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INNOVATIVE POTENTIAL OF RUSSIAN UNIVERSITIES: IMPLEMENTATION STRATEGY, RESEARCH METHODS, DEVELOPMENT FACTORS

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Abstract

The article discusses the various aspects of the formation, functioning and development of Russian universities as innovation centers and suggests ways for their further development. The purpose of the article is to identify and analyse the innovative potential of Russian universities, to uncover socio-economic, institutional, organizational and managerial issues of functioning and justify the ways, methods and tools for their development.The research methodology is based on a systematic approach and includes the combined use of the following research methods: justification of ways, methods and tools for their development, the identification and analysis of factors that influence the external environment on the development strategy of universities, a method for assessing and analyzing factors, processes and phenomena that influence the development of universities as innovation centers, methodological methods for determining and analyzing the strengths, neutral and weaknesses of university innovation development. The main results of the research.

Keywords

Entrepreneurial university – Strategy – Triple Helix – External environment – Threats

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Introduction

In modern society, the formation of competitive advantages of the state in the world market is provided by the economy based on the generation of new knowledge, improvement of technical and technological bases of production. A significant transformation of the educational and academic environment is currently due to the increasing socio-economic role of knowledge as a means of production, intensive introduction of technical and technological innovations, high quality of labor resources, a combination of fundamental research and the development of practical problems, and the increasing role of transnational and global scientific research[1]. Universities are becoming centers of innovation, producing not only knowledge, but also innovations that stimulate economic development and become an important component of regional and national innovation systems. Higher education institutions are becoming centers of systemic integration of innovation activity in Russia[2]. The goal of the development of most Russian universities is to transform them into modern intellectual, innovative, and socio-cultural centers in Russia where new knowledge is generated and transferred to high-tech developments, and where science-intensive products and services are created. This involves the formation of universities innovative infrastructure, the development of interaction with other subjects of innovative activity, state and regional authorities and public organizations[3].

In 2020, 668 state universities functioned in Russia, 2 of them with special status (Moscow and St. Petersburg), 10 federal, 29 national research universities.

The aim our study is to identify and analyze the innovative potential of Russian universities, as well as to uncover socio-economic, organizational, managerial, institutional issues of the development of their scientific and technological capabilities. It is obvious that each of the Russian universities has specific features, but the problems, factors and prospects of university innovation activity considered are common to most universities.

Materials and methods

The beginning of university education in Russia dates back to 1725 when Academic University was founded in St. Petersburg. Moscow State University named after M.V. Lomonosov (at the time of its foundation in 1755 – Imperial Moscow University) is considered to be the first classical university in Russia. In total, 12 universities functioned in the Russian Empire, in the Soviet Union in 1990 their number increased to 71 (of which 40 in the Russian Soviet Federated Socialist Republic (RSFSR). In the modern Russian Federation, there are more than 600 universities, of which only 73 are classical. From the end of XX – beginning of XXI centuries a new university model is being formed in Russia, based on the concepts of «academic capitalism», entrepreneurial universities[4], and the

[1] Ekonomika innovatsi, Pod red. N. P. Ivashchenko (Moscú: Ekonomicheskiy fakul'tet MGU imeni M. V. Lomonosova, 2016).

[2] M. Yu. Baryshnikova; Ye. V. Vashurina; E. A. Sharykina; Yu. N. Sergeyev and I. I. Chinnova, “Rol' opornykh universitetov v regione: modeli transformatsii”, Voprosy obrazovaniya num 1 (2019): 8-43.

[3] Ye. I. Vaysberger, “Innovatsii kak vazhnyy faktor razvitiya vuza”, Vestnik Permskogo gosudarstvennogo tekhnicheskogo universiteta. Sotsial'no-ekonomicheskiye nauki num 6 (2010): 101-112.

[4] T. F. Kryaklina, “Mnogoobraziye modeley universiteta: modeli, adekvatnyye svoyemu vremeni”, Mezhdunarodnyy zhurnal eksperimental'nogo obrazovaniya num 5 (2016): 262-266.

