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Development of the Entrepreneurial University-Business Strategic Interaction Model for Kazakhstan

Abstract

Object: The object of this study is the development of university-business strategic interaction model on the basis of analysis of theoretical studies of the organizational and economic mechanism, its essence, structure and elements, as well as models of interaction of shareholders in the process of their evolution.

Methods: The historical, informational and comparative analysis methods have been used for the study. The structural-functional and axiomatic methods, systematic approach have been applied to develop the main provisions and conclusions.

Results: The article presents the results of the analysis of theoretical concepts and approaches describing the organizational and economic mechanisms, and university-business interaction models, as well as the university-business strategic interaction models developed by the authors.

Conclusions: To increase the effectiveness of the interaction of universities with business, it is necessary to find common points of contact of their interests, which launch the interaction mechanism.

Keywords: organizational and economic mechanism, university-business interaction, entrepreneurial university business model, triple-helix concept, forms of interaction, impact tools, actors' interests, university-business strategic interaction model.

Introduction

Higher education is the main tool for creating intellectual potential and a factor of competitiveness, both for business and for the state as a whole, becoming an indicator and catalyst for the country's development. To implement the new tasks facing the higher education system, it is necessary to intensify the interaction of universities/higher educational institutions (HEI) with business, the transition from traditional contacts in the form of solitary events and research projects to strategic partnerships. Nowadays, universities are at a turning point associated with their transformation (Bölling et al., 2016). The ongoing processes of globalization and transition to a post-industrial economy affect the forms and models of universities and business interaction (UBI). In addition, management of such complex relationships developing between universities and business on several types of markets in terms of academic capitalism requires improvement of organizational and economic mechanism of this interaction. For this one, in recent years, the necessary legal mechanisms have been created to ensure conditions for UBI. In particular, the expansion of academic and managerial autonomy of universities makes it possible to move to a new level of reforming the higher education system more open for interaction and possibility to adapt to challenges, responding to rapidly changing demands of business and the economy, and open up new opportunities for development of strategic UBI.

For effective UBI, it is necessary to answer a number of questions related to the ability of the higher education system to respond to the demands of the economy for skilled graduates, practice-oriented educational programs, research and innovative products and services. The consequence of unsatisfied business requests is the development of infrastructure for the transfer of knowledge and technology outside the higher education system — training and consulting companies. Training services, including supplementary and long-life education, consulting and applied research, are in demand in an increasingly competitive environment. One of the reasons for the low level of UBI is a lack of understanding of the business's needs. In turn, business looks for alternative ways to meet them on the markets of educational, scientific and innovative services and products.

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The result of analysis of current UBI has shown that the state occupies a leading position in the organization of this interaction exercising influence on universities and companies as subjects of the mechanism at the macro and meso levels. The main directions of UBI are carried out at the national level and they are determined by the government documents and documents of the Ministry of Education and Science of the Republic of Kazakhstan, and other ministries. The programs for the development of universities are just beginning to appear at the regional level. Content of the current and previous government programs supporting business has demonstrated that universities, mostly national and public ones, interact with large industrial enterprises providing mainly educational services for training specialists of traditional and innovative industries. They do not participate in interaction with small-medium enterprises (SMEs) and in the implementation of programs to support SMEs, although the universities have a necessary infrastructure, personnel and training programs. In spite of all the advantages, the relationship brings both the universities and SMEs, all shareholders have a weak level of interaction in Kazakhstan. The state programs supporting SMEs are implemented by quasi-state structures without the participation of the universities.

A contribution of SMEs to the country's economy increases with the support measures from the universities. The SMEs' needs include not only financial resources and physical facilities, but also training for employees, consulting services, and assistance in market research. The low solvency of SMEs for these types of services makes their orders unattractive for training, consulting and marketing companies operating in the market.

The authors' personal contribution is UBI mechanisms and models of interaction analysis. Also, the authors justify the necessity of development of UBI model.

