

Intellectual property as the basis of forming institutes of cooperation in the Resilient Regions (Innovation Export: a century since)

S.M. Nikitenko, M.A. Mesyats

The main challenge for the world's economies today is the process of building national and regional innovation systems. The methodological basis for this is the Triple Helix Model, describing the directions and forms of cooperation between science, businesses and government in the innovation sphere and its "evolution" sequel - the Quadruple-Helix Model, which includes the civil society along with the three listed participants.

Historically, in Russia the formation of the national innovation system has proceeded on the basis of close cooperation between government, business and science. It was particularly important for the resilient regions. So, in 1920 in Russia, in the Kemerovo Region the Autonomous Industrial Colony named Kuzbass was created. It was led by a Dutchman, Sebald Rutgers. The Industrial Colony acted on the basis of the foreign concessions, which allowed to develop the principles and conditions for foreign concessions and foreign technical assistance admission to the economy, and mixed-stock companies creation. The colony has given the impetus to the development of modern industry in the region through the use of advanced technology, foreign technology and foreign experts' competencies. The colonists launched the first in Siberia coke plant, carried out the electrification of villages, set up mechanized agricultural farms. The innovations such as the telegraph, radio, running water came into the life of Siberians. A Dutch architect, Van Lochem, supervised the construction of the first houses with communal facilities with the use of new building materials and technologies. It was a vivid example of the practice of innovation intellectual component "export" between the two countries with the active participation of government, business and science.

Since then the conditions have changed. New organizational and economic diffusion (transfer) tools of intellectual activity as the basis for municipalities' innovative development have appeared in the Resilient Regions. Today, technology transfer takes into account the "host regions," their resource security, economic, environmental and social component. The synergistic effect plays an important role due to innovative technologies complementarity, the latter is particularly important for the Resilient Regions.

Practice has shown that harmonization on the basis of pledge mechanisms of intellectual property management processes can significantly speed up the innovation implementation process and serve the equalization of socio-economic development levels of Resilient Region individual subjects and their economy promotion in an innovative way. This is a new phenomenon in Russia. Therefore, up-to-date Dutch experience and the experience of other European countries in the intellectual property management, including intellectual property rights as a pledged asset, are so important for Russia.

In Russia the pledge as a way to enforce the obligations came much later, in comparison with countries of Romano-Germanic law system. However, in recent years an institutional leap towards the formation of institutions of investment in intellectual property has been taken in Russia. As a result, in 2016 about 20 leading Russian banks concluded 81 pledge agreements over the exclusive rights to trademarks, inventions, utility models and industrial designs. The role of regional funds to support small and medium-sized innovative companies providing on behalf of the government pledges to commercial banks has been growing.

According to the Encyclopedia of a Lawyer, intellectual property (IP) is an exclusive right of a citizen or a legal entity to the results of intellectual activity and the means of individualization of a legal entity, products, works or services that are equal to them (company name, trademark or service mark). The main purpose of commercial use of intellectual property objects (IPOs) is to generate profit. The objects of transactions are not the objects themselves, but the property rights to these objects, including patents and patent applications. They are the assets that are used as pledge for loans or other loan agreements. Formal intellectual property rights (patents and trademarks that are objects of the official registration system) and informal (copyright) are considered to be Intellectual property rights for the purposes of IP lending. Formal intellectual property rights protect the monopoly and, as a rule, they do not exist for as long as some informal intellectual property rights. In the case of registered trademarks, the rights may be used for an indefinite period, provided that the rights to IP continue to be used [3].

Such assets are especially valuable for businesses engaged in research and results commercializing. In this situation, the cost of a patent portfolio can many times exceed the cost of other assets of a company and act as the most valuable asset. To date, in developed countries investment in IPO accounts for more than 15% of GDP and almost half of all investments is made in fixed capital. The share of investment in IPO in the largest international corporations is rapidly growing [1]. So, if in the early 80's of the 20th century the share of intangible assets in the structure of the cost of American companies accounted for no more than 40%, then at the beginning of the 21st century their share exceeded 70%. At the same time, 30-40% of non-material property was not identified and reflected in corporate balances. This allows to say that the share of intangible assets can actually be even higher. A similar picture is typical for West European corporations [6]. According to Interbrand consulting company, tangible and intangible assets of the world well-known companies are correlated as follows: British Petroleum - 30:70, IBM-17: 83, Coca-Cola - 4:96. For comparison, in Russia, the volume of investment in intellectual property objects has not exceeded 1% so far [7].

