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Triple Helix as a Social and Legal Phenomenon of Regional Innovative Development: on the Example of the Penza Region as an Average Subject of the Russian Federation

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Abstract The experience of developed countries (Germany, USA, Scandinavia) shows that scientific, technical and innovation activities contribute to modernization of the economy, and are a stabilizing factor in social development. Coordination and structuring of such a relationship at the legislative level is the basis of strategic planning of Russia and its regions. Today, the creation of new constitutional, social and legal foundations of strategic development affects every constituent entity of the Russian Federation. The article analyses the need to fill a gap in legal research, the development of scientific and theoretical provisions related to innovation. The Penza region is a typical constituent entity of the Russian Federation, taking into account the peculiarities of the geographical location, the number and well-being of the population, the development of the business sector, and the level of scientific potential. Standard socio-economic problems of the state, as well as the resulting status of innovative development are characteristic for the Penza region. In the article particular attention is paid to the non-hierarchical way of coordinating "government-business-science" relations in the context of the Triple Helix model, which plays a key role in the innovation process as a social and legal mechanism of development of economy.

Keywords: • law • government • science • cluster • economy • strategy • triple helix model of innovation •

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1 Introduction

Without both existing and properly executed regulations, it is impossible to improve all economic and innovative sectors in connection with the development of the information and innovation society (Strand, Ivanova and Leydesdorff, 2017: 963–988). However, considering the regulatory framework as the basis of all processes and the "foundation" of any action, it should be noted that many issues are only now being legislated, and much of the legislation is still in its infancy. The so called Triple Helix of the "government-business-science" tripartite is an example of such a process. This mechanism has already been considered from an economic point of view (e.g. Carayannis, Grigoroudis, Sindakis and Walter, 2014: 440–463), but not from a legal standpoint.

At the beginning of the twenty' first century G. Etzkowitz, L. Leydesdorff, D. Meissner and other academic economists (Leydesdorff, 2012: 25–35; Meissner, 2014: 34–56) first introduced the concept of the Triple Helix. The Triple Helix is a collaboration of three typical institutional spheres representing science, business, and the state, Silicon Valley[1] being a typical example.

It is worth noting that the Triple Helix model is applicable exclusively to regions but not to state innovation policy. At present, the concept of a radical transformation of regions from geographic, political, and cultural actors into entities with the Triple Helix model that advance innovation initiatives, is clearly visible (Carayannis, Grigoroudis, 2016: 635–655). The science sector occupies a leading position in such a system (Ankrah, Burgess, Grimshaw, Shaw, 2013: 50–65) due to the increasing number of people who want to secure a decent education (Midtkandal, Sörvik, 2012). Thus, there is a process of creating a new economy based on intellectual capital (Dudin, Lyasnikov, Senin, 2014: 1256).

In conditions of transformation in economics into an innovative social orientation model, and in order for regional legislation to be clearly oriented, it is important to analyse the legislative consolidation of the innovative development of the Penza region. Since 2015, the Penza region has been included in the top ten regions of the

[1] For more information about Silicon Valley's role in business development, see Almeida, Etzkowitz, Mello, 2010: 206–224.

innovation development ranking of the constituent entities of the Russian Federation compiled by the Institute for Statistical Studies and Economics of Knowledge of the Higher School of Economics (ISSEK HSE).

2 Research objectives

On the example of analysis of legislative acts and statistical data of the Penza region as a typical subject of the Russian Federation, the research aims to trace the interaction of government, business and science, as an integral, unified system, in which each sphere intersects, and does not exist "in parallel". In this regard, the purpose of this article is to show the successful innovation strategy of the statutory legislation of the Penza region, resulting from the adoption of the Law of the Penza region of October 25, 2010 No. 1972-ZPO "On Innovation Activities in the Penza Region". The absence of fundamental changes to the law and its successful implementation over an extended period of time indicate legal stability in the region (parity in the chain of "relevance-law" is observed), and control over the implementation of the adopted normative acts.

