
Innovative Development: International Experience of Intellectual Property Commercialization

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Abstract:

Commercialization model of intellectual property products in a coordinated and integral unity with socio-economic mechanisms based on the best global achievements in this field is considered. A social, economic, and historical substantiation of general civilizational and unique features of the formation and development of venture management mechanisms for intellectual property is given. It is shown that formation of socio-economic foundations for innovative development of the country has been very difficult, painful, and contradictory. In the process of education and science system reforming, goals are sometimes replaced by means, reforms appear to be self-sufficient values; market economy levers, while being a way of the most complete satisfaction of individual creative needs, turn into their opposite.

Traditional methods of managing scientific activity in the context of social instability do not contribute to creation of a climate and a space that would be conducive to scientific and technical work and based on the freedom of enterprise, which includes such components as creativity, risk appetite, independent choice of alternatives, self-initiative, business culture, and others. A scientifically based and technologized concept of transferring intellectual products is presented. It is proved that only by adequately comprehending the nature of venture business, having reliably determined its social, economic, and psychological parameters, its role in the socio-political and economic self-organization of society, one can possibly speak with some degree of predictability and foreseeability about effectively mainstreaming positive factors of an innovative breakthrough in Russia.

Keywords: *intellectual property, commercialization model, management mechanism, intellectual products, transfer concept, venture business activity, innovative development.*

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1. Introduction

In the present context, any research steps supplementing scientific conception of mechanisms for transferring intellectual technologies and forming an institutional innovation environment are very relevant. Conceptual interpretation of the problems of bringing intellectual products to the real sector of the economy is also actualized by the fact that when there is no practical tool, a trial and error method is launched, which is fraught with significant irreparable losses in material production, finance, services, and a decrease in the vital energy of the people. Having adequately comprehended the nature of mechanisms for scientific and technical business activity development, having reliably determined its social, economic, and psychological parameters, their role in the socio-political and economic self-organization of society, one can possibly speak with some degree of predictability and foreseeability about effectively mainstreaming positive factors of the real market economy. Realizing the complexity and multidimensionality of the agenda, the authors of the paper focus on institutional approaches to the task handling.

2. Institutional Approaches to Solving the Tasks of Intellectual Product Transfer

To create socio-economic and financial foundations of innovation activity based on effective management of intellectual property in Russia, there is a need in tools to unleash a private creative initiative, mechanisms for material and non-material support for innovation, invention, and rationalization (Dobrenkov and Kravchenko, 2007; Nazarycheva, 2013; Kossova *et al.*, 2014; Shatkoyskaya *et al.*, 2017).

So far, social aspects of resource provision for intellectual property (IP) have been at the extreme sociological flank of economic problems and, therefore, are the least likely to be formalized within the neoclassical approach (Dobrenkov *et al.*, 2012).

A more comprehensive study of these aspects of social life has turned out to be possible within the framework of institutional and evolutionary theory. Its founder, American sociologist and economist Thorstein Veblen introduced the concept of institutions (routine) as confirmed thinking habits inherent in a large community of people and originating from instincts, stereotypes of thinking, traditions, customs, rules, laws, and social norms.

According to Veblen, the stability of social institutions is violated by both external and internal processes. The role of fragmenting stability is performed by innovative activities in their content and significance related to mutations in biological evolution.

However, these destructions are of a creative nature if they perform an economic utility function for society and assume the ability to integrate discrete elements of sociological knowledge into new, previously unknown constructive combinations.

Therefore, any innovation must bear elements of profit and readiness to be introduced into the real sector of economy. Yet, a profit of social attitudes should be regarded as a reward of society for the usefulness of this project (Dobrenkov *et al.*, 2014).

According to Veblen, the success of an idea generation and bringing it to economic relevance to society is based on the creation of new institutions that, as international practices show, imply existence of a strong legal framework, modern infrastructure aimed at promoting innovation, a powerful corporate culture, and a modern knowledge management system. All this should be accompanied by a differentiation of labor of a scientist and development promotion specialists.

The dominant strategy to optimize and build a solid legal basis in the field of intellectual property is to increase the interest of all participants in innovation activity in the eventual outcome, that is, in a practical implementation of new scientific developments and technologies created by domestic scientists (Dobrenkov *et al.*, 2013; Theriou *et al.*, 2014).