It is important to note that pledge transactions involving the use of IPOs rights along with benefits carry potential high risks for the parties involved. To reduce them, countries are developing special legislation regulating transactions with IPO rights; companies and banks use such protection mechanisms as a preliminary assessment of IPOs market value, determining the best way to calculate depreciation charges and depreciation periods, revaluing the cost, using IPO as a pledge in combination with other assets of the enterprise, preliminary expert analysis of the economic efficiency of the IPO use, etc.

In addition, many countries provide for the possibility of registering transactions with industrial property in the public registry, which guarantees the rights of parties involved in the transaction. The French Intellectual Property Code defines the rules regarding the pledge of the right to use the software. Article L 132-34 of this Code provides for mandatory registration of a pledge in the special register of the National Institute of Industrial Property (INPI) [8; 9; 10; 12]. In Austria and the United States, the exclusive rights are not the subject of the pledge, but the patent itself as movable property is. A pledge transaction must be registered with the Patent Office [5].

In the case of a pledge over formal intellectual property rights the EU countries take into account the following points:

- public registers operate a priority system granting to the first applicant a priority pledge right over Formal IP Rights;
- formalities for creating the pledge over the Formal IP Rights are regulated by the law of the country in which the pledge right needs to take effect;

- the Formal IP Rights remain vested in the company-borrower, which will continue to be responsible for the maintenance of the Formal IP Rights.
- formalities for creating a pledge over the Formal IP Rights are comparable to the ones that are traditionally provided for the immovable assets (real properties) [10].

National specific features of legal regulation and registration of pledge in some EU countries are given in Table 1.

Table 1

Characteristics of pledge registration for obtaining cash loans in selected EU countries

Country	Pledge object	Legal provisions	Pledge Registration Authority
Britain	Patent or patent application	Section 33 of the Patents Act 1977	It is advised to register the pledge at the UK Intellectual Property Office. A failure to register the pledge at the UKIPO would mean that a subsequent assignee, licensee or pledgee of the patent would take free of the pledge, provided they were unaware of it.
Spain	Trademarks and patents as well as their registration requests	Spanish Patent and Trademarks Register (Article 46 of Law 17/2001; Articles 74 and 79 of Law 11/1986)	The security is binding against third parties of good faith if it is duly registered in the Spanish Patent and Trademarks Register
Italy	Trademarks and patents	Articles 138 and 140 of the Italian Code on Intellectual Property (Legislative Decree no. 30/2005)30/2005)	Pledge is effective upon registration with UIBM (Italian Registrar for Trademarks and Patents)
Holland	Rights to databases, industrial designs, patents, trademarks and trade names	The Civil Code of the Netherlands, book 3 (articles 3: 231 (1), 3: 234, 3: 246 (4), 3: 248, 3: 249, 3: 250, 3: 252, 3: 255, 3: 68)	Each IP pledge agreement must be registered with the tax authorities of the Netherlands in order to create a valid pledge right. In addition, the pledge agreement must be registered in the corresponding registry of the IP of the Netherlands (each registry has its own requirements for registration)
France	Trademarks and patents	French Code of Intellectual Property French Commercial Code (Article L 142-1 governs IPO pledge; following article L 143-17, pledge is effective upon registration with INPI	Pledge is effective upon registration with INPI (National Institute for Industrial Property)

Source: compiled by the author on the basis of [8; 9; 10; 11; 12].

In addition to the specifics of pledge registration, provided in Table 1, there are additional requirements for the registration in the UK. For example, when the pledger is a UK company it is necessary for the pledge to be registered at Companies House within 21 days of its creation.

Section 860(7) (i) of the Companies Act 2006 makes clear that a pledge over any intellectual property should be registered. The process of registering a pledge at Companies House involves submitting a prescribed form together with a certified copy of the pledge document to Companies House, which can be done on-line through the Companies House portal. Companies House registration costs are minimal, amounting to a registration fee of £13 for each registration. Failure to register at Companies House within the 21-day time limit results in the pledge being void and unenforceable against a liquidator or administrator or any creditor of the pledger, as well as potentially causing the funds secured becoming immediately repayable. As regards pledgers outside the UK, or non-UK patents, local advice as to perfection requirements will generally need to be obtained [12].

In its turn, the practice of the Netherlands shows that registration of a pledge agreement in the relevant IP registry is not always necessary for the actual creation of IP rights pledge (this depends on the right to IP) [11].

In the UK, specialists identify two basic methods of creating financial pledge over patents under English law (Table 2).