Determining the regulatory framework in the field of modernization of the Russian economy, in addition to references to various kinds of scientific and journalistic work based on an analysis of the established practice, is an integral part of state policy to implement innovation (Mathe, 2013: 131–137).

3 Methods

We employed dialectic materialism, a universal method for understanding reality, as the methodological basis for this research, together with some additional more particular scientific methods, namely: the study and analysis of literary sources related to the chosen topic and regulatory material; familiarization with court practice; formal logical analysis; the comparative legal method; the method of historical and legal analysis; and, the complex analysis method.

A theoretical basis of the study comprises works on philosophy, theory of state and law, international, constitutional, and other branches of law. A special emphasis is devoted to the problems of innovative development of the region, including social and legal, and economic characteristics of the Triple Helix model.

A regulatory basis for the research is formed by the following federal and regional legislative acts: Federal Law of August 23, 1996 No. 127-FZ "On Science and State Science and Technology Policy"; Federal Law of June 28, 2014 No. 172-FZ "On Strategic Planning in the Russian Federation"; Federal Law of June 29, 2015 No. 160-FZ "On the International Medical Cluster and Amendments to Certain Legislative Acts of the Russian Federation"; Resolution of the Government of the Russian Federation of July 31, 2015 No. 779 "On Industrial Clusters and Specialized Organizations of Industrial Clusters"; Decree of the Government of the Russian Federation of December 8, 2011 No. 2227-r "On Approval of the Strategy for Innovative Development of the Russian Federation for the Period up to 2020"; Law of the Penza Region of October 25, 2010 No. 1972-ZPO "On Innovation Activity in the Penza Region"; Resolution of the Government of the Penza region of October 03, 2012 No. 700-pP "On Approval of the Procedure for Granting Subsidies from the Budget of the Penza Region for the Creation and (or) Support of the Activities of Youth Innovation Creativity Centers"; Decree of the Government of the Penza Region of February 21, 2014 No. 83-rP "On Approval of the Strategy for Innovative Development of the Penza Region until 2021 and the Forecast Period until 2030".

The author has obtained and summarized statistical data on the operation of enterprises of the agro-industrial complex of the Penza region. In the course of the research, study included both the analytical materials on the strategic development of Russia and of a single subject of the Russian Federation and the Penza region. The empirical research materials used in the article are summarized in the conclusions.

4 Legal regulation of innovation as one of the important tools for the implementation of federal and regional innovation policy (using the example of the Penza region)

Innovation is a documented progressive engine of economic formation of the Russian Federation and its constituent entities. At its core are the activities that spawn creative, original ideas to help forge finished products, thus combining modernity and relevance (Gackstatter, Kotsemir, Meissner, 2014: 293–308; Shegelman, Shchukin, Vasilev, 2015: 112–118).

In these relationships, business and government were traditionally viewed as engines of industrial policy, however, over time, when advanced knowledge became easier and faster to implement in practice, the situation changed (Höglund, Linton, 2017: 69).

Today, business structures want to act exclusively in accordance with legal norms that provide certainty, developing their sector, thereby strengthening their region, and, in general, Russia. In addition, they have, rather, a supporting role in the development of scientific research.[2] The government, in turn, stands ready to support such aspirations, not only by providing funding but also by providing preferential ("cheap") loans, and convenient taxable bases. In this regard, it is necessary to create a unified legislative framework that promotes innovative development, as an organic systemically holistic phenomenon.

A similar policy is being pursued at the regional level, in particular, in the Penza region. To create both a favourable social and economic environment, as well as the institutional conditions for enhancing the innovative development of the economy, and ensuring its long-term competitiveness, the Government of the Penza region approved the Strategy for Innovative Development of the Penza Region until 2021 and the Forecast Period until 2030 by the Decree of February 21, 2014 No. 83-rP.

