
Innovative Intellectual Property Products: The Case of Russian Federation

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Abstract:

Innovation activity is currently the most important factor in boosting of competitiveness through the creation of an innovative environment. In turn, innovations can be introduced only if intellectual property rights are protected.

This article attempts to establish the relationship between the indicators of intellectual property rights protection and the level of national economic development. One can also find here stimulation proposals for the creation of innovative products. Indicators that characterize the property right protection (International Property Rights Index, IPRI, in the category Intellectual Property Rights) were compared with indicators that characterize the level of economic development (GDP per capita and R&D spending) on the example of developed and developing countries.

The correlation between R&D spending and property right protection was not determined. This indicates that the International Property Rights Index in the category Intellectual Property Rights does not fully reflect the innovativeness.

To activate national innovative development, some suggest using special forms of financing, improving the regulatory framework, implementing more high-tech developments, adapting the infrastructure, improving the licensing mechanism, and activating the technology transfer.

Keywords: *Innovation, intellectual property, International Property Rights Index (IPRI), copyright piracy, licensing.*

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1. Introduction

In modern settings, innovation-driven economy has good prospects as a path of national economic development (Nurgraha and Mulyadi, 2018; Khairutdinov *et al.*, 2018; Gackstatter *et al.*, 2014; Afzal *et al.*, 2018; Trenev, 2018), so the worldwide innovations are declared and supported by scientists and government officials. Innovation as a result of creative work, applied in a new product or technology, or as a creation of human mind, is an object of intellectual property (Holgersson *et al.*, 2018; Rylková and Chobotová, 2014; Osadchy and Akhmetshin, 2015; Nurgraha and Mulyadi, 2018). Innovations are an important type of intangible assets of any organization (Ermakova *et al.*, 2016); therefore, it is crucial to prevent their unauthorized use by competitors (Holgersson *et al.*, 2018; Lee, 2017; de Almeida Pereira and Quoniam, 2017). The organization that implemented the innovation gains a competitive advantage, secured as an object of intellectual property (Plaskova *et al.*, 2017; Prokhorova *et al.*, 2016).

First, one has to understand what is in the range of intellectual property objects. Such products include the works of science, literature and art, trade secrets, know-how, inventions, utility models, computer programs, trademarks and service marks, and selection achievements (Rahn *et al.*, 2016).

Intellectual property usually includes means of individualization like brand names, trademarks, service marks, new means, and new commercial designations. Now, there are legal relations concerning the brand names, trademarks and service marks (Drucker and Noel, 1986). In such a context, a trademark acts as a designation that distinguishes (individualizes) a product, while the service marks individualize the service being provided (Patthirasinsiri and Wiboonrat, 2018). Besides that, one has to distinguish between the concepts of a trade name, a trademark and a brand. A trade name is a concept that combines consumer properties of certain product and its trademark having a reputation, which can be not only images, but also sound, symbols, three-dimensional light and color combinations. The brand, however, is a category that includes tangible and intangible properties that ensure the awareness of the corresponding manufacturer or its products (Delgado-Ballester *et al.*, 2017; Erkollar and Oberer, 2016; Bangari *et al.*, 2017).

Trade secrets and know-how are also a considerable part of intellectual property. Researchers claim that provision of commercial secrets in production and science has recently become the biggest economic achievement worldwide, as evidenced from the popularity of the term “know-how” (Drucker and Noel, 1986). Thus, the preservation of know-how is arguably the major purpose of intellectual property protection. The economic importance of intellectual property was proved true, considering the attention paid to its trade aspects at the international level (de Beer *et al.*, 2017; Syam *et al.*, 2018; IPRI Report, 2018; Venckuviene *et al.*, 2014; Sycheva *et al.*, 2018).