Table 2

Characteristics of existing methods of creating financial pledge over patents in the UK

Criteria	Pledge of Patents	Equitable pledge agreement
Organizational characteristics of pledge relations	There is a transfer of the patent right to the pledge, subject to the pledger's right to have the patents re-assigned on repayment of the loan and a licence back to the pledger.	There needs to be a valid and enforceable agreement between the pledger and the pledgee that sets out an intention to create a pledge interest. No transfer of title to the relevant patents is required.
Advantages	It is the safest variant for a pledgee.	In practice, it is often more convenient for both parties.
Disadvantages	It is often considered too cumbersome for lenders.	In certain jurisdictions a lender may still insist on the transfer of patent rights (patents are offered as pledge) because the law of the country in which the patent is registered permits the transfer of patent rights, but does not recognise a pledge agreement.

Source: compiled by the author on the basis of [12]

In accordance with the pledge practice of Great Britain, the pledger will need to consider and estimate carefully the consequences of entering into the pledge agreement and scrutinise its terms. The pledgee will have the right to sell the patents in the event of a default by the pledger. If the pledgee has taken pledge over not just the patents but the other business assets, the pledgee may have other options too, such as the power to appoint an administrator with authority to run the business of the defaulting pledger. The pledgee will have the power to appoint a receiver to the patents which are subject to the pledge. Appointing a receiver is a procedure enabling the pledgee to sell the patents or collect the revenues derived from the patents in order to repay the secured debt on a default by the pledger. The pledgee will wish to ensure that the value of the pledged patents is maintained; in the agreement, it may seek to impose obligations on the pledger to comply with such a guarantee. The pledger would be well advised to seek to reserve the right to allow to lapse, or abandon, patents or patent applications it reasonably considers are no longer of value [12].

In most cases the pledger will want the freedom to continue to exploit the patent portfolio as part of its business. In this regard, it must make sure any pledge document does not its freedom to do this in any material way. It should be emphasized, that there is normally a community of interest between the pledger and pledgee in this context because the pledgee wants the business to generate revenue to repay the debt. Wherein, the pledger needs to bear in mind the fact that any future licensee will almost certainly become aware of the pledge over the patents (either from inspecting the relevant registers or as the consequence of seeking standard warranties as to the pledger's title and right to license free from encumbrance). The pledger has to negotiate the terms with the pledgee at the outset so as to make clear that any future licensee's interest is not at risk of being defeated by the pledgee exercising its right to sell the patents in the event of default on the loan. In such cases the pledger could offer as a compensation to the pledgee an access to the revenue generated by the licence either by agreeing to pay it directly to the pledgee or by giving the pledgee a pledge over the revenue stream itself [12].

The following principles of the EU regarding pledging intellectual property rights are mentioned. The Community Trade Marks (CTMs) system coexists with domestic systems. The CTM system is valid and enforceable across the European Union as a whole territory (and any new Member State).

Registration of trademarks with the Office for Harmonization in the Internal Market based in Alicante, Spain (OHIM) allows lenders/advisors to deal with: a single Administrative Centre to be checked; a single filing procedure to be carried on; a priority regime valid in all the Member States.

The effects of CTMS are governed by the provisions of EC Council Regulation No. 207/2009 (2009 EC Regulation). Article 19 of the 2009 EC Regulation expressly provides for pledge over CTMs:

1. CTMs may, independently of the undertaking, be given as a pledge or be the subject of rights in rem;
2. Upon request of one of the parties, pledged CTMs or rights in rem shall be entered in the Register of Community Trademarks (Register) and published on the Community Trade Marks Bulletin (Bulletin).

Within the framework of the European Patent System, providing for the procedure for granting the European Patent (EP), which is administered by the European Patent Office with the head office in Munich, Germany (EPO) on the basis of international rules set up in Munich in 1973 (European Patent Convention; latest update in 2010, 14th edition) (Munich EP Convention). Under the EP regime, EPs may be granted as pledge (see Article 71 of the European Patent Convention) and the relevant pledge needs to be filed with the EPO. National laws apply in relation to the effect and validity of the pledges, including formalities in order to oppose the right to third party at the local level (see Articles 74 of the European Patent Convention) [10].

In Russia, the experience of IPO pledge transactions is not big. This version of bank lending in the country began to be used only in 2009 and is at the initial stage of development (Table 3). The conclusion of any contracts (including pledge agreements) related to the disposal of an exclusive right to patented objects of intellectual property and trademarks in Russia are the subject to registration in Rospatent [4].