5 Social orientation of the Triple Helix model and innovative development of the country's economy

Social orientation plays an important role in the development of the Triple Helix model. The social orientation of the political, economic and legal systems of the Russian Federation in general, and the Penza region in particular, is achieved with the development of market relations, strengthening of administrative and judicial guarantees of the rights of private owners, the consolidation of the values of the post-industrial information society and, in particular, through the interaction of government, business and science, all of which combine to form a unified system within the framework of the concept of the Triple Helix. The proper and coordinated interaction between government, business and science contributes to overcoming a

[2] The Penza ″Rameev″ Technopark for High Technologies (2019), http://www.technopark-rameev.ru/technopark (21. 5. 2019).

variety of problematic and destructive forces such as the high level of polarization in the social and economic sphere, the inappropriate tendency to consumer lifestyle, and the growth of poverty while simultaneously increasing the responsibility of business in solving acute social problems.

Government, business and science stand together in a relationship we might call "dialectical unity", where together they interact to promote both the construction and implementation of sound social policy. In modern conditions, the realization of the principles of the social State and the transition of the Russian Federation to a socially oriented economy are impossible outside the innovative economy, without the legal and democratic organization of government, the awareness of state bodies and their officials of the priority of the social project, and in the absence of reliance on advanced scientific technologies.

In light of the above, the Triple Helix market model is the most effective. Accordingly, it is strongly recommended for the Russian Federation to quickly move away from the current administrative and command model of the organization of interaction between government, business and science, where 1) government dominates and directs other institutions and their activities; 2) initiatives come from the top down and 3) universities and research centers take on a subordinate role. On the contrary, the market model of the Triple Helix is characterized by the following advantageous features: 1) universities, business and government are equal partners; 2) their interaction is based on consensus and convergence of institutional spheres of their functioning; 3) each institutional sphere (universities and science, business, government) performs not only its traditional institutional functions, but also acquires new, additional functions. To solve the existing socio-economic problems in the regions of the Russian Federation requires not only directives from government, but also joint cooperation and the desire on the part of all institutional spheres-government, business and universities in the framework of the market innovation economy to work in a corroborative fashion. In sum, the regional Triple Helix model grows out of the space of knowledge, consensus and innovation.

6 Experience of realization of the Triple Helix phenomenon in the Penza region as atypical constituent entity of the Russian Federation

As a result of increased interaction between government, business and science at the level of the Penza region, additional employment is actively organized, the influx of the working-age population in the locality (villages, settlements, townships) increases, the social package is expanded, and corporate privileges are created. The agricultural field affects the interests of each person, and its formation is crucially determined by the economic development of the enterprise. The emphasis on the development of the agro-industrial sector in the Penza region was not accidental, but rather due not only to the peculiarity of soil and climatic conditions but also the economic and geographical position of the region. Agriculture is a priority in this region, and the food security of Russia is ensured by the development of the complex.

By way of example, the largest project in the Penza region, and one of the largest projects in the country, the DAMATE Group, is aimed at expanding the industrial turkey farming complex to 100,000 tons of finished products per year. Total investment is 25.6 billion rubles.

The region has a developed what might be called an innovation infrastructure. At present, a network of 14 business incubators has been created, in which 215 organizations operate, and 1,533 jobs are offered. The premises and equipment of business incubators are leased to small businesses at a preferential rental rate on a competitive basis.

Two technoparks successfully operate in the Penza region: the Yablochkov technopark, specializing in information technology, precision instrument-making and materials science, and a unique technopark for high medical and information technologies, the Rameev technopark, which forms the core of the regional medical cluster. There are 39 business entities operating in the areas of the latter. The staff number of employees as of January 01, 2019 was 2,285 people; in 2018, the business entities' revenue totaled 6,174.13 million rubles. In 2018, the management company of the technology park sent an application to the Skolkovo Foundation for the status of the regional representative office of the Foundation. The InVivo Center for testing

medical products on animals was founded on the basis of the Rameev technopark. More than 50 surgical operations have been performed since it began to function.[3]

In addition, the departments of Penza State University conduct their work on the basis of technoparks. The Triple Helix model assumes that universities form the central hubs that generate both new technology and new forms of entrepreneurship (Pakhomova, 2012: 55). Students are given the opportunity to gain not only theoretical knowledge but also the practical skills that will ensure they are prepared for success in the engineering profession. The University, in conjunction with the regional businesses and government, conducts a thorough analysis of the strengths and weaknesses of the socio-economic development of the Penza region and participates in the development of legal strategies for the introduction of the innovative Triple Helix model.