The main hypothesis is that based on the strategic model the UBI provided consideration of shareholders' interests. It will allow any university to arrange systemic and long-term relationship with its business community providing economic growth in prospective. First of all, a university should become an open system, and this is the first step to transformation of traditional universities into entrepreneurial-type ones. For the system of higher professional education, so-called "entrepreneurial universities" (Clark, 1998) become effective in terms of interaction with the business community. According to B. Clark, the characteristic "entrepreneurial" includes conscious efforts for "institutional construction", which provides transformations ensuring the university's competitive advantage in the future. Moreover, these transformations require significant changes in the organizational structure of the university.

The preliminary prerequisite is such a situation that each university has embarked on a transformation path from traditional to entrepreneurial, in conditions of academic capitalism developing, budget financing reducing, academic and administrative autonomy expansion. The difference is in the stage of the university's life cycle and in the archetype of the entrepreneurial university (Bronstein et al., 2014). Therefore, design and construction of organizational structures and departments of the university interacting with business, the choice of various forms of interaction, indicators for evaluating the effectiveness of this interaction will depend on the above-mentioned difference (Drakh et al., 2020).

This study is seen as a way to improve the organizational and economic mechanism as a means to mobilize resources to maintain them at the proper level, create a synergistic effect and increase the competitiveness of the real sector of the economy, to find common points of contact of interests and the search for adequate forms and models of interaction and their application in practice.

Literature Review

The term "organizational and economic mechanism" in the scientific economic literature was introduced into circulation by the Soviet scientists in the second half of the 60s of the twentieth century. The studies of the essence and structure of the organizational and economic mechanism, and its elements were discussed in the works of N.R. Kelchevskaya, M.I. Srogovich (Kelchevskaya, Srogovich, 2002), A.N. Bychkova (Bychkova, 2010), A.A. Knyazkina (Knyazkina, 2015), D.M. Zhuravlev (Zhuravlev, 2019).

Interaction models were described in the works of H. Etzkowits (Etzkowits, 2011), (Miller et al., 2014), S.V. Sigova, A.L. Kekkonen (Sigova, Kekkonen, 2016), L. Leydesdorff, I. Ivanova (Leydesdorff, Ivanova, 2016), J.N. Kimatu (Kimatu, 2016), F.M. Dnishev, A.S. Gabdulina (Dnishev, Gabdulina, 2018), A. Galvao, C. Mascarenhas, C. Marques, J. Ferreira and V. Ratten (Galvao et al., 2019).

The development and forming infrastructure for UBI and forms of interactions were presented in the works of S.V. Grinenko (Grinenko, 2009), F. Brescia, G. Colombo, P. Landoni (Brescia et al., 2016), S.K. Kunyazova, A.A. Titkov, S.Zh. Ibraimova (Kunyazova et al., 2016), I.A. Pavlova (Pavlova, 2016), D.A. Sitenko (Sitenko, Yessengeldina, 2018).

The extensive literature analysis of Kazakhstan authors has shown that the main attention is paid to innovation structure of UBI mechanism without fully disclosing the interests of all the actors.

Methods

The historical, informational and comparative analysis methods have been used for examining of works devoted to UBI organizational and economic mechanism, and its elements, UBI models. The structural-functional method, axiomatic method, and systematic approach have been used to develop the main provisions and conclusions.

Results

In order to define the term “organizational and economic mechanism” for this study, it is necessary to understand the various interpretations of this term in the scientific literature. Summarizing the approaches to describing the term “organizational and economic mechanism” is used to display the essence of process management, when describing organizational, economic, and other systems and developing ways to manage them (Knyazkina, 2015).

For the purposes of the study, organizational and economic mechanism of university-business interaction will be described as a system with processes functioning in it, a structure that consists of such elements as: a center and subjects, an object, in the form of organizational and economic relations such as interaction of university and business, the center and the subjects in motion on the basis of repetitive relationships expressed by common goals; functions, methods, levers, tools that awaken the interests of shareholders, driving the mechanism into action; resources and infrastructure that support synergies to achieve results.

Schematically, taking into account all its components, the static organizational and economic mechanism of UBI can be represented in Figure 1.