«triple helix». In modern Russian universities, while maintaining the leading role of teaching and research functions, an evolutionary transition to the entrepreneurial model is taking place, which determines their role as subjects of economic development. The effectiveness of innovative activities of universities is determined by the level of perception and readiness of the management and teaching staff of the University to accept and implement new trends. This requires a transformation of the higher education system on the basis of strengthening the interaction of universities with business, innovation infrastructure objects (technoparks, industrial clusters, venture funds, etc.); changes in the organizational and managerial structure in order to achieve its adaptation to changing external factors and achieve financial stability. With the preservation and development of the educational and research function, universities should evolutionarily move to innovative and entrepreneurial activities based on the effective use of their high scientific, technical and intellectual potential. Solving these problems will allow classical universities to switch to the «entrepreneurial university» model.

The works of B. Clark and the concept of the Triple Helix by G.Itskovich provide the theoretical and methodological basis of the concept of an entrepreneurial university, its role in the socio-economic development of the country and the formation of a modern information society.

The Triple Helix model was proposed by the American scientist G. Itskowitz[5]. Currently, in connection with the transformation of Russian universities, this model is beginning to be widely used in the theory and practice of the innovative development of higher education in Russia. Its essence is to find the optimal mechanism for interaction between universities, enterprises and the state as the main components of the innovation system, increasing the role of universities in regional socio-economic development and the transition to a knowledge economy[6]. At the same time, the modern University significantly expands its functions – from reproduction, accumulation and dissemination of knowledge, conducting research to the creation and implementation of its own channels of technology transfer and offers the formation of students' entrepreneurial skills in the process of training[7]. Such a transformation of modern universities is due to the following factors: the globalization of politics, economics, engineering and technology; increasing dependence of industries and the tertiary sector of the economy on the current level of knowledge; accelerating the pace of scientific and technological progress; the increasing role of highly qualified specialists; trends in the dynamic development of information and communication technologies and the formation of the information society[8]. The concept of an entrepreneurial university was developed in the 1990s by an American sociologist Burton R. Clark[9]. The University of Entrepreneurship is a social institution that stimulates the economic growth and development of a country and regions through close interaction with

[5] H. Etzkowitz y L. Leydesdorff, Universities and the Global Knowledge Economy: A Triple Helix of University-Industry-Government Relations (London: Continuum, 1997).

[6] O. Chelnokova and A. A. Yu. Firsova, “Vzaimodeystviye universiteta, biznesa i gosudarstva kak faktor razvitiya regiona v natsional'noy innovatsionnoy sisteme”, Izvestiya Sarat. un-ta. Nov. ser. Ser. Ekonomika. Upravleniye. Pravo. Tom 14 Vol: 1, Ch. 1 (2014): 26-31.

[7] H. Etzkowitz, The Triple Helix: UniversityIndustry-Government Innovation in Action (London: Routledge, 2008).

[8] V. A. Sergeyev and Ye. V. Babkina, “Troynaya spiral” innovatsionnogo razvitiya: opyt SSHA i Yevropy, vozmozhnosti dlya Rossii”, Innovatsii num 12 (2011): 68-78.

[9] B. Clark, Creating Entrepreneurial Universities: Organization Pathways of Transformation. (Guildford, UK: Pergamon, 1998).

the external socio-economic environment. This educational institution in order to ensure its activities attracts additional financial resources through innovative activities. This is ensured through the formation of relationships with business using innovative developments of university scientists. The formation of entrepreneurial universities is determined by the objective requirements of society – the need to ensure national and regional economic development while improving the financial situation of the university and its scientists[10]. The creation and functioning of entrepreneurial universities testifies to the increasing role of knowledge in the socio-economic and technical and technological development of the country and the transformation of universities into effective, leading drivers of innovation, the transfer of knowledge and technology into society, and the commercialization of the results of intellectual activity[11]. The concept of an entrepreneurial university has been actively implemented since the second half of the 20th century in American higher education and in recent decades at universities in Europe. In his recent works B. R. Clark examined the processes of transformation of European universities towards the formation of an entrepreneurial university[12]. Their characteristic features are the presence of a strong management system; formed periphery of growth, access to various sources of financing; highly paid qualified and creative scientists; a developed culture of entrepreneurship. The results of this study show the transformation of European universities into innovative and entrepreneurial while maintaining the established academic traditions. However, there are risks and threats when developing and implementing new developments that may not always be successful. According to B. Clark, the main characteristic of an entrepreneurial university is its focus on the creation and dissemination of new knowledge and their commercialization[13]. Another feature of the entrepreneurial university is its openness to organizational and managerial changes, involving the maximum number of employees in the creation of innovations. The development of the concept of an entrepreneurial university is the work of J. Uisema[14]. The university of the third generation of Y. Uisema includes most of the practices of an entrepreneurial university, but the basis for the transformation of this type of university are external and internal factors such as the problems of competition for sources of funding, the search for talented scientists and capable students. According to Y. Uisema, in third-generation universities training students in special innovative disciplines should form competencies for preparing a future specialist with a high entrepreneurial culture and who after graduating from the University would be able to open their own innovative enterprise[15].