Penza State University, cooperating with the Kazakhstan University of Innovation and Telecommunication Systems, is engaged in training of innovative specialists, thereby providing integrated support and personnel assistance to the innovative development of the region. Training is one of the priorities (Lilles, Rõigas, 2015: 11), and is necessitated by the current lack of young professionals who are able to independently perform research, design, marketing and production tasks that are critically required in the process of creating and commercializing innovative projects in various fields (Borch, Solesvik, 2016: 421–439).

It should be noted that in cooperation with the Ministry of Economic Development of Russia, a number of development institutions have been established in the region: Penza Regional Foundation for Assistance to Innovation (Venture Capital Fund), the Prototyping Center, and the Center for Cluster Development.

[3] Agreement on Cooperation in the Field of Development of the Innovation Network and Promotion of Innovation Development Programs between the Office of the Plenipotentiary Representative of the President of the Russian Federation in the Volga Federal District, the Government of the Penza Region, the Foundation for Assistance to Small Innovative Enterprises (FASIE), the Penza Regional Branch, the Trade and Industry Chamber of the Penza Region of July 01, 2003 No. 03-5A-08/130, http://www.consultant.ru (28. 4. 2019).

In particular, the Center for Cluster Development supports four priority industry clusters (industrial cluster BioMed, instrument-making cluster Security, cluster of light industry, and confectionery cluster). The Social Innovation Center entered this cluster in 2017. Its main goal is to both help promote and support social projects of small and medium-sized businesses as well as to help support and maintain socially oriented non-profit organizations.

The BioMed Cluster provides targeted support to the high-tech segment, namely, medical device manufacturers. Cluster products are highly competitive in both Russian and foreign markets. This is evidenced, for example, by the leading places of the Cluster among domestic producers in such segments of the domestic market as artificial heart valves (64%), and suture material (17 percent).

Focused support also is provided to manufacturers of high-tech engineering security equipment in the framework of the instrument-making cluster Security. The share of Penza products in the Russian market in this segment is 61 percent. The volume of products shipped by the cluster enterprises is more than 3 billion rubles annually.

One can find many examples of the implementation of Triple Helix models in the constituent entities of the Russian Federation, when, according to the results of research activities, the economy of the region focuses on the development of a specific resource in the region (or invention). In addition to the Penza region, where, as already noted, a number of priority industry clusters were created (bio-medical industrial cluster BioMed, which produces such a unique invention as heart valves, instrument-making cluster Security, cluster of light industry, confectionery cluster, cluster for introducing new feed cultivation technologies, etc.), there are still further examples of the implementation of the Triple Helix model in not only the Kaluga region (plasma systems for TV), but also the Vladimir region (the latest electric motor). It is evident that Russian regions are now undergoing a process of radical transformation from the traditional model of geographical, political and cultural entities into modern innovative entities employing the Triple Helix model from government, business and science, which are advancing new, innovative initiatives. The Penza region is a vivid example of the successful development of a region having both an average scientific potential and an average industrial reserve, judging by the standards of the Russian Federation. The economy of the Penza region is based on high technology and is smoothly transitioning from the backward Soviet