These issues were reflected in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). The TRIPS Agreement established the basic standards that should be anchored in the national legislations and applied by the WTO member countries and the candidates. The Agreement obligates the WTO member countries to ensure the most-favored-nation principle, meaning that WTO member countries, including Russia, should grant the best intellectual property rights to citizens of other member countries that they grant to own citizens. The same applies to intellectual property protection. Russian applicants are granted the same in return (Karpova, 2012). In addition, licensing is mandatory and even compulsory under this Agreement. This requirement is supported primarily by developing countries, but in Russian legislation, this measure is enshrined as well.

Franchising, or granting a license package encompassing the entire business, is one of the most effective ways to sell intellectual property. Anyone, who acquires such a package, no longer must develop a corporate identity and a marketing strategy independently because they are already in the pack.

Intellectual property is a result of innovation and a source of innovation at the same time (Liu and Jiang, 2016). In the innovation process and application, the direct role and purpose of intellectual property will depend on the content, structure, and stages of the process, which can be characterized by the creation of an intellectual property product (Užienė, 2015; Pudjiarti, 2018).

In modern economy, intellectual property is the main source and means of competition, especially when it comes to knowledge-intensive goods and services (Kozlov and Shemshurina, 2018). This changes the market structure through the emergence of new companies that sell the objects of intellectual property. At this point, the world's largest corporations are striving to implement new approaches to innovation management (Cavdar and Aydin, 2015; Kosareva and Polidi, 2017; Torun and Cicekci, 2007). The key conception in this case is the protection of intellectual property objects from unauthorized use.

Thus, intellectual property right protection is the protection of innovations, which is the most important point in managing innovation processes (Chen *et al.*, 2018; Dziallas and Blind, 2018; Hamzah, 2017). The management of innovation processes assumes that both the innovative product and the innovation itself can be used as a commodity, so that innovations can be bought and sold in the same way as other products (Silviana, 2018; Lynch and Jin, 2016).

Russian economy is faced with a problem: because of the dominating extractive industries, the focus is laid on low-tech industries, and that is not good for the high-tech ones (Butnik-Siversky, 2003; Benešová and Smutka, 2016; Kolesnikov *et al.*, 2018; Kondratenko, 2017). Moreover, the knowledge content of most Russian industries is significantly lower than in the EU and the USA. In this regard, Russia has to stimulate the industry to expand the investment in research and development

and to increase the share of high-tech industries in the structure of national economy (Silvestrov *et al.*, 2018).

The research issue is relevant, because in the modern world, research on innovations and its consolidation as intellectual property is the source for modernizing the entire economic system, and for creating an innovative and competitive product.

2. Methodology

In Russia, creating of a national innovation system is essential not only for effective science and technology, but also for a high long-term international competitive status of the country on the global market. To determine the level of national innovation-driven development, one must consider the economic environment, meaning the analysis of R&D spending, property rights indices, and GDP per capita (Chernopyatov *et al.*, 2018). Research hypothesis is that there is a relationship between R&D spending, the quantity and quality of new developments, subsequently, and the International Property Rights Index in the category Intellectual Property Rights.