The research is based on a systematic approach to the study of universities as integral socio-economic structures. It is implemented based on the combined application of the following methods: management survey method – study of the external and internal environment of universities; SLEPT -analysis – identification and analysis of factors that

[10] A. R. Cherwitz, “Creating a Culture of Intellectual Entrepreneurship”, Academe. July / August, Vol: num 91(5) (2005).

[11] M. A. Kamenskikh, “Issledovaniye kontseptsii predprinimatel'skogo universiteta i institutsional'nykh faktorov yego deyatel'nosti”, Vestnik UrFU. Seriya ekonomika i upravleniye num 3 Tom 15 (2016): 420-433.

[12] Clark B. R. Sozdaniye predprinimatel'skikh universitetov: organizatsionnyye napravleniya transformatsii (Moscú: Izd. dom Gos. un-ta – Vysshey shkoly ekonomiki, 2011).

[13] P. Blenker; P. Dreisler; H. M. Færgemann and J. Kjeldsen, “A framework for developing entrepreneurship education in a university context”, Entrepreneurship and Small Business, Vol: 5 num 1 (2008): 45-63.

[14] J. Wissema, Towards the Third Generation University: Managing the University in Transition (Northampton, MA: Edward Elgar, 2009).

[15] N. V. Golovko; O. V. Zinevich and Ye. A. Ruzankina, “Universitet tret'yego pokoleniya: B. Clark i Y. Uisema”, Vyssheye obrazovaniye v Rossii num 8-9 (204) (2016): 40-47.

influence the external environment on the development strategy of universities; SWOT-analysis – a method for evaluating and analyzing factors, processes and phenomena that affect the development of universities as innovation centers for the development and justification of strategies for their further development; SNW-analysis – a methodological tool that allows you to identify and analyze the strong, neutral and weak aspects of University development.

Discussion and results

To analyze the innovative activities of universities it is necessary to consider their external and internal environment (Figure 1). The study of the external environment of universities is an assessment of the current situation and prospects for the transformation of the organization under the influence of conditions and factors that the educational organization can not directly influence[16]. These are global political and socio-economic factors, domestic and global market conditions, the level of development of industries focused on scientific and technological developments and university products, etc. Based on the study of the external environment of universities, the factors and prerequisites for their development that create threats or provide promising opportunities for functioning are identified. The implementation of this analysis allows us to assess the internal capabilities of universities, to take advantage of existing prerequisites and how problems related to external threats may worsen in the future. To identify internal problems of universities, the management survey method is used effectively. This method performs five main functions – marketing, finance, education and research, human resources, as well as culture and the image of the corporations.