Table 3

Number of IPO pledge agreements registered by Rospatent in 2009-2016

	2009	2010	2011	2012	2013	2014	2015	2016
Pledge agreements over exclusive rights to the results of intellectual activity	-	8	16	17	20	15	13	9
Pledge agreements over exclusive rights to trademarks	16	62	52	24	60	40	58	72
Number of trademarks referring to which the pledge agreements are concluded	н/д	195	280	82	191	258	362	689
Total number of pledge agreements over exclusive rights to IPOs	16	70	68	41	80	55	71	81

Source: compiled by the author on the basis of [4]

The main constraint on the issue of extending the practice of bank lending against IPOs pledge is the difficulty in assessing the value of pledged assets as intangible assets [2]. From the author's point of view, the existing Russian experience with the use of IPOs as a pledge for obtaining credit and applying the experience of European countries today can serve as a solid foundation for activating lending in the banking services market; and the pledge over IP rights can be a promising tool for the development of companies actively engaged in the implementation of intellectual activity results.

Thus, the pledge over intellectual property rights is an opportunity to build a close and, most importantly, mutually beneficial interaction between science and business, which are the two participants in the Quadruple-Helix Model of building national and regional innovation systems. The third party is government. The role of government, when using the mechanism of pledging intellectual property rights as the starting point of innovative development of the economy is to ensure, including the legislative provision, the security of pledge transactions. Government that acts as a guarantor in an IPO pledge transaction significantly reduces the risks of the pledgee, thereby increasing the attractiveness of such transactions.

Government influences pledge relations through economic and administrative methods which are based on the guarantee mechanism. The basis of legal regulation of pledge relations is the government guarantees of pledgee's rights which are called upon to provide an adequate protection in case of owners' interests violation while carrying out innovative activities. Wherein, government, as a rule, guarantees first of all the stability of rights, which is very important in long-term relations.

In order to define the meaning of "government guarantee mechanism of pledging intellectual property objects" concept, it must be borne in mind that these are a form of social guarantees. These mean material and legal means that ensure the realization of the social and economic rights of society members. Consequently, legal guarantees of investment are legal means ensuring the implementation of the rights of the parties.

In the legal sense, the concept of "guarantee" is defined as a system for ensuring the reality of rights established by law. This system includes ensuring the monitoring of compliance with the legislation, the activities of relevant government authorities, as well as legislative norms that ensure the stability of public relations.

Thus, the essence of guarantees provided by national legislation is to not violate the rights of the interacting parties and ensure their implementation. The peculiarity of these guarantees lies in the fact that they come from government itself.

Government assumes the obligation to perform certain actions in relation to the pledger or refrain from actions that violate its rights and legitimate interests. The essence of the guarantee mechanism is the specific obligations of the government to ensure the security of the pledgee's property. If we analyze the state of Russia's notion of "government guarantees as the basis for ensuring a secure IPO pledge", the following should be highlighted: IPO is a specific object, with a complex estimation of its value and, therefore, very risky.

For full-fledged government involvement as a guarantor, when conducting IPO pledge transactions between science and business, it is necessary:

- to expand the pledge law on the basis of the world's leading practices, international agreements on the forms and methods of protecting the rights of participants in IPO pledge transactions;

- to define clearly, preferably legally, the ultimate goal of government actions in this area, which is ensuring the security of participants' property in IPO pledge transactions and the actual realization of their rights as well.

After implementing the above measures, we will get a clear and transparent model of interaction between science, business and government (authorities) in creating innovative growth points based on the mechanism of IPO rights pledging.

At the same time, in Quadruple-Helix Model of building national and regional innovation systems, there is another participant. It is a civil society. Within the framework of the Quadruple-Helix Model concept, a society is understood as the public based on the media and culture. Culture is understood as values, traditions, etc. Media is understood as television, the Internet, newspapers, as well as news, social networks, communication, etc. The role of a society is reflected in the creation of public organizations (parties, unions, and associations) and their activities.

Within the innovation process, it is necessary that the relationships between government, business and society are balanced. The imbalance of these relationships leads to the inefficiency of the innovation process. In the conditions of totalitarianism it is difficult to carry out innovative activities because government dictates to the business what and in what volumes to produce, therefore the enterprises do not have the opportunity to realize the ideas of new products. Anarchy also does not promote innovation. At anarchy it is generally difficult to carry out production. In the situation of the "economy of individuals" it is just as difficult to innovate. This is due to the fact that the managers of enterprises are not aimed at the prosperity of the enterprises they work for. Their personal benefit is more important for them. They will be more willing to steal the enterprise's property than improving the production process, especially, creating new products.

Government, science, business and society are not separate subsystems. The same participant can be an element of two of the listed subsystems. For example, enterprises that own a significant share of government participation should be classified as both government and business; commercial structures that are owned by public organizations can be attributed as intersection of society and business. The intersection of such spheres as society and government covers the specifics of the functioning of elective authorities, parties, and the electoral system.