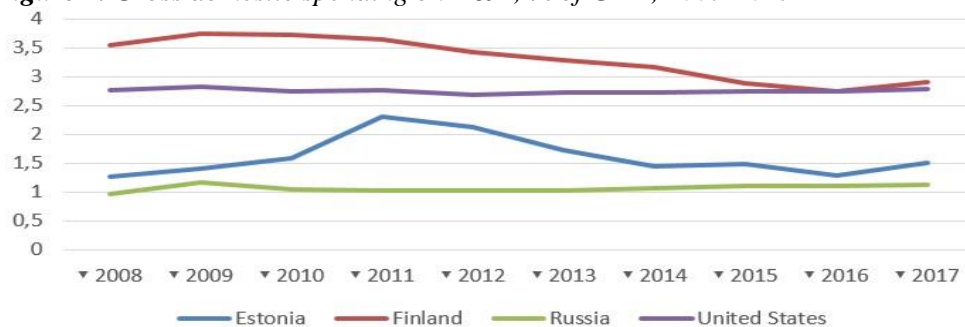
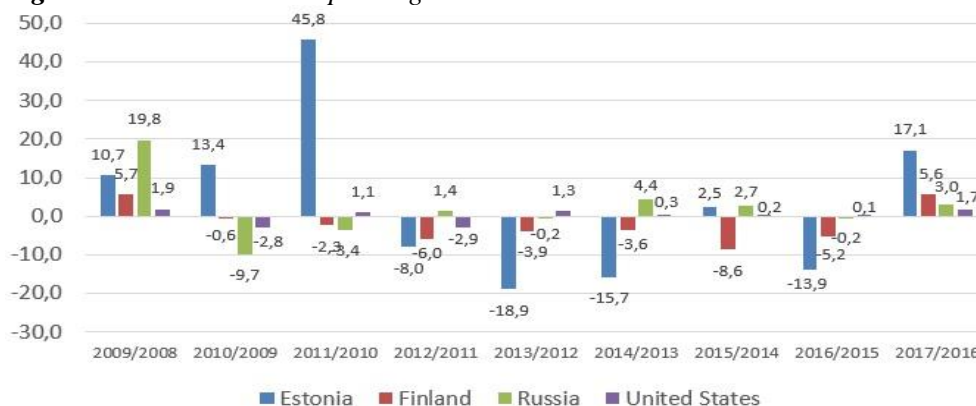
The International Property Rights Index (IPRI) is a combined index that ranks countries by property right protection. It was first published by the Property Rights Alliance in 2007 (IPRI Report, 2018). The IPRI is built up from 10 factors, gathered under three components: the Legal and Political Environment (LP), Physical Property Rights (PPR), and Intellectual Property Rights (IPR). The overall grading scale of the IPRI is “0 – 10”, where “10” is the highest value and “0” is the lowest value in each category.

The behavior of key indicators was considered for the period after 2007. To assess the state of environment intended for creating innovative intellectual property products, the focus was laid on the relationship between R&D spending and the IPRI score of different groups of countries. Once the innovation level and the innovative IPR protection are analyzed and assessed, measures should be worked out to stabilize and boost the innovation-driven economic development.

3. Results

A general assessment of the innovation level was made by considering R&D spending and its growth rates for 2007-2017. Then, indicators found for Russia, the USA and some European countries were compared. The analysis of R&D spending revealed that Russia lags behind other countries, investing 2-3 times less money in innovations (Figure 1). However, despite the change in political and economic situation that took place over the past 10 years, R&D spending holds at 1% of GDP.

Figure 2 shows the growth rates in R&D spending, indicating a decline in investment.

Figure 1. Gross domestic spending on R&D, % of GDP, 2007-2017**Figure 2.** Growth rates in spending on R&D

Property right protection is a key factor indicating the fulfillment of government obligations to preserve the value and principles of personal freedom (Kovalenko, 2014). A robust system for property right protection drives national economy, pushing it forward, and promotes innovation activity. Property rights are in the core of society's prosperity and its capacity to meet current and future challenges.

Figure 3 presents IPRI rankings for some countries, published during the period from 2007 to 2018. The IPRI score of Russia shows a positive trend, reaching 4.89 in 2018, up 1.642 from 2007. In 2018, Finland ranked highest with the score of 8.69. The United States ranked high as well. Estonia ranked highest among the countries of Central-Eastern Europe and Central Asia, including Russia. As for Russia, it ranked 84 out of 125 countries in 2018.