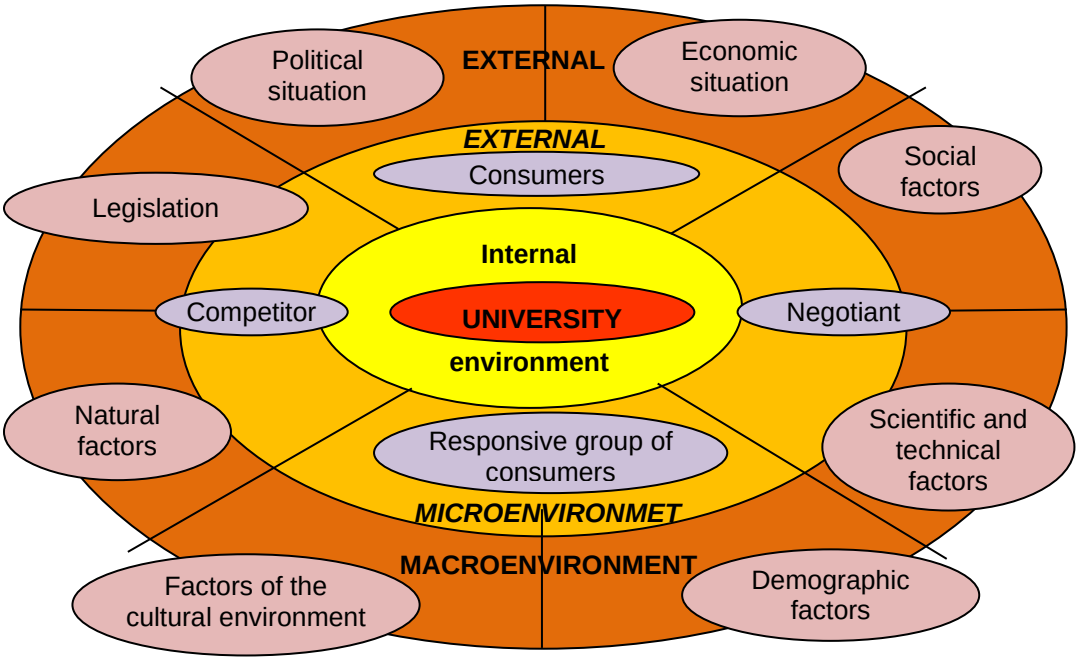

Figure 1
External and internal environment of the university

[16] G. A. Mkrtychyan, “Predprinimatel'skiy universitet: kontseptsiya i diagnostika kul'tury”, Vestnik Minskogo universiteta, num 4 (2014). Available at: http://www.mininuniver.ru/mediafiles/u/files/Nauch_deyat/Vestnik/2014-12- 4/Mkrtychyan.pdf

There are a significant number of methodological approaches to assessing the internal and external environment of enterprises and organizations that are also applicable to University research.

SLEPT analysis

This type of analysis, as a kind of PEST analysis, is the identification and analysis of environmental factors on the organization's strategy. The abbreviation SLEPT itself comes from five English words: Social (sociocultural), Legal (legal), Economic (economic), Political (political), Technological (technological). A generalized SLEPT analysis of Russian universities is given in Table 1.

Among the socio-cultural factors of the external environment, the demographic situation in the country is of great importance. The predominance of mortality over birth rate is the main reason for the natural decline of the population in the country. These processes have led to the aging of the population, respectively, reducing the labor force, including highly qualified. Migration trends are characterized by the outflow of highly qualified specialists from Russia.

The level and quality of higher education is declining, basic values are being transformed, and the way of life is changing. Universities, unlike other higher education institutions, usually have a high image among consumers of educational and research services both in the country and in the regions. Most universities have close relations with the public, federal and regional authorities, and the mass media. Higher education institutions do not fully use the advertising opportunities of modern Internet resources, television and radio.

The legal (legal) factors that influence the innovative activity of universities are characterized by strong dynamics. There are a number of laws that regulate certain aspects of innovation in the Russian Federation. At the same time, there is no complete system of Federal regulation of innovation activities and relevant legislation.

SOCIAL-CULTURAL FACTORS (SOCIAL)	**LEGAL FACTORS (LEGAL)**
Population structure Changing the age structure of the labor force in the direction of increasing the average age of employees Migration trends Education development trend Lifestyle and trends in its formation Models of behavior of innovators and consumers of innovations The level of resistance to the impact of global socio-economic and political factors Marketing research of consumers' needs and attitudes to innovation Effectiveness of advertising activities and development of relations with authorities at all levels, business and the public.	Insufficient level of development and significant dynamics of the legislative framework in the field of innovation Legal support for the protection of intellectual property Legislation on technology Legal regulation of competition and monopolization of production Legal framework for licensing, certification and standardization of products High level of legal infrastructure development Creating a legal framework for interaction between universities and industrial innovation clusters
ECONOMIC FACTORS	**POLITICAL FACTORS**

