, bln. RUR	121,6	146,0	143,2	211,4	234,1	307,2	399,1	400,8	733,8
Chain rate of increase,%		116,5	102,3	150,0	110,1	133,1	129,9	97,4	183,1

Table 2: The Structure of Industrial Costs on Technological Innovations by Type of Activity, %*

Index	2007	2008	2009	2010
Costs on Technological Innovations – total, incl.	100	100	100	100
Research and development	17,3	15,0	27,3	20,6
Purchase of machines and equipment	57,5	59,0	51,2	54,5
Purchase of new technologies	2,2	2,5	1,5	1,3
of which – purchase of rights on patents, licenses	0,8	0,9	0,9	0,5
purchase of software	2,6	1,8	1,3	1,2
Manufacturing design	7,0	7,2	7,2	7,4
Other types of pre-operating stages	5,4	5,7	4,6	7,3
Personnel training	0,5	1,5	0,2	0,2
Marketing research	0,3	0,5	1,6	0,6
Miscellaneous costs	7,0	6,9	5,1	7,0

* Calculated with the data from the Russian Annual Abstract of Statistics, 2011

The most innovative-oriented companies, according to costs criteria, appeared to be companies involved in the production of fossil fuels (in 2010 -14,4% of total industrial costs), metallurgical production and the production of finished metal products (22,3%), production of coke and crude (12,6%), production of transport and machinery (9,2%), production and distribution of electricity, gas and water (10,1%). This cost structure on innovations in accordance with the type of company activity confirms the fluctuation of the economic cycle and persistent disproportions in industry branches with a clear-cut monopoly of fuel and energy. Same as before, the vast majority of monetary flows and capital have been concentrated in "natural monopolies" and extractive industries; that leads to their investment attractiveness. According to data in Tab.3, Russian companies prefer to borrow advanced technologies, but not to create them. Thus, in 2010 the number of utilizable advanced manufacturing technologies increased the number of created ones by 235 times. The dynamics of new advanced technologies developed in 2003-2011 cannot be called intensive: in 2003-2005 there was a decline, in 2006-2010 – a slow growth. And only in 2011 the rate of increase improved significantly.

One of the most important factors of increase in industry activity in terms of commercialization of intellectual knowledge is the legal protection of intellectual property. Apart from the evident income from intangible assets, the proprietorship of exclusive rights on the results of intellectual work can be a crucial factor of investment attractiveness and will increase the market capitalization of business.

The situation in Russia is dramatically different. Companies are in no hurry to register the exclusive rights on the results of intellectual activity (RIA). Table 4 shows the dynamics in the Russian Agency for Patents and Trademarks: the number of applications to register exclusive rights on scientific and technical objects of IP (innovations, useful models, industrial patterns), patents issued and used. The largest share belongs to applications and patents on innovations. During 2005-2008 years there was a minor growth (annual rate of increase -3,6%), in 2009-2011 the number of applications could not be characterized as stable.

The number of applications per capita in Russia is 3-4 times lower than in the USA or Germany and 18 times than in Japan [12]. Yet, the most vital problem here, as we can see, is the lack of demand for innovative ideas among

Table 3: Dynamics of Manufacturing Technology Development and Implementation

Index	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total number of technologies developed	821	676	637	735	780	787	789	864	1138
Rate of increase, %		82,3	94,2	115,4	106,1	100,9	100,3	109,5	131,7
Number of technologies implemented	107015	119639	140983	168311	180324	184374	201586	203330	191 650
Rate of increase, %		111,8	117,8	119,4	107,1	102,2	109,3	100,9	94,3

Table 4: Dynamics of Rights Specification on Scientific and Technical IP

Index	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number of Russian applicants to register a patent	34667	33954	35242	39776	39835	40551	38298	42460	40992
rate of increase, %	-	97,9	103,8	112,9	100,1	101,8	94,4	110,8	96,5
On innovations	24969	22985	23644	27884	27505	27712	25598	28722	26495
On useful models	7400	8648	9082	9265	9588	10483	10728	11757	12584
On industrial samples	2298	2321	2516	2627	2742	2356	1972	1981	1913
Number of patents issued to Russian applicants	30317	28990	28035	30086	30040	33572	38978	33555	32532
rate of increase, %	-	95,6	96,7	154,7	99,8	111,8	116,1	86,1	97,0
On innovations	20621	19123	19447	19138	18431	22260	26294	21627	20339
On useful models	8053	8230	6958	9195	9311	9250	10500	10187	10571
On industrial samples	1643	1637	1630	1753	2298	2062	2184	1741	1622
Number of existing patents	143584	149454	164099	171536	180721	206610	240835	259698	236729
rate of increase, %	-	104,1	109,8	104,5	105,4	114,3	116,6	107,8	91,1

Table 5: Dynamics of Exclusive Rights Disposition (Patents) on Innovations, Useful Models, Industrial Samples and Agreements for Grants

Index	2003	2004	2005	2006	2007	2008	2009	2010	2011
Agreements for Patent Grants *	1484	1892	1281	1451	1674	1524	1054	1356	1445
Agreements on Sole License	208	162	167	212	276	215	228	264	272
Agreements on Ordinary License	581	495	674	751	902	1005	1083	1240	1490
Total number of Agreements Registered	2273	2549	2122	2414	2852	2744	2365	2860	3207
Number of Applications on Patents	158	64	65	82	68	72	79	62	21

* patent freelance transfer excluded

the companies of real economy. Statistic releases show different share values of registered industrial property subjects, the rights of which can be an object of commercial transactions and business deals. The most optimistic value is not more than 5%, the most realistic is 1,5-2%. Statistics on scientific-technical IP commercialization is represented in Table 5.