The IPR score of Russia shows a positive trend as well, reaching 5.12 in 2018, up 1.5 from 2007. Given that the maximum value is 10, such a score is not gratifying (Figure 4):

Figure 3. IPRI rankings, adapted from (IPRI Report, 2018)

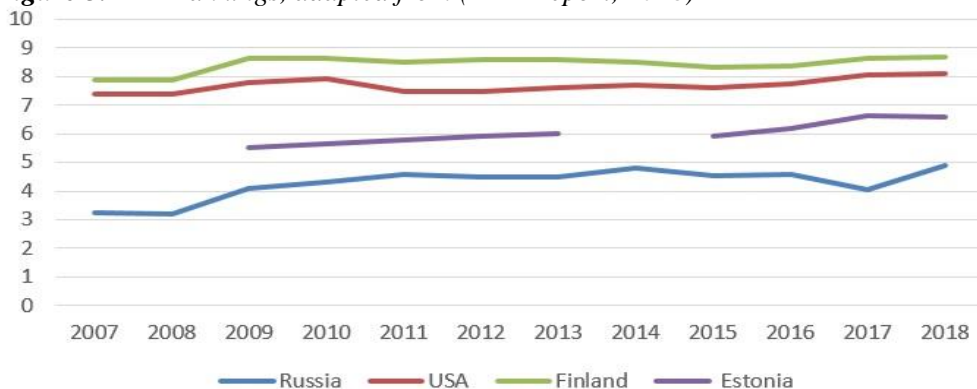
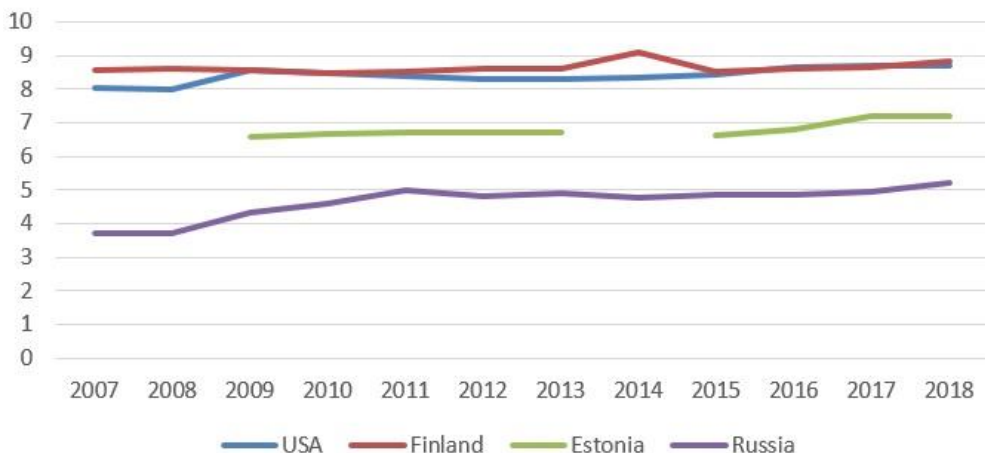


Figure 4. IPR rankings



According to annual IPRI reports (IPRI Report, 2018), the score of IPR and its components (Protection of Intellectual Property Rights, Patent Protection and Copyright Piracy) in Russia changed during 2007-2018 as follows (Table 1).

