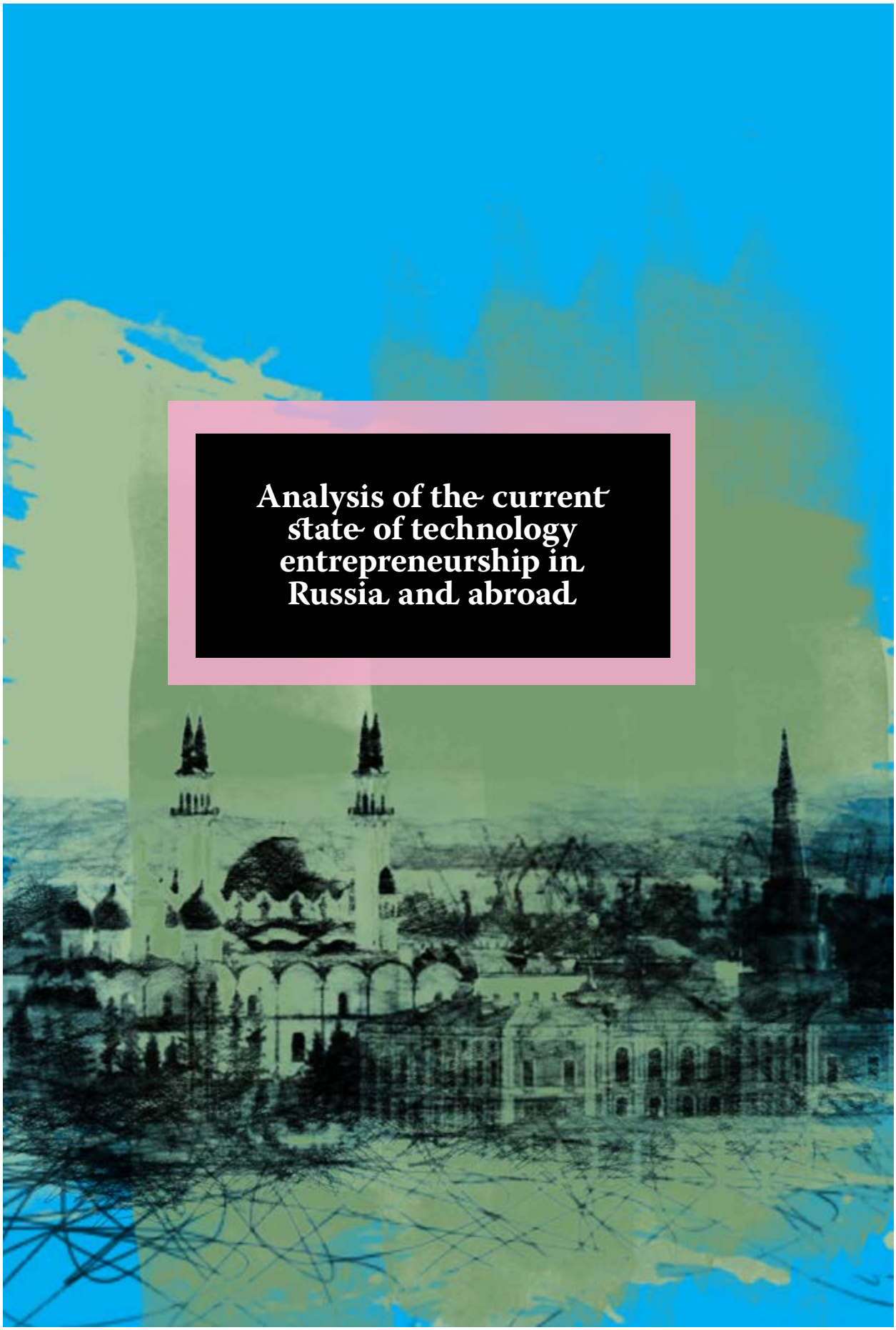
Analysis of the current state of technology entrepreneurship in Russia and abroad



Analysis of the current state of technology entrepreneurship in Russia and abroad

Análisis del estado actual del emprendimiento tecnológico en Rusia y en el exterior