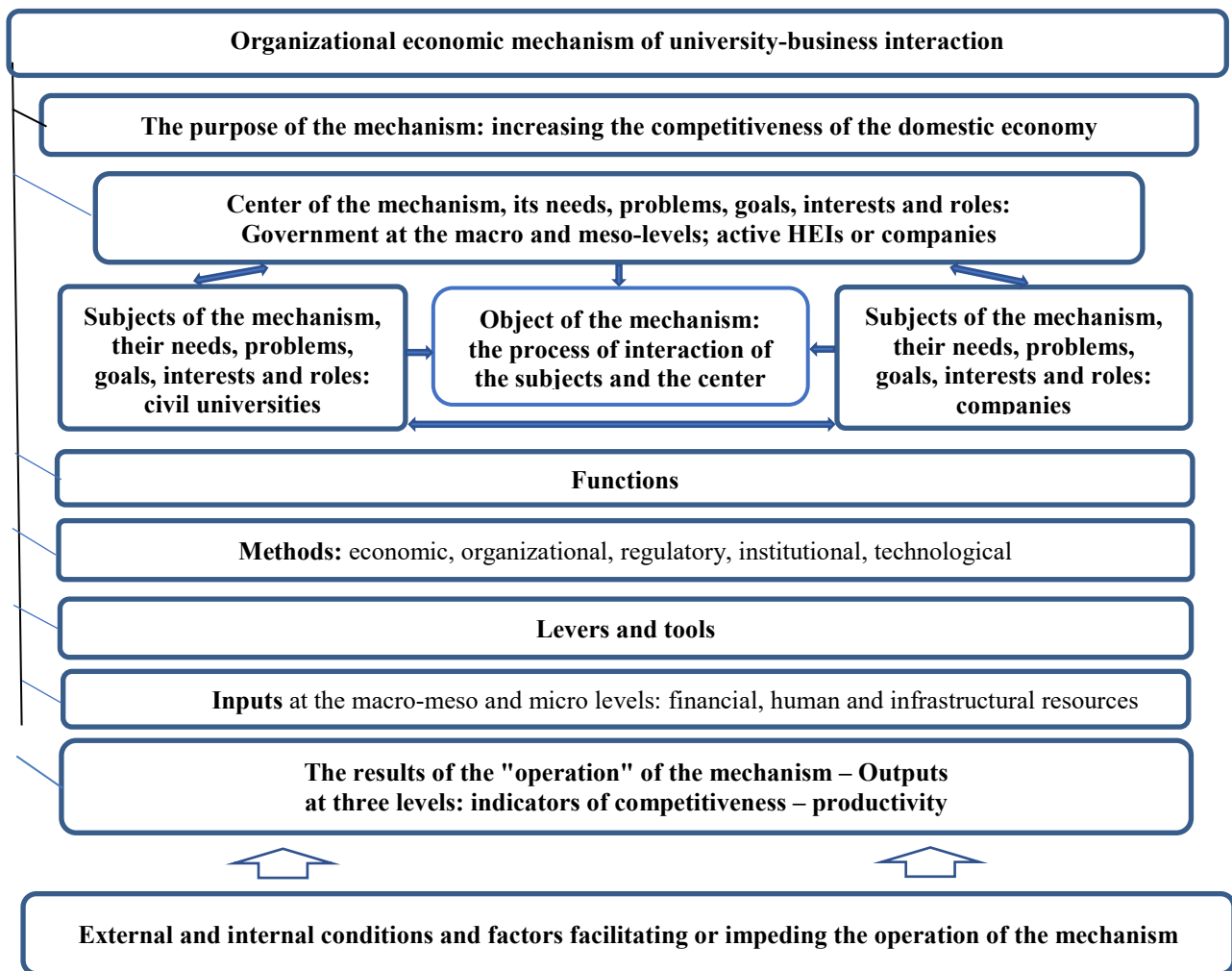


Figure 1. Organizational and economic mechanism of university-business interaction

Note — Compiled on the basis of the sources (Bychkova, 2010), (Knyazkina, 2015), (Rybnicek et al., 2017), (Zhuravlev, 2019), (Galan-Muros et al., 2019), (Kobicheva et al., 2020)

Let us reveal the content of the elements of organizational and economic mechanism of UBI:

- The control center of the mechanism, as a control element with its own interests and goals, exercising influence on the subjects of the mechanism. This is the government at the macro and meso levels, these are universities and companies at the micro level. The control center can become the subject, and the subject can become the center in the process of evolution of the “Triple-helix” model.