(ECONOMIC)	**(POLITICAL)**
Economic situation and trends in the world and the country Purchasing power of the population Proportions of income distribution in the country General economic structure and sectoral composition of the country's economy Heavy depreciation of equipment and fixed assets Taxes related to new products and technologies Information Factors specific to the information industry Inflation rate Investment climate in the country Low labor productivity Demand for innovative products and technologies Specifics of innovation production The needs of the end user Openness and «transparency» of the economy Federal taxation system for innovative enterprises	Stability of the political situation Foreign and domestic public policy State antitrust regulation State and regional science and technology policy Support for innovative research by all levels of government Corruption Funding for basic research Lobbying groups International interest Any other influence of the state in innovation Foreign economic policy State policy in relation to attracting foreign capital The role of trade unions and other public organizations (political, economic, etc.)
TECHNOLOGICAL FACTORS (TECHNOLOGICAL)	
The creation of a competitive engineering and technology Development of substitutional and related technologies Technological maturity of innovative enterprises Consumer capacity of the external and internal market of innovative goods and services Level of development of information and communication technologies and information society Level of availability of scientific and technological information and patent documentation Overall level of innovation and technological potential	Prompt access to new equipment and technologies Effective system of licensing and patenting of inventions, utility models and information products Problem of intellectual property and copyright protection New technology: rate of occurrence, dynamics of transmission and obsolescence Technical and technological support of innovative enterprises Acceptor type of innovation economy development (significant predominance of advanced production technologies used over the created ones)

Table 1
SLEPT analysis of the external environment of universities

The macroeconomic position of Russia in the world economy is a favorable factor for the external environment of the university. Economic factors having a negative impact on innovation market of the university and its partners include: the strong depreciation of equipment and fixed assets, poor investment climate, low productivity, low demand for domestic innovative products and technologies, low level of openness and transparency of the economy and etc.

The political situation as a factor of the external environment of universities in recent years is characterized by stability. A targeted foreign and domestic policy is being pursued, state regulation of competition is carried out through antitrust legislation, the state innovation policy is being implemented, with a strategy developed for the period up to 2030. The positions of trade unions and other groups of influence (political, economic, etc.) are quite strong.

Among the technological factors, the rapid development of information technologies and global communications is of great importance. Russia also has a significant potential for generating innovation and a large capacity of the domestic innovation market. A number of technologies (primarily in the military-industrial complex, nuclear power, the production of composite and nanomaterials, the aerospace industry, etc.) have a high scientific and technical level and are competitive at the international level. According to the rating of innovative economies – 2020, compiled by Bloomberg, Russia is ranked 26th[17].

SWOT analysis is a traditional method of developing a strategy for the development of economic objects, which allows you to evaluate the factors, processes and phenomena that influence the development of an organization or enterprise, in this case, universities as innovation centers. The strategy for the effective development of any enterprise or organization necessarily involves taking into account the following factors: S – strengths, W – weaknesses, O – opportunities and T - threats (threats).

SWOT analysis is based on taking into account the target function of the object under study and involves identifying not only internal and external factors that contribute to the achievement of the task, but also involves the development of measures to eliminate weaknesses and use the advantages of strengths.

At the same time, the positive and negative sides are regulated factors that are characteristic of the object under study, and opportunities and threats are properties of the organization's external environment that cannot be regulated. Internal factors in the development of universities as centers of innovation include such parameters as the study of consumer market segmentation and relationships with them.

External environmental factors include structural and functional features of the market of innovative goods and services (its volume and capacity, dynamics, trends, industry structure of competition, etc.) and external factors affecting this market (socio-economic policy of the authorities, the impact of information and communication technologies, etc.).

[17] Reyting innovatsionnykh ekonomik – 2020. Available at: https://theworldonly.org/rejting-innovatsionnyh-ekonomik-2020/