ABSTRACT

The paper presents the current state of innovative entrepreneurship in Russia and foreign countries, which occupies a significant share in the creation of GDP in the economies of developed countries, and also attracts researchers from different countries due to the lack of a unified theory of technological entrepreneurship. One of the reasons which prevent raising the level of innovation in the Russian economy is a low level of activity of technological entrepreneurship entities. Features of technological entrepreneurship predetermine the need to develop measures of regulation, financing, etc. adapted to its specifics. The influence of macroeconomic dynamics on the development of innovative entrepreneurship in Russia is shown, and a comparative analysis of innovative entrepreneurship in Russia and the European Union as an example of developed economies is conducted. The presence of cultural and behavioral barriers to the further development of technological entrepreneurship in Russia is revealed, a conclusion is made about the decisive influence of macroeconomic dynamics and the steady development of the institutional environment for the implementation of technological innovation by small businesses.

Keywords: innovative entrepreneurship, microeconomics, innovation activity support infrastructure, technological entrepreneurship, commercialization models, behavior.

RESUMEN

El artículo presenta el estado actual del emprendimiento innovador en Rusia y países extranjeros, que ocupa una parte importante en la creación del PIB en las economías de los países desarrollados, y también atrae a investigadores de diferentes países debido a la falta de una teoría unificada del emprendimiento tecnológico. . Una de las razones que impide elevar el nivel de innovación en la economía rusa es el bajo nivel de actividad de las entidades de emprendimiento tecnológico. Las características del emprendimiento tecnológico predeterminan la necesidad de desarrollar medidas de regulación, financiación, etc. adaptadas a sus características específicas. Se muestra la influencia de la dinámica macroeconómica en el desarrollo del espíritu empresarial innovador en Rusia, y se lleva a cabo un análisis comparativo del espíritu empresarial innovador en Rusia y la Unión Europea como un ejemplo de las economías desarrolladas. Se revela la presencia de barreras culturales y de comportamiento para el desarrollo posterior del emprendimiento tecnológico en Rusia, se llega a una conclusión sobre la influencia decisiva de la dinámica macroeconómica y el desarrollo constante del entorno institucional para la implementación de la innovación tecnológica por parte de las pequeñas empresas.

Palabras clave: innovación empresarial, microeconomía, infraestructura de apoyo a la actividad de innovación, emprendimiento tecnológico, modelos de comercialización, comportamiento.

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1. INTRODUCTION

At the present stage, the level of efficiency of national economic systems, as well as their position in the world market and competitiveness, are determined by the dynamics of innovation development [1]. At the present stage of economic relations development, technological entrepreneurship remains a key to maintaining competitiveness in the world market, creating additional jobs and improving the quality of life and education. Over the years, new criteria for the accreditation of engineering programs designed to improve the quality of technological training in universities are being developed [2].

At the same time, M.V. Khairullina notes that on the basis of the analysis of the current program documents and the legal and regulatory framework for entrepreneurship, as well as expert assessments, one can speak of the absence of favorable trends for the accelerated technological development of the Russian economy in the near future [3]. In the last four decades, technological entrepreneurship has become one of the fastest growing global phenomena [4]: the number of references in various papers for the period of 1970-2011 increased by 45%, what confirms the relevance of the study.

Technological entrepreneurship performs a number of important functions for the state: it provides employment for a significant number of economically active population, reduces the dependence of the economy on large companies and contributes to the diversification of the industry structure, increasing its sustainability; it also facilitates the redistribution of capital between industries due to high mobility. The small size of enterprises allows often effectively to fill the market niches which are unattractive for large business and the multinational corporation [5; 6].

2. METHODS

The research used the method of scientific abstraction, analysis and synthesis, as well as deduction method. The data of Eurostat, as well as of the Federal Service of State Statistics of Russia in the field of evaluation of technological entrepreneurship indicators for 2006-2016 were collected and analyzed.

According to the results of the Eurostat data analysis [7], it can be concluded that if to evaluate technological entrepreneurship by the number of companies, then small enterprises of the EU countries were less inclined to innovate than large and medium-sized companies. The highest ratio of small innovators to their total, 68%, was observed in Ireland. While the smallest analogous ratio among large manufacturing companies was observed in Italy - 73%.

3. RESULTS

Foreign researchers consider the phenomenon of entrepreneurship in the context of innovation and competitiveness of a firm. In 1973 the paper "Technical entrepreneurship: what do we know?" [8] dedicated to high-tech entrepreneurship, which at that time was mainly considered from the point of view of attracting venture financing investments, has been issued. To date, technological entrepreneurship is spread mainly in the software development sector where new developments can be quickly commercialized. In addition, now there are distinguished trade, financial, insurance, and intermediary technology entrepreneurship and businesses in the health sector.