- The Subjects of the mechanism are carriers of activities, as controlled elements — universities and companies participating in the work of the “mechanism” with their own needs, interests and goals. The Subjects are: civil universities of various types with traditional and entrepreneurial functions; companies of different sizes and organizational and legal forms.

- The goals of the Center and Subjects of the mechanism are how the desired results of the mechanism are formed on the basis of their needs and challenges.

- The Object is a controlled element — interaction — relations that arise in the process of UBI, which change under the influence of the control center and include levels of interaction, intensity of interaction, forms and organizational internal and external models of interaction, including the triple-helix model.

- Functions are ensuring the interconnection of the elements and Subjects of the mechanism, coordinating economic interests, implementing state policy in the field of employment, personnel training, development of innovations in plans and programs with target indicators and indicators of ministries, executive regional authorities, universities.

- Methods (economic, organizational, institutional, technological, regulatory), levers and tools are means for achieving goals.

- Inputs at the macro, meso and micro levels are financial resources, intellectual resources, infrastructure resources — innovation infrastructure and intermediaries.

- Outputs of the quality of the results of the “operation” of the mechanism with indicators: productivity at the macro and meso levels, as indicators of competitiveness; financial sustainability of the education system at the macro, meso and micro levels.

- Conditions and factors that facilitate or impede the operation of the mechanism (regulatory and legal framework, infrastructure, facilitator-factors and motivator-factors, barriers).

Strengthening the role of universities in the economy and the development of economic programs provide close ties with all stakeholders. When developing a strategy for interaction with business, it is necessary to use the theory of stakeholders. This makes it possible to avoid the disadvantages of traditional approaches, when different parties perceive differently certain types of university activities and their results. Stakeholders were first defined by E. Freeman as any group or individual that can be influenced by the achievement of the goals of the organization (Freeman, 1984).

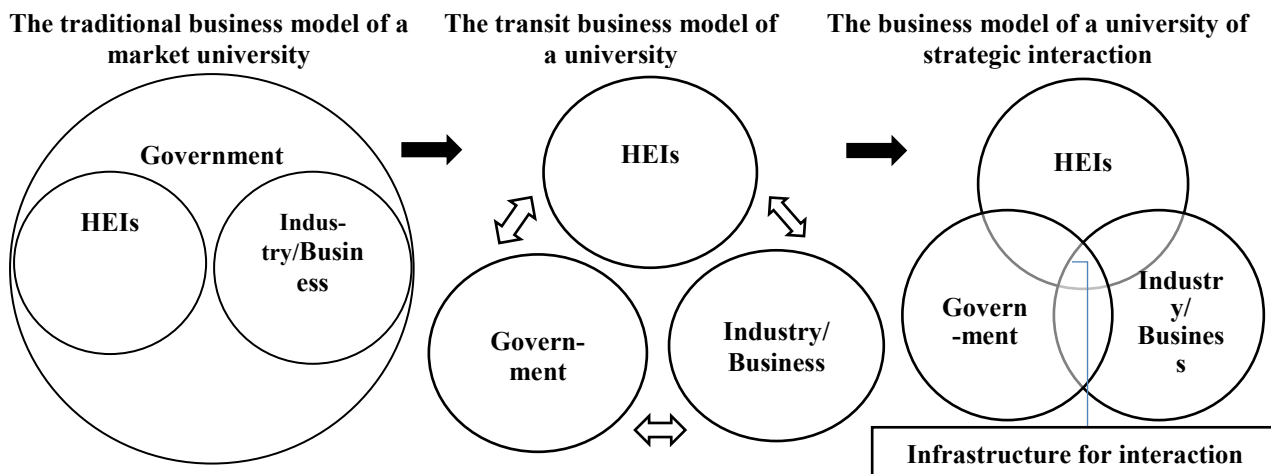


Figure 2. Evolution of the Entrepreneurial university concept

Note — Compiled by the authors on the basis of the sources (Kimatu, 2016), (Miller et al., 2014), (Leydesdorff et al., 2016), (Galvao et al., 2019)