According to the Annual Report of the Russian Agency for Patents and Trademarks [18] in 2011 there were 6242 patents registered on innovations, useful models and industrial samples. This is a peak figure during a five-year period. The increase rate against 2010 is 11,2% and against 2009 – 35,6%. In comparison to 2010 the number of applications on contracts registration increased by 7,7% and the number of patents enclosed - by 10,6%. This positive trend can be characterized as a consequence of demand growth of IP civil turnover.

Almost half of the contracts registered (44,8%) fall within the following technical fields: energy industry and electrical technologies, chemistry, petro-chemistry and medicine. In 2011 the most significant increase rate was in mechanical engineering, machine-tool technology and tool sets manufacture (by 141,6%), chemistry and petro-chemistry (by 58,8%), medicine (by 40,9%).

Table 6 shows the majority of non-governmental enterprises in the structure of Contractors agreeing on IP rights. In 2011 they acted as disclosing parties in the context of exclusive IP rights in 52% contracts and as receiving parties – in 85,5% contracts. The following structural changes as reduction of individuals being disclosing parties and the opposite tendency of activity increase among governmental enterprises, Institutes for Scientific Research (SRI), Design Bureaus (DB) and universities should be noted as well.

Table 7 contains information on the number of trademarks acting as the subject of Patent Disclosing contracts, License (Sub-license) contracts as well as Franchising (Sub-Franchising) agreements.

The sales of trademarks (same as scientific-technical IP) could be characterized as of minimum performance in 2008-2009 in comparison with pre-crisis 2007year. But the activity of economic turnover in the context of trademarks

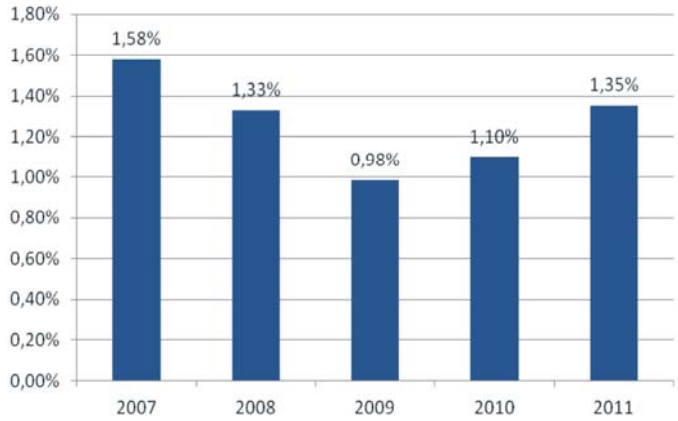
Table 6: The Structure of Contractors Registered in the Context of Innovations, Useful Models, Industrial Samples

	Share of Total Agreements Number, %								
	Disclosing Party								
Category of Business Participants	2003	2004	2005	2006	2007	2008	2009	2010	2011
Individuals	29,3	38,6	33,0	16,4	36,0	33,9	32,9	34,5	31,8
Governmental enterprises, SRI, DB, Universities	8,2	8,4	8,3	3,1	8,0	7,6	8,9	13,8	16,25
Non-governmental enterprises,	62,5	52,9	58,7	80,5	56,0	58,4	58,2	51,7	51,95
including Foreign companies	11,6	10,1	11,8	14,0	9,8	10,9	12,4	7,6	7,48
	Share of Total Agreements Number, %								
	Receiving Party								
Category of Business Participants	2003	2004	2005	2006	2007	2008	2009	2010	2011
Individuals	10,0	16,3	9,6	4,1	10,9	10,2	7,6	9,7	8,98
Governmental enterprises, SRI, DB, Universities	4, 8	3,3	4,0	1,5	3,8	2,7	4,7	7	5,52
Non-governmental enterprises,	85,2	80,4	86,4	94,4	85,3	87	87,7	83,3	85,5
including Foreign companies	12,9	11,4	12,6	11,7	11,0	12,1	11,1	7,1	6,92

Table 7: Dynamics on Trademarks Acting as Subject of Contract

Contract Type	2003	2004	2005	2006	2007	2008	2009	2010	2011
Disclosing Contracts on Trademark Patents* (total, including,:	4155	3922	4540	5039	7719	6767	6121	7426	7953
from Russian Rights holders	3104	3002	3524	4061	5748	5222	4888	5939	6222
from Foreign Rights holders	1051	920	1016	978	1971	1545	1233	1487	1731
License /Franchising Agreements * (total, including,:	4101	4395	5574	8097	9288	8807	9157	11720	10216/2769
from Russian Rights holders	3024	2875	4310	6142	6438	6367	5902	8174	6831/ 1896
from Foreign Rights holders	1077	1520	1264	1955	2850	2440	3255	3546	3385/ 873