Innovations serve as a special tool for entrepreneurship, and not innovations in themselves, but a directed organized search for innovations, the constant targeting of entrepreneurial structures [5]. According to Eurostat, the lowest share of investment-active companies among small businesses was observed in Belgium (13%), and the maximum in Ireland (60%), which is seemed as the exception to the rule against the background of other countries [9]. At the same time, if to compare the costs of technological entrepreneurship to turnover, results will be opposite. Small manufacturing companies have spent on innovation measures relatively more revenues than large businesses. So, if to consider data for 2014, small enterprises have invested 5.1% of their revenues to expenses on inno-

vations. The size of the deductions of large companies was 4.7%. Such a picture was even more pronounced in the service sector, where the innovative costs of small business accounted for 10.2% of turnover compared to 3.1% in large enterprises.

In addition, the distribution of innovative activity of small businesses among European countries was very heterogeneous. The activity studied varied from 21% in Luxembourg and Spain to 68% in Ireland. The share of small companies involved in R & D in the manufacturing sector ranged from 6% in Luxembourg to 57% in Finland. A similar indicator of average manufacturing enterprises varied from 15% in Italy to 72% in Finland. At the same time, the smallest share of large companies participating in R & D was observed in Italy (35%), and the largest in Finland (93%) [10].

Innovative activity of small and medium-sized businesses in the countries of the European Union in 2011-2013 characterized by the following indicators (see Table 1. Annexes).

The conclusion that can be drawn from the analysis of the data in Table 1 is that small and medium-sized businesses in the countries of the European Union still lag behind in terms of innovation activity from the large business, and the representatives of small businesses lag behind more significantly.

Special attention should be paid to the statistics of technological entrepreneurship innovation, since these data will be required in the future for a comparative analysis of the technological entrepreneurship innovative activity in Russia and the EU countries. Data on the activities of small and medium-sized European businesses in the implementation of technological innovation separately in the manufacturing sector and the service sector are shown in Table 2.(Annexes)

Before assessing the performance of Russian small and medium-sized businesses in the field of innovation, it is necessary to make a brief commentary on the existing system for observations of the innovative activity of the business and its indicators in Russia in order to correctly perceive the result of such an analysis.

Statistical observation of small technological entrepreneurship is carried out by the state only in relation to industrial small enterprises. This leads to the fact that small enterprises that carry out the following types of economic activity fall out of sight: production of goods, performance of works and provision of services in agriculture, performance of works in the construction industry, provision of services in the sphere of trade, transport and communications, services hotels and restaurants, real estate transactions and other services (which is an essential part of the country's small enterprises). The survey of medium-sized enterprises is carried out within the framework of statistical observation of the whole set of enterprises, except for individual entrepreneurs, small and micro-enterprises, i. e., together with large enterprises, as well as for a wider range of economic activities. This means that medium business is not identified as an independent unit of statistical observation, which also does not allow for its consideration in our research. The microenterprises and individual entrepreneurs are not considered in statistical observations. To assess the innovative activity of technological entrepreneurship in the subjects of Russian small business, we will use data of Rosstat (Russian Federal State Statistics Service) reflecting the share of small enterprises in the total number of small businesses that carried out technological innovation, the share of innovative goods in the total volume of shipped small business goods, and the volume of small business expenditures for technological innovation (Table 3, data on medium and large businesses are listed as reference)(Annexes).

Thus, it can be concluded as a result of the analysis, that the share of enterprises that carried out technological innovation in small business in 2013 was 5.1%, and in 2016 it was 4%. At the same time, there was no such a drop among medium and large businesses, and growth continued there. Probably, it was the small business that was more sensitive to the negative macroeconomic dynamics which had been observed in Russia since the second half of 2014.

In terms of the share of innovative products in the total volume of shipped goods, work performed, and services rendered, the situation changed in a similar way.

The share of organizations that carried out technological innovation in the total number of organizations surveyed in Russia was significantly influenced by the events at the end of 2014 (Figure 1), what had increased the tendency to reduce the share of enterprises using technological innovations after 2014.