	STRENGTHS	**WEAKNESSES**
	ADVANTAGES OF «S» –STRENGTH	**DISADVANTAGES OF «W» – WEAKNESS**
NTERNAL ENVIROMENT	1. Availability of mission and strategy 2. Great popularity and high reputation of universities 3. Significant scientific and technical level of personnel 4. Extensive experience in research 5. Highly qualified staff 6. Trained technical staff 7. Availability and functioning of organizational structures for managing innovation activities of universities 8. Leadership in individual segments of innovation 9. Availability and functioning of organizational structures for managing innovation activities of universities 10. The functioning of youth innovation centers and commercialization offices in most faculties and institutes of universities 11. Creation and operation of small innovative enterprises 12. High quality equipment 13. Debugged business processes 14. Distribution channels 15. The desire of university staff to continuous training and cooperation in the field of commercialization of innovations with inventors, representatives of small and medium-sized businesses 16. Broad cooperation in the field of scientific, technical and technological cooperation with foreign universities, research centers, innovative enterprises 17. The dynamic development of innovation infrastructure	1. Insignificant participation in the innovation activity of small businesses 2. The prevailing budget financing of innovation development with insufficient participation of private companies 3. Minimum experience in the commercialization of market innovations, lack of interaction with international structures supporting the development of innovations 4. Lack of a clear marketing strategy, inconsistency in its implementation 5. Imperfect system for monitoring the innovation market 6. Lack of analysis of information about consumers 7. Weak distribution and promotion policy 8. Low product image 9. Low sales of innovative products 10. Narrow specialization of innovation 11. Little-known brand of small innovative enterprises 12. Low motivation of employees to perform RD 13. Insignificant volumes of RD under business contracts with enterprises 14. The low efficiency of small innovative enterprises 15. Insufficient use of cooperation mechanisms with foreign research centers 16. No after-sales service 17. A small number of additional services
	«O» – OPPORTUNITIES	**«T» – THREATS**
EXTERNAL ENVIRONMENT	1. State support for innovation 2. State and regional policies aimed at the scientific and technological development of Russia and individual regions 3. Availability of mechanisms for implementing partnerships between government agencies and private capital to attract financial capital to innovation processes 4. High scientific and technical potential for the development of small innovative enterprises of universities as the basis for the commercialization of intellectual property	1. Low level of development of the innovation market in Russia, which hinders the introduction of new market segments 2. Weak diversification and growth rates of the economy, which leads to a decrease in the level of demand for innovative developments and technologies 3. High market volatility, which leads to a weakening of the national currency and a decrease in foreign and domestic investment in innovative projects 4. Low competitiveness of domestic

	5. Availability of new types of products and unique technologies 6. High marketing potential 7. Trends in demand for innovative products 8. Wide opportunities for broad interaction of universities with other innovative organizations and companies 9. Increased use of advertising to promote innovative products and services 10. The possibility of forming a unique product offer 11. Good public relations 12. The use of modern mechanisms for the formation of commodity and pricing policies	innovative firms in the world market, both in terms of the quality of technical and technological developments, and the cost of innovative products 5. The low level of patent activity 6. Low level of commercializability of market innovations (about 7% on average) 7. Violation of copyright of inventors and developers (unauthorized use of patents for inventions and utility models) 8. Reduction in the number of researchers, especially those with higher qualifications (with PhD degrees) 9. Insufficient state funding of research and development in the total amount of science funding 10. Increasing the country's technological gap, especially in the field of breakthrough technologies 11. Sales abroad of the most promising domestic innovative technologies and outflow of qualified personnel 12. Low interest of enterprises in the real sector of the economy in the use of innovations

Table 2
SWOT analysis of the innovation strategy of Russian universities

Based on the SWOT analysis, the main directions for implementing the innovative potential of universities can be determined. They consist of four components: implementing the strengths of the organization to effectively use market opportunities (competitive advantages); eliminating the weaknesses of the organization to prevent external and internal threats (competitive threats); identifying and minimizing problems that hinder the effective functioning of innovation processes opportunities (bottlenecks); using the organization's advantages to detect and prevent threats (security and protection).

Competitive assets of universities involve the use of positive experience to effectively realize the potential of universities' innovative development. The main strong positions of universities as centers of innovation are as follows: the presence of the mission, overall goal and strategy development; formed and sufficiently flexible organizational structure of management innovative technological system; high qualification level of scientific and technological potential of scientists and specialists; greater performance of RD; a significant amount of know-how, patents for inventions, utility models and software that can be used in the real sector of the economy; relationships with domestic and foreign scientific and educational organizations, scientific and industrial parks, industrial enterprises, information and communication companies; participation in scientific and technological projects of technoparks in the field of high technologies, industrial innovation clusters, etc. These university strengths can be realized on the basis of the following prerequisites: significant state funding for research and innovation;

creation of advanced innovative products and unique technologies; attracting private business resources for the implementation of innovative projects and the development of public-private partnerships in high-tech industries; monitoring market needs for various types of innovative products and services products[18].