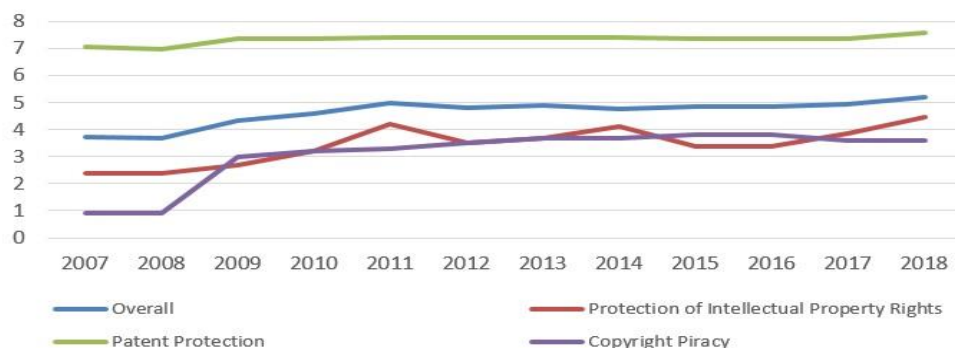
Table 1. IPR and components, Russia

Year	Overall	Intellectual Property Right Protection	Patent Protection	Copyright Piracy
2007	3.710	2.367	7.048	0.905
2008	3.700	2.400	7.000	0.900
2009	4.342	2.667	7.360	3.000
2010	4.583	3.200	7.350	3.200
2011	5.000	4.200	7.400	3.300
2012	4.800	3.500	7.400	3.500
2013	4.900	3.700	7.400	3.700
2014	4.767	4.100	7.400	3.700
2015	4.841	3.374	7.350	3.800

2016	4.841	3.374	7.350	3.800
2017	4.943	3.879	7.350	3.600
2018	5.216	4.448	7.600	3.600

The behavior of IPR and its components is presented in Figure 5. The IPR showed a slow improvement from 2007, reaching 5.216 in 2018. Patent Protection scored highest, reaching a point within the range of 7-7.6. Protection of Intellectual Property Rights showed an improvement from 2007, reaching 4.448 in 2018. Copyright Piracy was tricky: first it grew up to 3.0 in 2009; in 2018, it was 3.6, but in 2015 and 2016, the maximum value was 3.8.

Figure 5. IPR and components, behavioral pattern



Tables 2 and 3 show data on two countries used to determine the correlation between GDP per capita and the IPRI score. The focus was also laid on the relationship between R&D spending and IPR protection.

In both cases (the USA and Russia), correlation coefficient did not confirm the relationship between the IPRI score and indicators that characterize the level of economic development (GDP per capita and R&D spending) (Figures 6, 7).

Table 2. Correlation between indicators, the USA

Year	Index of Intellectual Property Rights (IPR)	GDP per capita (GDP)	IPRI Overall Score (IPRI)	Gross domestic spending on R&D, % of GDP, 2000-2017 (R&D)
2007	8.046	47.955	7.393	2.627
2008	8.000	48.302	7.400	2.767
2009	8.581	46.909	7.812	2.819
2010	8.461	48.311	7.916	2.740
2011	8.400	49.736	7.500	2.770
2012	8.300	51.404	7.500	2.689
2013	8.300	52.737	7.600	2.725
2014	8.333	54.657	7.700	2.734
2015	8.436	56.411	7.606	2.740

2016	8.632	57.559	7.737	2.744
2017	8.715	59.792	8.074	
Correlation coefficient	IPR vs GDP 0.562	GDP vs IPRI 0.450	IPR vs R&D 0.525	IPRI vs R&D 0.470