For example, in the USA, back in 1986, the Scientific Technology Transfer Act stipulated that the author is due 15% of the amount of income received by a scientific or educational institution from selling exclusive rights to an invention. In addition, most American universities set the amount of royalties at 25-30% of the net profit the organization receives from licensing agreements. In the Russian Federation, more recently – on June 4, 2014, and in 2015 in the Republic of Kazakhstan, the minimum royalty fee for creation and use of industrial properties, that is, inventions, utility models, and industrial standards, was established. For an original invention, the innovator is paid an incentive fee of 30% of the average monthly salary, or 20% for creating a utility model or an industrial design. When implementing the development in the real sector of economy, the employer is bound to pay the author a remuneration at the amount of the base salary per month, when signing an agreement on license transfer – 10% of the amount of license fees, and when signing the contract of assignment – 15% of the agreement amount (Dobrenkov *et al.*, 2009; Stroeva *et al.*, 2015; 2016; Emelkina, 2016).

However, in the absence of in-house statutory regulations (which, unfortunately, occurs in most organizations in today's Russia), these provisions are not implemented. The second important point of the Act is support of individuals who contribute to creation and commercialization of the results of scientific and technical activities. What is referred to is, first, departments for technology transfer, patent-licensing services in universities, research institutes, and industrial enterprises. They play an exceptionally important role not only in identification, registration and legal protection of intellectual property, but also act as a 'gateway' between science and industry in the commercialization of scientific and technological results. Without an effective operation of technology commercialization offices, it is impossible to transfer new developments and technologies from universities and research institutes

to enterprises in the real sector of economy. This has long been understood abroad, where in each university there are such units, the number of employees therein amounting to an average of 40-90 people for large universities, and 30-40 for medium and small ones. In most Russian universities, 1 to 4 employees work in technology commercialization offices, which is nothing. All in all, the staff shortage in the sphere of commercialization and technology transfer across Russia is about 60,000 people.

Today, specialists in the following areas are needed:

- acceleration and simplification of contacts with general investors;
- provision of contract and grant services;
- evaluation of innovations based on target indicators (profitability index (return) of investments on a company's net income and payback periods);
- assistance in patenting and managing patents, inventions, copyrights, and trademarks (Dobrenkov and Agapov, 2015);
- settlement of conflicts of interest;
- assistance in legal management of intellectual property;
- provision of transfer services;
- organization of training activity to prepare researchers for intellectual property commercialization.

The Russian intellectual potential is valued at 400 billion USD, and the country is still inside the top ten countries in the world in terms of high levels of scientific and technological achievements (Dobrenkov, 2014). However, the share of Russia in the world market for civil science-intensive products is less than 0.5% (while the US holds the share of 36%, Japan – 30%, China – 6%), which is a result of the undeveloped methodological support for creation and use of IP items (IPIs) and mechanisms of patent-license exchange of intellectual activity outcomes.

At present, steps have been taken in Russia to improve the climate along the lines of intellectual activity. Federal Law No.217 has amended many statutory and regulatory enactments, which allows universities and research institutes to open economic companies whose functions consist in practical application (implementation) of intellectual activity results (IARs), exclusive rights to which belong to these scientific institutions, without an agreement with the owner of their property. This federal law enables higher education institutions:

- 1) to obtain additional investments;
- 2) to provide higher wages to qualified specialists and young scientists;
- 3) to increase the commercialization effectiveness of developments;
- 4) to make transactions through the enterprise out of competitions (Degtyareva *et al.*, 2013).

In addition, the increased engagement of innovation-minded employees in creating small innovative enterprises due to the following benefits provided by the university with:

- 1) the possibility to rent premises on preferential terms without holding a tender;
- 2) the possibility to use the equipment of the university or research institute;
- 3) reduced rental rates: 40% of the market value in the first year, 60% in the second year, and 80% in the third year);
- 4) the reduction of the tax rate for charge on payroll to 14% instead of 30%;
- 5) the opportunity for small innovative enterprises to win competitions for conducting research and development announced by the university (in accordance with the amendments to Federal Law No. 94 on public procurement, procurement by any state-owned R&D organizations can be carried out by holding a competition with one participant);
- 6) the possibility for a university that has received a government grant to outsource a part of the work to a small innovative enterprise (in the lots of the Ministry of Education and Science of Russia, up to 40% of a government contract price can be outsourced).