When considering the organizational and economic mechanism of UBI, one should proceed from the fact that any economic activity is determined by the wants to fulfill the interests of its participants. These interests might be economic, social, cultural, environmental and so on, which, as a rule, prevail in economic activity.

The most popular concepts for building stakeholder engagement relationships have become the Triple-Helix concept proposed by H. Etzkowits (Etzkowits, 2011) and L. Leydesdorff (Leydesdorff, Ivanova, 2016), and the business model of an “entrepreneurial university” proposed by B. Clark (Clark, 1998), F. Kitagawa (Kitagawa et al., 2016). These concepts show successful cooperation and formation of an innovative education system based on the idea of an entrepreneurial university on the interaction of three main actors — Government, HEIs and Business.

The business model of the entrepreneurial university itself has undergone changes from traditional to transit, and from transit to developing, which is clearly illustrated in Figure 2. The evolution of the model clearly illustrates how the role of the government is changing, turning it from a “Center” of a mechanism into a “Subject” in the transit model, and in the developing model, Subjects interact through intermediaries and without.

The activity of Subjects determines their ability to become the Center of the mechanism. This is manifested at the micro-level in the interaction of a specific university and a company. Currently, the Center of the mechanism is the Government.

In the Business model of a university of strategic interaction, an infrastructure for interaction appears in the form of units of the innovation structure (Brescia et al., 2016), (Kunjazova et al., 2016), (Sitenko et al., 2018) and intermediary units, both inside universities (Drakh et al., 2020), and beyond. These structures ensure the effectiveness of interaction at different levels and types of the markets.

Adapting the idea to the conditions of a particular country, the most important act in the implementation of the concept is the effective distribution of roles between its actors within the framework of the national model, as well as the creation of infrastructure that ensures its implementation.

The most appropriate distribution of roles in the model is represented in Table 1.

Table 1. Role of actors in the business model of the university of strategic interaction

Roles		
Government	HEIs	Business
<ul style="list-style-type: none"> - real providing of autonomy universities; - assistance in the creation of an appropriate facilities of universities; - formation of the government order for specialties in accordance with the actual needs of the labor market and business environment; - encouragement (benefits) of business to conduct joint research projects with universities in priority areas 	<ul style="list-style-type: none"> - the establishment of technology parks, innovative firms, venture funds on the basis of universities in order to conduct research; - reducing the bureaucratic component in their activities; - active involvement of experts and business representatives in the educational process - generating new ideas, creating innovations 	<ul style="list-style-type: none"> - informing the government and universities about the market needs for qualified personnel in promising areas of activity; - reorientation from quick profit to achieving long-term results through innovation; - introduction and dissemination of the institution of endowment, the conditions for which must be created by the government - job creation
<p><i>Note — Compiled by the authors on the basis of the source (Etzkowits, 2011)</i></p>		

The evolution of the models occurs due to the influence of world socio-economic processes on them, which create the wants (Table 2) for the Subjects and Center of the mechanism to interact with each other. There are three main groups determine the changes, intensively occurring processes in the economy (Grinenko, 2009): 1) globalization both with the possibility of attracting additional resources and with the threat of an outflow of national resources; 2) transformation of the capitalist system, with a decrease in stability and an increase in the level of uncertainty, and limited resources in the context of economic liberalization; 3) cognitization, which determines a high level of competitiveness of the economy based on the increasing role of the intellectual potential of a society.

External changes influencing on shareholders give rise to their wants that can be met through interaction. The wants are understood as an objective socio-economic category that reflects the historically defined relations of people in the process of social reproduction, which manifests itself in the desire to consume, and takes the form of wishes (Grinenko, 2009). The wants and problems (Kelchevskaya et al., 2002) have been formulated in Table 2.