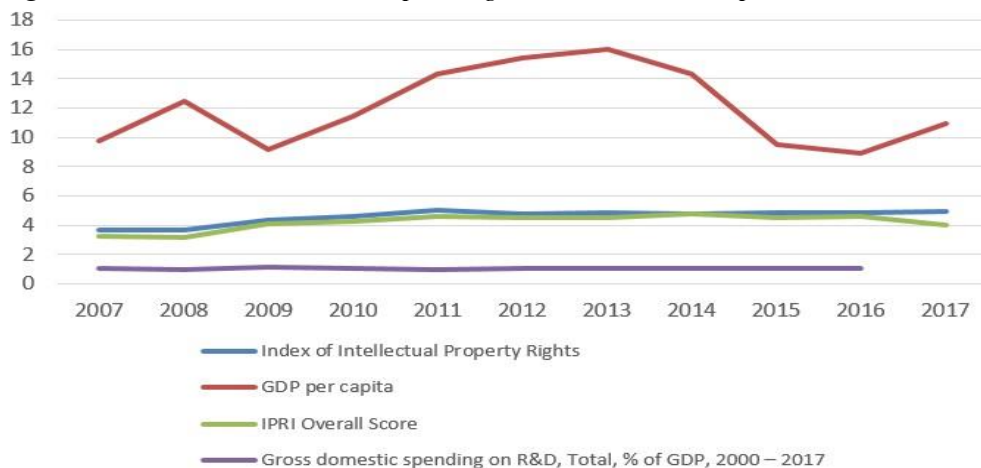
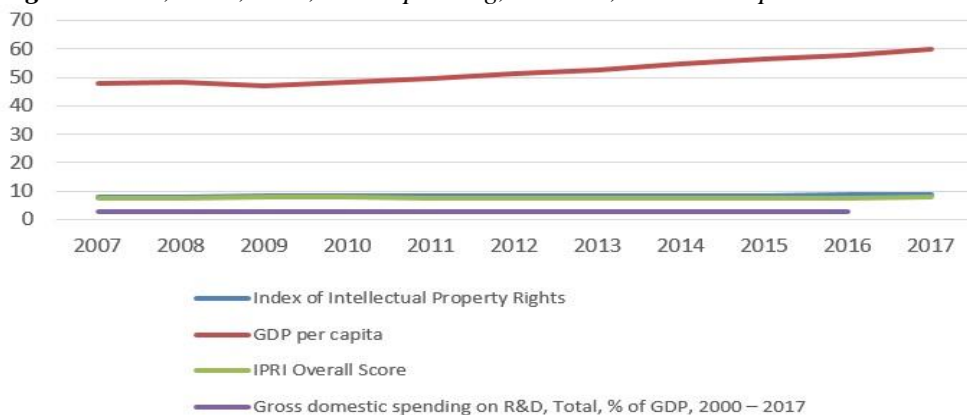
Table 3. *Correlation between indicators, Russia*

Year	Index of Intellectual Property Rights (IPR)	GDP per capital (GDP)	IPRI Overall Score (IPRI)	Gross domestic spending on R&D, % of GDP, 2000-2017 (R&D)
2007	3.710	9.755	3.248	1.036
2008	3.700	12.472	3.200	0.970
2009	4.342	9.181	4.104	1.162
2010	4.583	11.445	4.299	1.049
2011	5.000	14.321	4.600	1.013
2012	4.800	15.411	4.500	1.027
2013	4.900	15.997	4.500	1.025
2014	4.767	14.355	4.800	1.070
2015	4.841	9.510	4.548	1.099
2016	4.841	8.900	4.579	1.097
2017	4.943	10.956	4.043	
Correlation coefficient	IPR vs GDP 0.308	GDP vs IPRI 0.322	IPR vs R&D 0.246	IPRI vs R&D 0.357

The increase in turnover and competitiveness is provided by the growth in the number of issued patents allowing the organization to form a portfolio of patents in order to maximize the exclusive rights to dispose intellectual property and to receive extra money from the sale of licenses. The global license market develops dynamically: the annual growth rate of license payments is over 10%. However, although 88% of companies' sale licenses for commercialization, there are other ways to commercialize things (Table 4).

Although licensing of intellectual property rights is estimated as more profitable than sales (assignment of rights), franchising comes first in terms of effectiveness (Table 5).

The relationship between the environment of innovation and intellectual property, the coordinated effect of the latter on innovation and a stepwise economic development leave a footprint on the economic security of business entities. A struggle with unfair competition is a necessary attribute of innovation-driven development, which can be done using a set of measures, including legal protection of intellectual property, patenting and licensing of such, and the use of intellectual property in personal products with the provision of confidentiality (Ibidunni *et al.*, 2018).

