Institutional Features of the Russian Intellectual Property Market

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Abstract—While the demand of Russian industry for advanced developments has significantly increased, formation, formalization and implementation of the results of intellectual activity (RIA) into the production processes have become especially critical. Institutional features of the Russian intellectual property market, which to a large extent determine the vector of its development, takes a special place in increasing its competitiveness. The article analyzes the topical factors that influence the effectiveness of the activity on RIA creation. Their characteristics are given, and the degree of institutional factors influencing the Russian intellectual property market are determined. The global experience of the intellectual property market stimulating is considered. Chinese and European experience is analyzed, where patent activity has been most growing. The article considers and suggests approaches to strengthening the competitiveness of intellectual property objects created in Russia.

Keywords—intellectual property, institutional features, competitiveness, cognitive model, results of intellectual activity, innovation.

I. INTRODUCTION

Today, the Global Innovation Index (GII) is the key indicator of the country’s innovation activities, which is annually published in the GLOBALINNOVATIONINDEX.ORG report [17]. According to this rating, in 2017 Russia took 45th place (against 62nd in 2013), which is caused by a serious lag in the innovations resource base and their weak performance. At the same time, the authors of the report draw attention to Russia’s high positions in new knowledge generation and R&D.

Considering innovation activities in absolute figures, it should be noted that patent activity in Russia increased by almost 40% from 2001 to 2015. However, the number of patent applications in Russia fell by 43% in comparison with the global total. Thus, today Russia takes only 10th place in the world, and this indicator continues to fall. [7] The decline comes at the same time as the global intellectual property market is increasing around 10% annually, according to the Center for Strategic Research, that is more than 3 times higher than the 3.6% annual world economy growth rate published by the Organization for Economic Cooperation and Development (OECD) [8]

However, the competitiveness of Russian RIA in the world market still remains the most critical issue. The dynamics of transactions with Russian RIA over the past 10 years shows that their commercial attractiveness has decreased by 40%, while the number of developments reaching the commercial implementation stage has not exceeded 12%. [12]

All the above-mentioned problems are closely related to the specifics of the Russian intellectual property market and institutional factors that significantly influence it and the competitiveness of the Russian RIA in general.

II. METHODOLOGY

Bibliographic analysis, scientific abstraction, logical analysis, systematization methods, comparative analysis are among the general scientific methods which were used in the research. Also, economic and mathematical modelling, in particular, cognitive modelling, system-dynamic modelling, and weighted graphs were applied in the interest of the research. [13] This approach allows analyzing the systems under considerable uncertainty of factors affecting them. The approach is described in detail in the context of calculating the cost of intellectual property in [21].

Intellectual property markets research remains a highly topical issue in the global scientific community, in particular, the bibliographic analysis of the AEA Econlit database shows that the number of publications devoted to the intellectual property markets research has grown by more than 70% over the past 10 years [2]. The same trend has continued by the Russian scientific community. According to eLibrary, the number of thematic publications has increased by 40% over the corresponding period of time. [3]

A huge number of research works are devoted to financing and legal support of the intellectual property markets. [15,8,10]

With regard to the analysis of the intellectual property markets economic development, it can be said that a regional approach has prevailed until recently, but in the last five years the analysis methods have changed, and now a sector approach is recognized as the most promising method. So, the United States and Britain were one of the first countries which used to apply it in practice, and soon the European Union followed their example. [4] When the innovation activity center has shifted to Asia, a sector approach began to prevail in China and South Korea [20].

It should be mentioned that these methods mostly touch protection and financing of intellectual property markets, but they are insufficient to conduct a comprehensive cross-sectoral macroeconomic analysis of the market, which allows formulat-
ing the main mechanisms of changes and economic growth in the market. Thus, it can be said that the novelty of the analysis given in the article is the formation of an inter-branch forecast model that allows identifying potential points of intellectual property market growth in Russia based on its institutional features.

III. INSTITUTIONAL FEATURES

Institutional features of the intellectual property markets development have been studied in a large number of works by Russian and foreign scientists (G. Bromberg, A. Shamurzaeva, V. Dozortsev, P. Drucker, A. Shumkina, L. Jacobson, etc.). Institutional features of the Russian intellectual property market development are covered in the works of L.A. Kuzentsova [9], A.E. Stepanova [16], M.N. Myznikova [12], V.A. Karpenko [7] and other [6].

Analyzed works listed above allowed the author to single out a group of institutional factors influencing the Russian intellectual property market. Let’s consider them in more detail:

_legal environment_. It determined how the results of intellectual activity are secured in domestic and foreign markets. The author believes the impact of this factor is rather ambiguous, since, despite the fact that it is important to protect the results of intellectual property, a “patent bubble” inflating has been disputed for a number of years, which has become the result of transnational companies parasitizing on their interests’ legal protection [11].

Social environment. This factor affects the adoption of innovations by the society, as well as characterizes the interest of the population to be employed in science-intensive industries. Today, according to statistics, only 0.8% of university graduates are ready to get involved in scientific activities and RIA development. [12]

State support. The world practice shows, as described above, that efficiency and distribution of financing for R&D is analyzed by a sector method, but a regional method of economic development has been still used in Russia. [1]

Investments. Today, the share of R&D costs is about 4-6% of GDP in the leading innovation countries, while in Russia this indicator makes only 1%. At the same time, according to the world practice, the private sector accounts for 60% of investment, and state sector represents about 25% of investment in the leading countries. In Russia 80% of funds are invested by the state, and only about 12% are invested by the private sector. [14]

"Piracy" (unauthorized use of the results of intellectual activity). The weak legal basis for the RIA protection and insufficiently rigid state policy in the protection of rights to RIA have brought Russia to the group of countries that are most loyal to piracy.

Mediation. The institute for mediation in the intellectual property market is quite developed all over the world and defines its vector of development.

External competition. It is a serious deterrent to the local market.

Consumer market. The market which consumes the final product and forms the initial request for innovation.

Producer market. The market, through which innovations are brought to the consumer market in the form of a finished product.

Relying on this group of factors, using sign-oriented graphs, the author presented the intellectual property market in the form of a system where the RIA competitive advantage is the key factor. (Figure 1.)

Fig. 1. The cognitive scheme of the RIA competitiveness (made by the author).
IV. RESULTS

Figure 1 shows that this approach makes it possible to discover not only direct links between the RIA competitiveness with the factors affecting it or factors affecting each other but also to study the indirect effect of one factor on other factors or groups of factors.

The received digraph has several semi-circuits of positive and negative feedback. Therefore, to evaluate the effect of changes in the values of some vertices on changes in the values of others, the impulse process, described by F.S. Roberts was applied. [13]

The vertices of such a graph \( \{F_i\} \) correspond to factors that describe a certain situation, and the edges \( \{Q_k\} \) connecting them correspond to the causal relationship of the factors studied. Let’s each vertex of Fi has a certain value \( s_i(t) \in R \), assuming that the time \( t \) equals to the discrete values \( t = 0,1,2,3 \ldots \). Thus, the value of the vertex is a discrete time function \( s_i : Z \rightarrow R \).

Let’s check the obtained model for the process stability. For this purpose, the initial value at all vertices will be equal to 1, and the key factor will be equal to 0. Figure 2 shows the process.

![Fig. 2. Change in RIA competitiveness by steps of the impulse process.](image)

The further purpose of this study is to analyze and search for the individual factors significance in the model of the impact on RIA competitiveness, as well as to construct an inter-sectoral adjacency matrix that allows quantitative forecasting of changes in the intellectual property market volume over time.

REFERENCES