To develop one's own intellectual property, procedures have been defined that include the following stages:

- a preliminary assessment of non-infringement quality of intellectual activity results, their creation being planned because of the research effort;
- at the end of R&D activities, taking measures for legal protection of the intellectual activity (in accordance with the legislation of the Russian Federation, the exclusive rights to intellectual activity results belong to the institution where the research was conducted, and that provided funds and infrastructure for their creation);
- timely payment of the state fee for keeping patents valid in accordance with the terms established by the legislation;
- taking an inventory of rights to IARs in order to identify cases of illegal registration of rights to intellectual activity results achieved for public money in the name of their authors.

All of the above can contribute to the formation of such an 'ecological' innovation environment where universities could 'boil in the pot' of small innovative enterprises. Any innovative idea on its way toward commercialization inevitably falls into Death Valley (Figure 1), that is, the very first segment of the road when prospects for a technology are still dim, continuous expenses involved in creating a workable prototype of a product or a service are ahead, while the innovator's own resources may simply come short. Therefore, creating mechanisms for promoting an idea at the initial stage, at the so-called seed stage, is an important area of focus. Business angels or seed investors can act as such backing institutes. Further on, business accelerators, business incubators, and technology parks participate in the promotion of a project. Then projects are funded by venture funds and portfolio investors (Figure 2).

Figure 1. Stages of innovative company development. ‘Death Valley’ (Death Valley, 3Fgap) (Innovational Projects of a Small Business. Portal of Information Assistance of Innovational Projects)

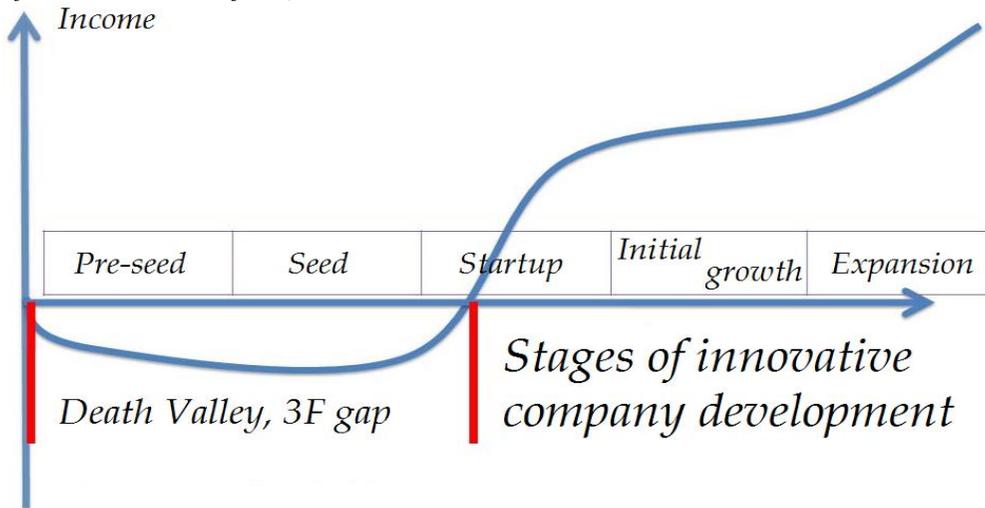
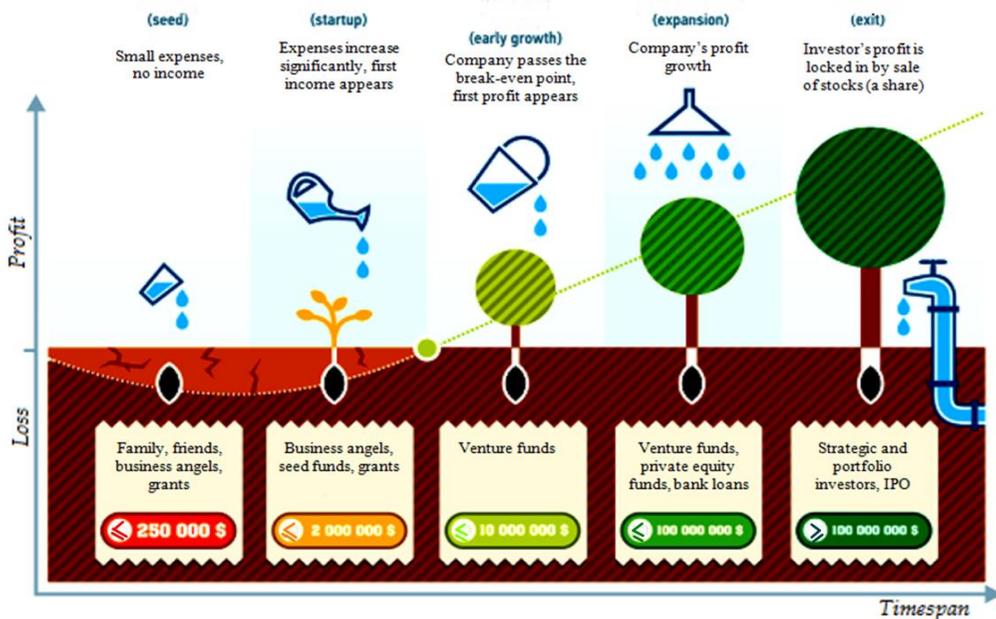