technological paradigm to an innovative technological paradigm based on the introduction of the Triple Helix model. That is why the experience of the Penza region deserves to be studied and disseminated throughout the country. According to G. Etzkowitz, one of the founders of the Triple Helix theory, it is important to exchange experiences on the formation of the Triple Helix model (Etzkowitz, 2012: 766–779). First of all, it is necessary to study the examples of the organization of innovative activity in one's own country. The Penza region managed to successfully create both a regulatory framework and business atmosphere conducive not only to innovation but also to the creation of innovative enterprises, thereby contributing to the production of new technologies and business concepts as well as their implementation in the region. There are regions in the Russian Federation that can boast of having an outstanding level of scientific potential. However, most Russian regions lack an objective, broad-based understanding of exactly where they stand in the innovation hierarchy, their strengths and weaknesses, existing or potential regional advantages, and the resulting specific regional differences that would allow them to successfully compete in the domestic Russian and international markets.

7 Territorial innovation clusters as drivers of economic growth of the Penza region

The transition to the path of innovation development, objectively demanded today in Russia to help solve social and economic problems, and to raise the standard of living, should be primarily based on advanced products of manufacturing technology, scientific and technical, and innovation activities aimed at increasing the number of predominantly new generation equipment and technologies that require reform in the same direction as the legal basis of social relations (Carayannis, Grigoroudis, 2014: 199–218; Foray, Goddard, Beldarrain, Landabaso, McCann, Morgan, Nauwelaers, Ortega-Argiles, 2012: 67–70).

The DAMATE Group is a vertically integrated structure with a complete production cycle.[4] Initially, the project with the participation of the DAMATE Group on the territory of the Penza region was designed to produce 15 thousand tons of finished products per year, and more than 90 thousand tons of products per year after five

[4] For more information about the content of the agricultural activities of the DAMATE Group in the Penza region, see the website of the DAMATE Group, http://www.acdamate.com/aboutus/ (25. 11. 2019).

years of operation. The total investment in the project is over 12 billion rubles. Manufacturing of dairy products is also developing, and new enterprises are opening in the neighbouring regions of the Federation (Bashkiria). This has caused the growth in demand for products, and therefore confirms the need to introduce a fourth additional link in the Triple Helix model, "society", affecting the creation of knowledge and technology through the demand and implementation of user function. Dr. Elias G. Carayannis, a professor at the School of Business of the George Washington University, considered such a quadruple helix model.[5]

A similar model can be traced by the example of the Russian Dairy Company LLC (Rusmolco). Rusmolco, one of the largest milk producers in the Russian market, was established in October 2007. The company unites nine farms and specializes both in dairy farming and plant growing. In January 2012, Olam International Limited (OLAM), one of the world leaders in agricultural production, and the Rusmolco, announced the start of a strategic partnership for the development of dairy farming and crop production in the Penza region. The Rusmolco began to invest in the development of the funds promised by the new main owner ($800 million in six years).

The activities of these companies clearly show the level of development of the regional sector of high technology and technological modernization, which is a reflection of the beneficial synergistic effect of interaction between the state, private business, science and society. The consuming public will benefit by these developments.

A number of enterprises of the Penza region are combined into clusters to enhance long-term profitability and modern functioning. It is believed that there are two models for creating clusters: the "brown field", when the cluster was formed historically, and the "green field", the opposite artificially created one. It is difficult to assess which of the clusters is the most successful, because they are at various stages of their developmental cycles. To evaluate this issue, it is necessary to choose, first, clear indicators, such as whether scientific research is conducted in the territory, whether there has been an increase in the number of people on the cluster's specialization, and, the extent and nature of the creation of new products. There are

[5] For more information, see Klievink, Janssen, 2014: 240–249.

also unique clusters, for example, an interregional cluster for the production and processing of flax in Smolensk.

In some clusters, enterprises are connected by a single production cycle. Others operate pursuant to similar productions in the same territory. Such enterprises, while being competitors, nevertheless have to solve the same type of problems: product promotion, shortage of qualified personnel, and cost reduction, to name but a few. The specificity of the clusters is a reflection of the economic activity being conducted in the various business communities. However, the most important goals of cluster development are focusing on the global market, identifying unique competitive innovative advantages of the region ("smart specialization" is a conceptual model of socio-economic policy), and communicating information to the customers on issues and tasks to be addressed.