Fig. 1. The share of organizations that carried out technological innovation in Russia, in percentage, 2012-2016.(Annexes)

At the same time, the cost of technological innovation has continuously increased, so, Figure 2 shows the dynamics of this indicator over the entire period available from open data.

Fig. 2. Costs of organizations for technological innovation in Russia, in thousands of rubles, 2006-2016. (Annexes)

This discrepancy may be caused by an increase in investments in major transformations which are predominantly carried out by large businesses, and a sharp decline in the financing of modernization processes by small businesses in Russia amid a sharp decrease in its incomes in recent years, as evidenced by data on the level of demand of the Russian population for services (Table 4). (Annexes)

Thus, the results of a comparative analysis of the technological entrepreneurship innovative activity indicators in the European Union countries and Russia, even taking into account their some incompatibility, allow us to conclude that Russian enterprises are lagging behind in developing and implementing scientific and technological achievements.

The current dynamics of the technological innovation growth in Russia will not allow us to overcome the existing gap with the economies of developed countries in the medium term, which will hinder the increase in the role of small and medium-sized businesses in the Russian economy and achieve the goals set by the Government of the Russian Federation to increase the contribution of small and medium-level of the developed countries [12].

4. DISCUSSION

Of course, the unstable macroeconomic dynamics of recent years has a significant impact on entrepreneurship in Russia. The sanctions policy pursued in relation to Russia allows strengthening protectionist activity against domestic producers, especially in the sphere of agriculture. Thus, the number of economic partnerships and societies in Russia has grown from 25,488 in 2013 to 28,959 in 2016 (according to data on the number of enterprises engaged in the production of agricultural products).

However, in general, demand for services fell in most sectors, with negative dynamics observed for several consecutive quarters (table 4), what ought to become a catalyst for structural changes.

The share of enterprises that produce innovative products in Russia has been steadily declining since 2014 (Figure 1), despite the increase in total technology costs for the economy as a whole (Fig. 2). Perhaps this is due to the redistribution of the burden of innovation costs: even their larger share now falls to a large business that is more resilient to macroeconomic market fluctuations and fluctuations in demand compared to small businesses.

5. SUMMARY

Based on the results of studies of the collected statistical data, it can be concluded that the innovation activity of Russian technological entrepreneurship is relatively low with regard to their foreign colleagues from the European Union. This requires appropriate awareness from the entrepreneurial community which must recognize that the ability of their companies to innovate is a powerful factor of competitiveness and business efficiency, and, consequently, the survival, which is so lacking today for Russian companies. However, it seems that Russian enterprises prefer to save costs for this item, especially with a relatively unfavorable macroeconomic environment. On the one hand, their caution is understandable; on the other hand, it shows the presence of cultural and behavioral barriers [13], which both the local state authorities and civil society must jointly identify and overcome.

It is impossible to develop technological entrepreneurship without changing the institutions that provide an effective credit mechanism, training qualified specialists, reliable legal protection of entrepreneurship, facilitating its access to sources of economic and legal information. To stimulate the innovative

activity of Russian enterprises, it is necessary to keep the refinancing rate set by the Central Bank of Russia at 5-7% (taking into account the profitability of the leading manufacturing industries), with the extension of the term of loans provided by credit institutions.

6. CONCLUSIONS

A technological challenge is defined as the process of transforming knowledge into products, processes, strategies, or business models characterized by the availability of economic [14], social and environmental utility [15]. Thus, the source of profit of technological entrepreneurial structures is a qualitatively new use of the results of investments made earlier, which necessitates the transfer of technology from one type of economic activity to another. However, the positive dynamics of these processes is possible when financial and general macroeconomic stability is achieved, as well as in carrying out the corresponding educational and outreach activities, increasing the financial literacy of the economically active adult population - that is, implementing an integrated system approach to the development of technological entrepreneurship.