Competitive liabilities make it necessary to overcome the organization's weaknesses in order to minimize market threats. First of all, the university's weaknesses in the field of commercialization of intellectual activity results should be eliminated. To do this, it is necessary to eliminate the following threats: high dependence of RD implementation on state funding; low level of involvement of small and medium-sized businesses in the innovation process; insufficient number of investors, minimal access to the world's capital, technology and intellectual property markets; lack of experience and commercialization of intellectual property results; lack of marketing strategy for commercialization of innovations; high competition from international and foreign scientific organizations and companies; low motivation for innovation in the industrial sector and services, etc.

Bottlenecks. To solve the problem of «bottlenecks», it is necessary to collect, systematize and study information about the processes that make it difficult for universities to innovate. This requires analyzing the available resources and converting them into the desired result. Weaknesses of universities in implementing innovative potential can be leveled by using the following internal reserves: effective implementation of state financial and material and technical support for innovation; creation of the necessary innovation infrastructure at universities; attraction of resources of large and medium-sized private businesses to participate in the implementation of innovative projects of universities; activation of marketing support for the innovation process; creation of unique technologies and promising types of innovations; assessment of objective trends in demand for individual segments of innovative products and wider use of mass media and Internet resources for advertising, market promotion and innovative developments of universities, etc.

Security and protection. Threat prevention is possible based on the strengths of universities. System corporate security is impossible without providing university managers with the information necessary for making decisions in the field of ensuring economic and technological security of universities. This requires reliable and adequate information about the external and internal environment, the presence of competitors, partners, and trends in the development of the innovation market. This will minimize business risks based on an effective security system based on available resources and selected priorities. The main strategic priorities of innovation activities of universities are: implementation of technical and technological developments in certain segments of innovation, which will allow them to fully compete with foreign companies; improving the efficiency of technology transfer centers and business incubators for the commercialization of innovations by expanding cooperation with technology parks, venture funds, business angels and other components of the innovation infrastructure; creating small innovative enterprises at universities and ensuring a high level of motivation for obtaining specific results; increasing the volume of RD based on both public and private funding.

[18] A. Datta; R. Reed and L. Jessup, “Commercialization of Innovations: An Overarching Framework and Research Agenda”, American Journal of Business, Vol: 28(2) (2013): 47-191.

Thus, external and internal threats to the implementation of the innovative potential of universities can be prevented on the basis of existing strengths and market opportunities, especially the high capacity of the innovation market. Based on this, priorities for the development of innovative activities of universities in the direction of transition to the model of an entrepreneurial University should be determined.

SNW analysis (from the English *Strength, Neutral, Weakness*) is a method that is used to determine and consider the strengths, neutrals, and weaknesses of an organization (universities).

This analysis in relation to the research of innovation activity of universities has revealed the weak and strong aspects of their functioning (Table 3). Most universities have a well-developed strategy that can be upgraded in accordance with changes in the requirements of the innovation market; a stable economic situation due to guaranteed state funding and the receipt of funds for commercial training; a stable and dynamic organizational and managerial structure of universities; wide introduction and use of advanced information technologies; the existing interaction of the organization with regional authorities. According to the quality of material and technical support, the level of qualification and professionalism of scientists and leading specialists, business reputation in the innovation market, brand awareness, financial and economic efficiency and balanced cost structure, universities occupy average positions. The weakest positions of universities in the field of marketing support for the process of commercialization of innovations, which causes a small share of the innovation market.

	Name of strategic position	**Qualitative assessment of the position**		
		Strong (S)	Neutral (N)	Weak (W)
1.	Developed university development strategy	+		
2.	Existing and flexible organizational structure	+		
3.	General financial situation	+		
4.	The level of competitiveness of innovative products and developments			+
5.	Optimization of cost structure for innovative research		+	
6.	The presence of effective mechanisms for the implementation of innovative projects			+
7.	Use of advanced information and communication technologies	+		
8.	Availability of high-quality material and technical base		+	
9.	Level of qualification and professionalism of the main specialists in the field of innovation		+	
10.	Presence of a well-known trademark, branding policy		+	
11.	Interaction with local authorities	+		
12.	Prevailing corporate culture		+	
13.	Commercialization of developed innovations			+
14.	University marketing strategy:			+