Figure 2. Stages of project development (Economist's Encyclopedia)



In Russia, Lomonosov Moscow State University is becoming the ‘engine room’ of creating an innovative environment and is implementing the strategy of the third stage of its development: the formation, rollout, and development of the technological valley ‘Vorobyovy Gory’ (Sparrow Hills). In restoring the innovative sector of economy, possibilities of sociological science are unlimited. It is important

to include sociological knowledge in the innovative development of an organization, to create a favorable innovation ecosystem for disclosing the creative potential of society.

3. Formation of a Modern Socio-Cultural Environment as a Factor for Innovative Development of an Organization

Besides institutional obstacles on the main track of new projects in Russia, there are socio-cultural ones as well. The totalitarian model of social development in the country was based on the need to suppress entrepreneurial spirit in general and the scientific and technical one as a carrier of entrepreneurial culture and creative way of thinking. The business area did not cause Russians any sensation of proclivity, say nothing of appreciation. Although scientific and technical entrepreneurship is round-the-clock creativity, innovation, combination, risk, search, the overwhelming majority consider innovators to be half-mad, outsiders, parasites.

However, if an agent of a scientific and technical process benefits from it, it means they know something the other participants in this activity do not know. So, they are the author of a micro-discovery. The national reform experience (especially in the initial period) has shown that while the traditional model, stereotypes of the past thinking have been rhetorically abandoned, this line continues its course. The country has not created (and so far, has shown no inclination to create) a favorable scientific and technical business environment, which in any civilized society is characterized by absence of restrictions for business people. Meanwhile, the formation of scientific and technical entrepreneurship is hindered by the existence of licensing procedures and many restrictions for business people. Today, there are no firmly established rules of market conduct; there is no wide network of measures to support the initiatives of innovators, efficiency experts, and inventors.

Currently, in all countries with developed market economies, a conceptual scope of measures to support venture business is being implemented, the mechanism of its socioeconomic and regulatory support is constantly updated, and an orientation is maintained towards creating an effective incentive for innovation in the scientific business.

Traditional concepts, methods, and mechanisms developed over the course of decades of market economy developing, as well as setting goals, encouraging their achievement through financial means do not always exercise a desired effect on the entrepreneurial model of innovators' behavior. Such methods were successfully used where the results and consequences of economic activity were adequately predictable, but this was characteristic of another era –of a smooth, crisis-free development. Today, civil society has entered a post-industrial era of rapid change, information technology, and uncertain situations with many uncontrollable variables. In addition, Russia has lost out on three revolutions in modern history: scientific and technical, information, and managerial ones.

During the Soviet period, for many decades, the desire of Russian citizens for economic independence was at best not encouraged, and it was even criminally punishable at worst. With such a legacy, with the ancestral inability to create most favorable conditions for everything progressive, it is naive to hope that innovators will gain respect and reputation. In Western countries, large concerted campaigns are carried out to promote scientific and technological entrepreneurship and business culture. Wise Western and American competitors believe that if only one in ten people has natural skills for creative entrepreneurship, it is improvident not to help them to find their gift because the whole society reaps its fruits. The reasons of inhibited promotion of innovative products lie in Russia's everyday historical mass memory.