8 Conclusion

In the context of continuous reforms, rapidly developing technologies, the growing needs of society in new products and high-quality services, the constituent entities of the Russian Federation should follow the course of the federal government regarding the growth of the Russian economy against the background of technological progress. In forming their legislation, the regions should adhere to the directions and processes that are fixed in the current legislation of the Russian Federation but also take into account the experience of countries with innovative and socially oriented economies.

On the basis of the progressive experience of countries with a developed social State, it is possible to highlight the conditions conducive to the process of formation of a social State: a systematic enhancement, through tax and investment mechanisms, of the so-called "middle class" and an increase both in its standard of living as well as a reduction of the property stratification between different segments of the population; expansion of the state social and economic guarantees and the list of grants (in education and medical care, provision of pensions, providing social hiring to needy citizens of housing, etc.) strengthening the role of the state in the redistribution of income, the fight against unemployment, the stimulation of scientific and technical progress, the implementation of innovative technologies in economy, the development of transport infrastructure, etc. At the same time, the precise political characteristics of the state and its form of government, such as for example national-

state or administrative-territorial structure, are not of fundamental importance (for example, Sweden and Denmark - kingdoms, USA - republic with "classical" presidential form of government and federal structure, Germany - parliamentary federal republic, and France - unitary republic of mixed parliamentary-presidential type). Rather, it is more important that the government acts in a fashion that is fair, and which protects and guarantees citizens the full range of democratic rights and freedoms. It is only then that a truly social State can emerge from the developed institutions of civil society.

The lack of any coordinated or harmonized relationship between public law and the principles of civil law in the legal regulation of innovation, in accordance with the constitutional principles of scientific, technical, and other types of creativity, intellectual property rights and freedom of a market economy, has led to an urgent need to bridge the gap in the federal and local legislation that regulates innovation activity in the Russian Federation.

Based on the above, we can formulate the following conclusions.

First, the interaction between the three components that form the Triple Helix model of “government-business-science” is the most important indicator of the socio-economic development of a particular region. This is characteristic of the Penza region as a typical subject, as well.

Second, in connection with the growth of economic indicators, the development of socio-legal communities, and trends in the reform of power, it is necessary to add “civil society” as a fourth element of the existing Triple Helix, which is a collection of sovereign personalities based on mutual trust and responsibility of the above structures.

Third, the Triple Helix model is not perfect. One of the reasons for the unsatisfactory level of commercialization of innovative ideas is the low quality and lack of competitiveness in the field of innovation activity of local universities and the conducted research.

Fourth, it is necessary to develop personnel potential by solving the problem at the legislative level (Virkkala, Mäenpää, Mariussen, 2014: 21–48). The infrastructure for the innovation development of regions has been and is still being created. These currently exist in the form of business incubators and technoparks, but they are not systematically oriented towards solving the equal personnel problem of the regional innovative development (Proskuryakova, Meissner, Rudnik, 2017: 206–227). Their role in creating, expanding and bringing independent knowledge intensive enterprises into small business is at present unfortunately more theoretical than actual, but cannot be realized due to the present systemic linkage of the training process with the process of developing and commercializing innovations (Howaldt, Kaletka, Schröder, Rehfeld, Terstriep, 2016: 24–27).

In fact, professional training, for example, in the field of engineering and technology, is the competence of the Ministry of Science and Higher Education of the Russian Federation. However, business incubators and technology parks are under the jurisdiction of the Ministry of Economic Development of the Russian Federation, and their systemic relationship in solving staffing for innovative development is practically unregulated. Therefore, this relationship should be clearly spelled out in the Federal Law on Innovative Development of Russia and the constituent entities of the Russian Federation.