If we consider innovation based on the example of an enterprise, it is worthwhile to say that modernization development depends on the involvement of employees in the work process, the use of experience and abilities of employees, as well as motivation and incentives. The more employees of the company are involved in the innovation process, and each of these employees is motivated to innovate, the better the result is [14]. The same can be said about the process within the framework of the Quadruple-Helix Model concept. Only with the participation of all the participants the greatest economic effect can be achieved.

Thus, we can say that "society" is inseparable from the "three" which is science, business and government; in case of its isolation it is impossible to consider the interaction mechanisms of the "three" in any sphere, including the sphere of IPO pledges.

The role of society in developing innovative systems on the basis of IPO pledge relations is enormous, because it is connected with all the other participants in the Quadruple helix concept. IPOs are created by science for the needs of society; there is a relationship between society and science. Business in assessing the cost of IPOs will always take into account the attitude of society to the product or service created or provided using IPOs; there is a relationship between society and business. Government (authorities) in the development of guarantee mechanisms legislation within the framework of IPO pledge transactions will rely on representatives of the society (for example, deputies of various levels); there is a relationship between society and government (authorities).

Summarizing the above, we can conclude the following. Holding IPO pledge transactions accelerates the pace of creating innovative systems in the economy, especially in the Resilient Regions. These transactions take place within the framework of the Quadruple-Helix Model concept that involves four participants. They are science which creates, business which invests, government which guarantees the observance of the participants' rights and society which determines the type of IPOs and the rules of interaction between science, business and government.

REFERENCES

- [1] Goosen E.V. Prospects for the development of PPP projects in the Fuel and Energy Complex of Russia: assessment and current state. Fundamental research. No. 11-2, 362-366, 2016.
- [2] Nikitenko S.M. The general state and development trends of business and science joint projects in the sphere of productive sectors of the resource producing region economy. Fundamental research. No. 11 (Part 1), 196-199, 2016.
- [3] Nikitenko S.M., Goosen E.V, Klishin V.I. Experience of interaction of institutions of academic science with business on the principles of PPP (on the example of the Institute of Coal, SB RAS, Kemerovo). Innovations. No. 9 (179), 9-19, 2013.
- [4] Report on the Rospatent activities in 2015. - Available at: <http://www.rupto.ru/about/reports/2015> (accessed: 08.02.2017).
- [5] Ruzakova O. Exclusive rights pledge agreement. - Available at: http://superpressa.ru/index.php?Itemid=82&id=105&option=com_content&task=view (accessed: 20.02.2017).
- [6] Khotinskaya A.V. Intangible assets as marketing resource of the company. - Available at: http://elibrary.ru/download/elibrary_13288643_66954171.pdf
- [7] Anatomy of Growth. Top Growing Brands. 2016. - Available at: <http://interbrand.com/best-brands/best-global-brands/2016/>
- [8] Code de la propriété intellectuelle (version consolidée au 23 février 2015). - Available at: http://www.wipo.int/wipolex/en/text.jsp?file_id=363403 (accessed: 29.01.2017).
- [9] Dutch Civil Code, Book 3. - Available at: <http://www.dutchcivillaw.com> (accessed: 08.02.2017).
- [10] Livio Esposizione. IP rights and loan financing: European perspective. - Available at: http://techlaw.org/wp-content/uploads/2011/05/110426_IP-rights-and-loan-financing_1.pdf?x13654 (accessed: 29.01.2017).

[11] Loans & Secured Financing 2016 / Contributing editor George E. Zobitz Cravath, Swaine & Moore LLP. - London: Law Business Research Ltd, 120, 2016.

[12] Marshall J., Caldwell R., Cain B. Taking security over patents. - Available at: <https://united-kingdom.taylorwessing.com/synapse/march14.html> (accessed: 29.01.2017).

[13] Nikitenko S. M., Goosen E. V., Sablin K. S. Perspectives of the Comprehensive Mineral Exploitation Based on the Principles of the Public-Private Partnership. IOP Conference Series: Earth and Environmental Science. International Scientific and Research Conference on Knowledge-Based Technologies in Development and Utilization of Mineral Resources, 012001.45, 2016

[14] Lugovaya E.S. Innovations as the basis for modernization of modern society. Bulletin of Volgograd University, Ser. 7, Philos., № 2 (17), 103-108, 105, 2012- Available at: http://www.volsu.ru/struct/generalservices/publish/vestniki/lastmagazine/ser-7-philosophy-2-17-2012/2_%D0%9B%D1%83%D0% B3% D0% BE% D0% B2% D0% B0% D1% 8F.pdf (accessed: 14.11.14)