	– strategy and tactics of sales management of innovative products;			+
	– a strategy to expand the range of manufactured and developed innovations;			+
	– management strategy for the promotion of innovative products;			+
	– distribution strategy of innovative goods and services;			+
	– pricing strategy in the domestic and foreign markets;			+
	– customer management strategy			+
15.	Competitiveness of innovative products			+
16.	Distribution as a product sales system		+	
17.	Quality of innovation management		+	
18.	Level of development of the innovation marketing system			+
19.	Brand awareness and quality		+	
20.	Success and duration of work and reputation in the innovative market		+	
21.	Market share of innovative goods and services			+
22.	Financial and economic indicators of innovation activity		+	
23.	Profitability of sales of innovative products and services		+	

Table 3
SNW analysis of innovation activities of Russian universities

At present, almost all RDs are funded from the state budget, the amount of which is insignificant. In the future, it is necessary to attract private investment for these purposes. There is also potential for the development of small innovative enterprises.

In general, universities are characterized by the following problems related to innovation:

1. Imperfect legislation in the field of innovation: there is no mechanism for establishing small innovative enterprises of universities and commercializing the results of their intellectual activity, and there is an insufficiently developed procedure for transferring technologies from universities to industrial enterprises and companies (the university does not have the right to directly sell licenses and assign patent rights).

2. Limited funding opportunities at the initial stage of development of the necessary innovation infrastructure of universities.

3. The necessity of preparation of qualified personnel for innovation infrastructure. The most successful technology companies are managed not by scientists and technical developers, but by sales and market specialists.

4. Lack of experience in commercializing the results of intellectual activity.

5. Weak interaction with innovation customers: state and non-state funds and programs, venture funds and «business angels», large and medium-sized firms, etc.

6. Insufficient incentives for enterprises in the real sector of the economy to introduce innovative equipment, technologies and services[19].

An important area of innovation in universities is the commercialization of the results of intellectual activity. For this purpose, a number of activities are carried out at universities to finance and promote RD results:

1. Search for and attract external customers and investors for RD.
2. Conducting workshops and trainings for the development of small innovative business.
3. Creation of youth innovation centers.
4. Participation in grant competitions of the state non-profit organization Foundation for promoting innovation, which provides significant support for the development of small innovative enterprises.
5. Organization and participation in scientific conferences related to innovation.
6. Participation in exhibition and fair events and forums of international, national and regional level.

At the same time, no work is done to assess the qualities, properties of the goods, design, ergonomics, positioning of innovative goods or services. The market value of innovations is not determined, since there is no research on the innovation market, and its segmentation has not been studied. There is no marketing policy: there are no distribution channels, intermediary organizations, etc. The main problem of commercializing the results of intellectual activity of universities is the priority attention of scientific and technological innovation activity with a significant underestimation of marketing research, which is aimed at identifying market needs for specific innovations, and then in the development and production of related products.

Conclusion

1. Russian universities are at the initial stage of transition to the model of an entrepreneurial university. As before, the main functions of universities are educational and research in the formation of innovative infrastructure – business incubators, technology transfer centers and research and production laboratories, and the creation of small innovative enterprises.
2. Russian universities at the present stage are becoming the most important means of generating innovation, especially in the field of information and communication technologies.
3. The positive factors of innovation activities in universities of the country are a stable political situation, governmental scientific and technological policy, development of competitive technologies in a number of high-tech industries, high level of development of market of information technologies.
4. Negative impact on innovation-market universities provide physical and moral obsolescence of scientific and technological equipment and fixed assets, poor investment climate, low productivity, low demand for domestic innovative products and technologies, low level of openness and «transparency» of the economy, etc.
5. Socio-cultural factors of the external environment, especially the demographic situation in the country, have a great influence on the commercialization of university

[19] L. S. Shakhovskaya and Ya. S. Matkovskaya, “Kommertsializatsiya rynochnykh innovatsiy: protivorechiya i perspektivy”, Zhurnal ekonomicheskoy teorii num 4 (2010): 93-101.

innovations. Depopulation of the population has led to the aging of the population, respectively, a decrease in highly qualified labor resources. Migration trends are characterized by the outflow of highly qualified specialists from Russia.

6. The main problem of technological development of universities is the low level of emergence of new technologies, the dynamics of their transfer, and the rate of obsolescence. This is due to the contradiction between the complexity of the tasks being solved and the low technical and technological level of development of the existing material base (devices, equipment, technologies, etc.).

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