Fifth, currently there is no regulation that discloses, let alone defines, the concept of "cluster". Instead, there are only interpretations of the concept within different departments. The Ministry of Economic Development, the Ministry of Industry and Trade, the Ministry of Agriculture and other agencies have supported programs for industry clusters, which form their own regulatory framework for clusters in jurisdictions. In addition, the technology for creating clusters is not described in any legislation. Therefore, a single legislative act at the federal level is needed, where the above-mentioned problems will be announced, the priorities of cluster policy will be identified, and the tools available to federal, regional and local authorities to both stimulate and attract investment in clusters and investment attractiveness will be articulated. Such unitary legislation will go a long way to help ensure the interaction of cluster policy with the socio-economic development of the region, as well as to establish a dialogue with science (education) organizations and business structures.

Sixth, despite many positive trends in legislative development, a single act on innovative development has not yet been adopted either in the reviewed constituent entity of the Russian Federation or in many others. This is where the violation of the Triple Helix mechanism is manifested. Furthermore, local authorities are still not able to adapt themselves to progressive technologies quickly enough. There are some contradictions at the federal level, and the legislation of the constituent entities of the Federation often becomes a hostage to this situation. A wide range of federal laws makes local legislation dependent, and regional legislative authorities cannot exceed these limits or make needed adjustment of certain provisions. Constituent entities of the Federation are therefore in a stranglehold of sorts.

Seventh, the main reasons that impede innovation and inhibit the implementation of the Triple Helix model in Russia include, but are not necessarily limited to, the following: the lack of financial support from federal and regional governments and the lack of investment from large corporations; the high cost of innovations; the long payback periods following innovations; the high economic risk; the low demand for innovative products (services); the underdevelopment of the technology market; the underdevelopment of innovation infrastructure; the uncertainty of the timing of the innovation process; the lack of information about new markets; the lack of opportunities for cooperation between universities, business and government; the lack of information about new technologies; the low innovative potential of business; and, the lack of qualified personnel. The main directions of the federal and regional government policy on the further implementation of the Triple Helix model in modern Russia are seen in the solution to the above-mentioned problems.

The federal government should take the lead in setting innovation policy, particularly in the area of tax regulation. As a rule, federal public authorities in all countries formulate the conditions necessary for regions to better develop innovations. In the Russian Federation, it is necessary, first of all, to correct the historical imbalance between Moscow and the regions since the Soviet times, in order to delegate to the regions a more significant role in determining their own innovative economic development. Regional authorities should take a more robust role in promoting local and regional linkages and interaction between government, business and universities to formulate regional innovation planning and development, including at the legislative level.

The overall efficiency of the Triple Helix model in the Russian Federation in general, and in the Penza region in particular, will lead to the following gains: the reduction of uncertainty and costs in the creation of new products due to the interaction of the three factors of the innovation process; the expansion of the diversity of innovative products by connecting in different combinations of assets and competencies of participants in the innovation process; the increase of economic efficiency due to simultaneous interaction of the three components of innovation process.

Thus, the Triple Helix is one of the most important social and legal phenomena that should be investigated from legal, political, and social points of view.

Each component in the "government-business-science" model has a social nature. In business, it is a type of human activity that is designed to organize effective and high-quality production, to link science with production, to optimally realize human potential in order to meet the actual needs and interests of society and the individual. When this business function is successfully implemented, its innovative nature is obvious.

It is incumbent upon the authorities to provide the necessary and sufficient conditions that allow all the subjects of the Triple Helix (business entities and universities) to function effectively and at the highest possible level.

Therefore, government, business, and science each should fulfil their separate integral system functions efficiently and effectively. While it may be true that each of these spheres must to some extent act alone to some extent in order to fulfil their main social function, when these spheres act cooperatively with each other, there is a certain positive synergistic impact that benefits the society in a way that acting alone cannot come close to matching. The three components combine to form the Triple Helix when they interact within systemically holistic education and, therefore, successfully and qualitatively fulfil their main social role. The Triple Helix should be regulated in detail in a single Federal legislative act, on the basis of which the constituent entities of the Russian Federation create their own local legal framework for the introduction of the innovative Triple Helix model.

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