* Since 2011 the Russian Agency for Patents and Trademarks releases separate statistics on trademark numbers, in the context of License Agreements and Franchising Agreements registration. The recent periods contain the sums of the amount



Pic. 1: Ratio of Total Number of Contracts and Number of Existing Patents on Innovations, Useful Models, Industrial Samples

in 2010-2011 allowed surpassing pre-crisis numbers of trademarks acting as a subject of the contract. The number of disclosed patents on trademarks increased in 2010-2011 by 21,3% and 7%, correspondingly, but compared with the 2007 value – only by 3%. In 2011 78,2% of 7953 trademarks were disclosed by Russian Rights holders. License Agreements and Franchising Agreements can be characterized as being more intensive. Thus, in 2011 there were 12985 contracts signed with regard to 12985 trademarks that is 10,8% higher than in 2010 and 39,8% higher than in 2007.

Business recovery of IP subjects on the market in 2010-2011 can be regarded as "pleasant" but not satisfactory from the perspective of national economy innovation development. Picture 1 shows the ratio of total contract numbers signed with regard to scientific-

echnical IP subjects (Table 7) and the number of existing patents (Table 6). Thus, in 2007-2011 only 1-1,5% of existing patents on innovations, useful models and industrial samples were involved in the economic turnover. This clearly states a very low level of commercialization. One can suppose that the present rules of IP market functioning in Russia are not sufficient for the active purchase/creation and use of intangible assets.

CONCLUSION

The present analysis clearly shows a very slow process of intellectualizing assets among Russian enterprises; the monetary capital and accumulated resource basis still remain the main production factor. Several reasons for this can be mentioned and specified.

Firstly, lack of interest among enterprises in using modern technologies in manufacturing and management against the remaining potential of extensive capital growth. Such a situation was created during the pre-crisis period in Russia and the crisis has vividly shown the inefficiency of expenses and work force redundancy.

Secondly, lack of innovation infrastructure development. Poor links between scientific organizations that create ideas and enterprises of the real sector of economy as potential innovation customers is a characteristic problem trait of the Russian innovation system.

Thirdly, lack of managers capable of dealing with innovations. Notwithstanding the fact that though economic reforms in Russia started 20 years ago, there still seems to be an insufficient number of professionals capable of managing innovation commercialization competently.

The fourth reason is connected with the unwillingness of Russian business to specify the property rights on intellectual activity results. Experts agree that the market value of IP results belonging to Russian enterprises with no proper legal support and, as a consequence, not recorded in the financial books, exceeds 1 trillion dollars [12, p. 71].

In view of all the aforesaid, IP market development can be considered as one of the basic conditions of NIS operation, technological upgrade of industry and competitive recovery of Russian enterprises, as well as the improvement of their investment prospects.

In order to make economic development in Russia more innovative, there has to be not only an extensive growth in the number of innovation-active enterprises but a shift in the structure of costs spent on innovations. Among the positive shifts one can mention:

- A private business share increase (both national and international) in budgeting R&D (Research & Development);
- An increase of the cost share on R&D and purchasing technologies in the total cost structure in view of different types of innovation activities.

However, the main issue that has to be resolved regarding the Russian economy is the dire need for an extremely intensive facility for implementing intellectual results. IP commercialization cannot be regarded as a subordinate process either and requires as many investments and special knowledge as research and development.

At the same time, a huge growth potential of IP economic turnover and RIA of Russian enterprises are their important competitive advantages that can remarkably improve their investment attractiveness in the nearest future. A background for this can be well outlined:

- Changes in federal and local tax regulations designed to stimulate the innovation activity of Russian enterprises, the majority of which have been implemented since 2012;
- Developing and implementing federal and regional projects on creating scientific research and innovation centres;
- Significant reforms in the system of Russian Universities and the Russian Academy of Sciences, etc.

The positive trends in the dynamics of intellectual and innovation activities of Russian enterprises in 2011 confirm the views presented in the current article.

To Sum up.

- The their scientific and innovation potential, Russia cannot be regarded as an active participant of the IP market.
- Russian enterprises prefer to borrow advanced technologies but not to create; however this tendency has recently been changed in favor of their own innovation developments.

- The number of registered exclusive rights (patents) on RIA is still very low, but Russian membership in the WTO and its signature on TRIPS are aimed at changing the current situation.
- In 2010 - 2011 there was a positive trend in growth of the IP civil turnover. Best of all, the dynamics is represented in the circulation of rights on trademarks, license and franchising agreements. The main contract parties in view of IP subjects are non-governmental organizations.
- The substantial potential of Russian enterprises in IP economic turnover growth may become a considerable competitive advantage in the nearest future and thus improve their investment attractiveness.

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