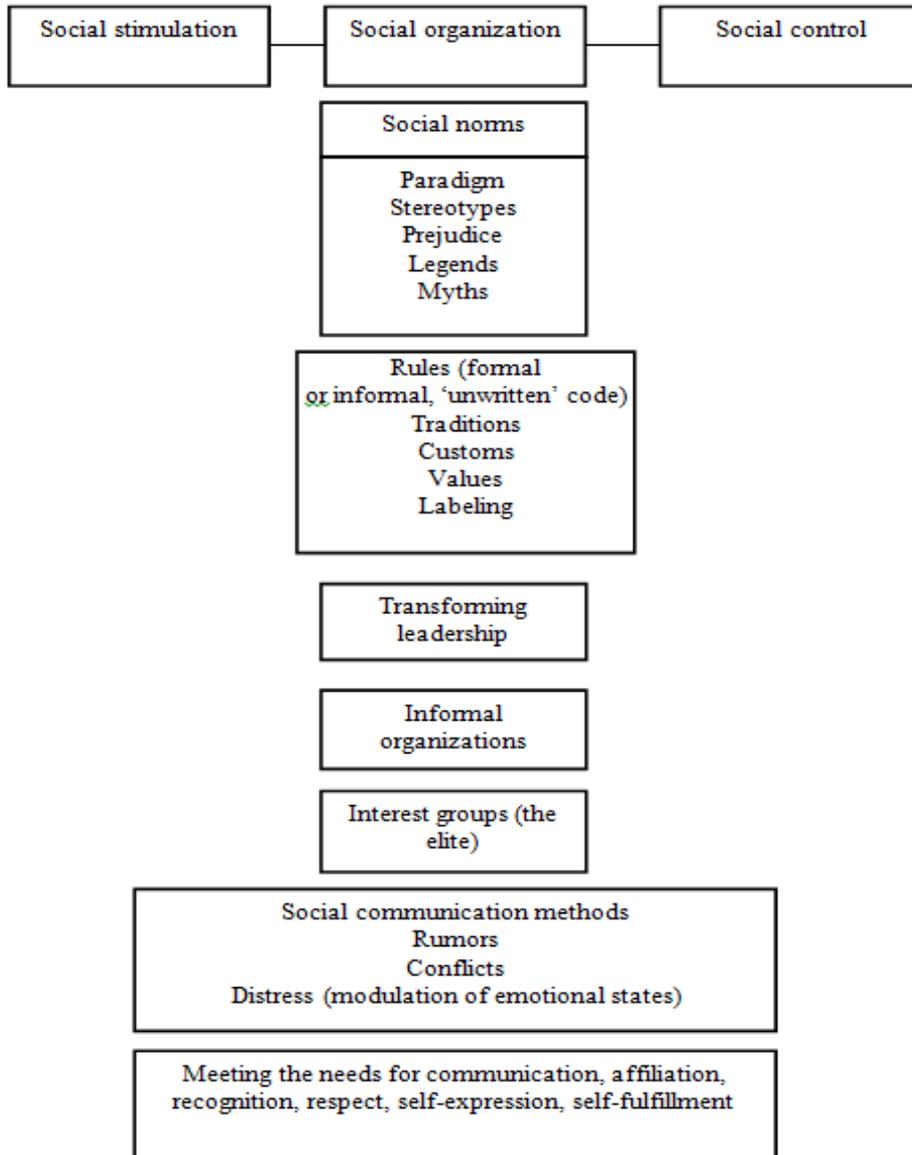
Unfulfilled promises, for example, building communism by 1980, promising everyone an apartment by 2000, manipulating consciousness with regards to transition to market economy in 500 days have created stereotypes and the existential mindset 'to live right here, right now'. This develops both a certain behavior pattern and a style of venture business conduct. Since an average weighted payback period of innovative projects amounts to 7 years and 2 months, none wants to invest money for such a long period in the context of social instability. Hence, the dominating logic is like the 'Chinese potato': planted today, and dug out tomorrow. Therefore, the possibilities of sociological science are unlimited in such subject areas as the sociology of knowledge, the sociology of cognition, the sociology of thinking, and the sociology of organization. The system of social relations is shown in Figure 3.