Figure 6. IPR, GDP, IPRI, R&D spending, Russia, behavioral pattern**Figure 7.** IPR, GDP, IPRI, R&D spending, the USA, behavioral pattern**Table 4.** IPR commercialization methods

Method	Application Rate, %
creating alliances or other partnerships	61
doing joint venture deals	61
selling objects of intellectual property	38
creating special business structures	24
selling business structures	21
attracting foreign investment	17
franchising	16

Table 5. IPR commercialization methods by effectiveness

Method	Effectiveness
franchising	8.3
creating special business structures	7.2
doing joint venture deals	6.9

creating alliances or other partnerships	6.8
attracting foreign investment	6.8
licensing	6.7
selling business structures	6.1
selling exclusive rights	5.8

To stimulate the creation of innovative intellectual property products in Russia, the financing issue should be resolved first. This implies the provision of innovation incentives plus the creation of conditions for attracting grant funds and business angels. The most important condition here is the regulatory framework improvement. Aside from that, partnership between universities and private producers must be strengthened for better implementation of innovations (Akhmetshin *et al.*, 2017). The licensing mechanism should also be improved, and the technology transfer should be activated.

4. Discussion

Innovations are one of drives in effective development of small business (Bibarsov *et al.*, 2017; Mirazizov *et al.*, 2018). Although the development of special institutions, such as tech innovation zones, innovation centers and technoparks, is not a solution to the problem of transition to an innovation-driven development, it contributes to innovation capacity building (Mansor *et al.*, 2018). In small business, the share of innovative products plus innovative work and services is less than 10% (Bibarsov *et al.*, 2017). The use of methodology for improving the innovative forms of small enterprises is a necessary direction of economic promotion in Russia, which will allow it to get on a global innovation-driven path of development.

From the experience of developed countries, one can tell that venture capital should be the source of funding for innovative business plans and pilot projects (Shakirtkhanov, 2017). At present, there is an urgent need for a new investment model of development that would encompass venture funds.

Investments can be attracted and risks reduced only through the motivation of participants in the innovation process. Thus, the possibilities of interaction between universities, companies and government agencies, aimed at the support of innovations through the exchange of intellectual property rights, are crucial to study (Salitskaya, 2017; Akhmetshin *et al.*, 2017). This may affect the innovation strategy of modern companies.

The study of innovative technologies as a factor of national development indicates a lack of an integrated conceptually significant system of measures in the uniformed services, in civil society, in the business and academic communities that would contribute to the formation and development of venture entrepreneurship (Dobrenkov, *et al.*, 2017). Unsystematic and spontaneous support without any strategic benchmarks that are commonly applied by various government agencies to

small innovative enterprises leads to a collision of various development mechanisms, causing an inefficient use of internal sources.

5. Conclusion

This article analyzed some indicators of national economic development of Russia. As it was revealed, in Russia, investments in innovations are 2-3 times less than in the USA and Finland, but remain at the level of 1% of GDP. A correlation analysis was carried out, which, according to the research hypothesis, was supposed to confirm a directly proportional relationship between R&D spending and the IPRI scores. However, it turned out that neither IPRI nor IPR can adequately reflect the level of innovation-driven development of the country.

Thus, the statement of facts about negative phenomena in the environment of innovation and about the lack of intellectual property penetration into this environment alone cannot contribute to economic improvement in the Russian Federation. Effective good proposals are needed for the in-depth penetration of market principles and economic mechanisms into all spheres of production and science, regardless of the form of ownership, branches of production and knowledge. At this point, the following is needed:

- ✓ using of more specific forms of financing: concessional lending, grants, venture capital development, encouragement of business angels, especially in small and medium-size businesses;
- ✓ improving of regulatory and legal framework by removing the conflict of laws;
- ✓ increasing of marketability of highly intellectual, knowledge-intensive production by creating conditions for innovation market performance, strengthening of partnership between universities and private producers;
- ✓ adapting of infrastructure (information, consulting, education, etc.) to the long-term innovative growth of national economy;
- ✓ strengthening of scientific and technical propaganda by creating specialized headings in media and on local and state television channels;
- ✓ improving of licensing mechanism, activating of technology transfer and marketing research, and providing of government financial support to innovatively active business entities.

These measures are expected to have a long-term effect, to enhance national innovation-driven development and to ensure a high long-term international competitive status of the country on the global market.

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