7. ACKNOWLEDGMENTS

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ANNEXES

Business category / name of indicator	Share of enterprises that implemented innovations,%	Share of revenues of enterprises that implemented innovations,%	Share of people employed in enterprises that carried out innovation,%
Small business	54.8	61.8	57.3
Medium business	76.2	81.8	78.3
Big business	85.2	83.4	85.8
Total	59.5	78.0	77.2

Table 1. Indicators of innovative activity of EU enterprises engaged in the manufacturing sector and carried out technological innovations in the period of 2011-2013

Business category / name of indicator	Share of enterprises that implemented technological innovations,%	The share of revenues of enterprises that carried out technological innovation,%	Share of people employed in enterprises that carried out technological innovation,%
Small business	48. 8	61. 4	51. 5
Medium business	75. 9	87. 4	77. 7
Big business	85. 8	93. 0	87. 0
Total	56. 7	88. 7	77. 0
Enterprises of all categories	46. 8	70. 8	68. 1

Table 2. Innovation activity indicators of the European Union enterprises engaged in the manufacturing sector and services sector and carried out technological innovations in the period of 2011-2013.

Business category / name of indicator	Share of enterprises that carried out technological innovations in the reporting year,%				Share of innovative goods, works, services, in the total volume of shipped goods, works performed, services,%			
	2011	2013	2015	2016	2011	2013	2015	2016
Small business	4. 1	5. 1	4,5	4	1. 5	2. 1	1. 6	1
Medium and large business	7. 7	8. 9	9. 5	13. 4	9. 2	14. 1	9. 4	8. 7

Table 3. Indicators of innovation activity of enterprises in Russia, 2011-2016.

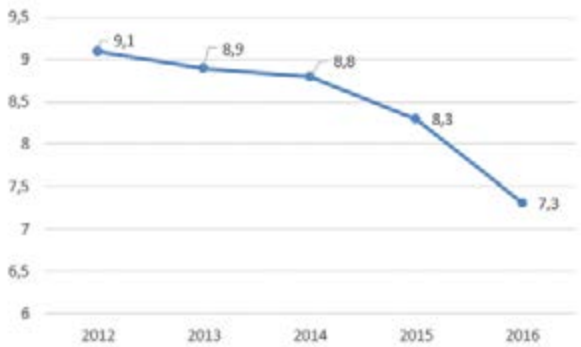

Fig. 1. The share of organizations that carried out technological innovation in Russia, in percentage, 2012-2016.

ANNEXES

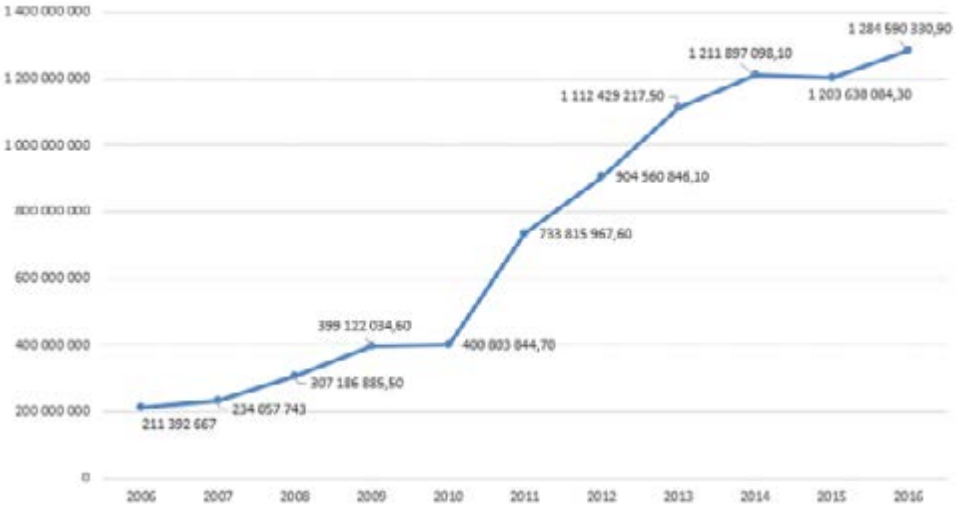

Fig. 2. Costs of organizations for technological innovation in Russia, in thousands of rubles, 2006-2016.

Year	Quarter	Assessment of the change in demand for services as a percentage of the previous value	Year	Quarter	Assessment of the change in demand for services as a percentage of the previous value
2013	I quarter	-17	2015	I quarter	-26
	II quarter	2		II quarter	-7
	III quarter	0		III quarter	-8
	IV quarter	-6		IV quarter	-14
2014	I quarter	-18	2016	I quarter	-30
	II quarter	0		II quarter	-7
	III quarter	-2		III quarter	-6
	IV quarter	-7		IV quarter	-13

Table 4. Assessment of the actual change in demand for services in Russia, 2013-2016.