In the world's leading companies, an up-to-date model of knowledge management is introduced. It is based on modern values that develop talents and abilities of employees. It is when a professional manager incentivizes their subordinates, acts as a 'social architect', as well as an institutional leader, that is, a specialist in positing and maintaining innovative values of the organization. The corporate culture of successful companies inspires employees, can create a sense of extreme importance of goals, cultivates respect for innovation, enables an employee to feel a winner; a successful leader is a creator of values and cares about the informal state of the organization, manages its social networks and formation of corporate values. The values declared by the corporate culture of leading companies are shown in Figure 4.

For a modern organization, such management style is typical when decentralization, transforming leadership, and proactive methods of control are combined, that is, people's control over people as a form of deviation from the values of organization, or the model of a 'long leash', when an employee feels they are given a little more freedom of action, and this leads to their much greater involvement in the common cause, allows them to fulfill the most important need of any person to express themselves and stand out in the team; the 'History of my success' library is built up, when employees are motivated to talk about their achievements and the secrets of their outstanding results. That's why the culture of successful innovation companies

is inspiring, cultivating respect for innovation. Here, the energy of fear is transformed into the energy of enthusiasm and creativity.

Figure 3. System of social relations in a social organization (Dobrenkov et al., 2011)



The inclusion of social thought in innovation process could consist in a conceptual comprehension of global experience and development of domestic mechanisms to support innovation and invention. History shows that mere adoption and imitation of even the most effective innovation systems gives hardly anything to socio-political

institutions and national economies. A while back, for example, all Latin American countries traced their legislative bases for managing intellectual property of the United States of America. But how many of them have been able to create innovative economies in a hundred and fifty years or at least come close to the US? Therefore, Russia needs its own system of knowledge management based on its original spiritual values and inexhaustible intellectual resource (Voronin *et al.*, 2015).

Figure 4. Values of an organization (Dobrenkov *et al.*, 2011)

Values of a modern company		
Creativity	Atmosphere in a social environment	An employee's personal qualities nourished by the organization
Invention Innovation Business activity Pioneer work Experimentalism Efficiency drive Discovery	Holiday spirit Good mood Healthy mindset Feeling a winner and a successful person, but in the spirit of loyalty Commitment Collaborative approach Reason for human existence Confidence, harmonious relations	Aspiration for self-fulfillment, self-expression, self-actualization, self-education Inherent angst and a desire for novelty Business acumen Self-reliance High internal locus of control High emotional intelligence coefficient
Decentralization of management	Universal values	An employee is an invaluable resource, a 'gold stock' of the organization
Normally, small groups of enthusiasts are behind breakthroughs	Fairness Honesty Duty Aid and succors Collaborative approach	Solicitous attitude to the best performers

4. Conclusion

The research of various aspects of transferring innovative technologies as a factor of Russia's development testifies that so far in power structures, in civil society, in business community, in scientific circles there has been no integrated, conceptually meaningful system of measures that would allow one, based on the principles and methods of modern social management, to engage civilized mechanisms (social, spiritual, economic, legal, organizational ones) of formation and development of the

venture entrepreneurship. The unsystematic, spontaneous support deprived of strategic reference points practiced today in relation to small innovative enterprises on the part of different management entities leads to a clash of various mechanisms for its deployment, generates inefficient use of its internal sources and those obviously insufficient material and financial resources allocated to this area.

The set of conceptual principles and socio-economic mechanisms for supporting scientific and technical creativity at different levels of socio-political and administrative arrangement (a federal center, a subject of the Russian Federation, a municipal structure, a primary organization) proposed in the article, in the opinion of the authors, fills the gap in this area to a great extent. An innovative view of the problematics not only can change the perception of the phenomenon of small innovative entrepreneurship, but also, in the case of a positive attitude from the public and the authorities, improve the position of innovators themselves as a social group of society.

This, on the one hand, will enhance their prestige in their citizens' eyes, and on the other hand, will put the activity of innovative entrepreneurs under the control of society, which will motivate them to solve the large-scale socioeconomic, philosophical, and moral problems Russia is facing. The whole zeal of the article is aimed at showing as reasonably and justifiably as possible: a country experiencing a systemic crisis does not get out of it without a clear definition of a national model for the formation and development of small innovative entrepreneurship, as well as without singling out strategic priorities in its integrated public and government support for different levels of social organization (federal, regional, municipal ones).

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