The goals for UBI can be combined and different at the same time, since the Subjects have different, sometimes diametrically opposed economic interests, but for the economy as a whole, effective UBI ensures the country's competitiveness.

The interaction of economic actors has a fundamental rationale in the form of a mechanism for reconciling interests (Jonsson et al., 2015), which can be designated as the first basic principle. The coordination of the socio-economic interests of the subjects operating in these markets requires a conceptual and theoretical justification due to its specificity. These markets have a number of features, since the interests of the Subjects of these markets, determined by the classical development paradigm, have a clear hierarchical structure and are of a public or mixed nature (Grinenko, 2009).

Table 2. The wants, problems and goals of actors in the business model of the university of strategic interaction.

Wants	Problems	Goals	Solutions
HEIs			
for graduate employment	The mismatch of supply and demand in the labor market lead to an unemployment of graduates	<ul style="list-style-type: none"> - Employment of graduates - Improving the quality of educational programs and teaching at the university - Strengthening the capacity of the teaching staff - Improving the image and rating of the university - Strengthening the facilities of the university 	It is solved by: predicting the needs of the economy in personnel, creating online platforms for employment; interaction of universities with business in the market of basic education services.
for additional sources of financing	Reduction of budgetary funding in the terms of liberalization of higher education	<ul style="list-style-type: none"> - Attracting additional financial resources to the university - Commercialization of knowledge, technologies, innovations of universities in enterprises 	It is solved through the interaction of universities with business in the markets of supplementary education services and innovative products and services.
Business			
for competent personnel, innovators	Shortage for competent personnel, innovators; inconsistency of competencies of graduates with the requirements of the labor market	<ul style="list-style-type: none"> - Replenishment of the company with qualified graduates - Staff development of the enterprise 	It is solved due to the UBI in the market of services of basic and supplementary education; active participation in the implementation of the educational function of the university.
for new ideas, innovations	Shortage for new ideas, innovations	<ul style="list-style-type: none"> - Attraction of additional financial resources for the implementation of joint projects with universities - Increasing the competitiveness of the enterprise through fostering innovations 	It is solved through the UBI in the markets of scientific and technical products and services, and innovative products and services.
Government			
for economic growth through intellectual capital and innovation	Decline or slowdown of economic growth; a weak role of universities in the economy in meeting business wants to achieve the economic growth	<ul style="list-style-type: none"> - Increasing of competitiveness indicators 	It is solved through the implementation of traditional and entrepreneurial functions of universities and implies interaction in several markets — educational services, scientific and technical products and services, innovative products and services.
<i>Note — Compiled by the authors on the basis of the source (Kelchevskaya et al., 2002)</i>			

The interests with the means of achieving goals start the interaction mechanism. In the article, interaction is understood as organizational and economic relations between the Subjects, as an Object of the mecha-

nism, which are formed on the basis of repeating relationships and rising to the highest levels of interaction become long-term and are supported by formal agreements — signed contracts.

Interacting with business on different types of markets (labor market, market for scientific publications, market for basic and additional educational services, market for scientific and technical products and services, market for innovative products and services), universities perform four traditional functions (Feliu et al., 2017) (Table 3), three new entrepreneurial functions (Pavlova, 2016), and new management and integration functions (Table 4), for the implementation of which it is necessary to interact with business and without business they are not feasible. Tables 3 and 4 disclose the features of interaction by the functions of the university, on the basis of which the forms of UBI have been selected.

Table 3. Forms of interaction and methods, levers and instruments of influence on traditional functions

Infrastructure for interaction	Interaction form	Means of achieving goals		
		Method**	Lever	Tool
The Employment function is implemented in the labor market				
Career/ Employment Centers	Employment assistance	O	Information support	Job fair
		T		Electronic labor exchange
		E	Economic analysis	Analysis of the labor market and forecasting the need for personnel
		T	Information support	Information and analytical system for forecasting labor resources
Function Education is implemented on the market of basic education				
Departments, Departments of Education and Professional Associations	Business participation in the development of educational programs	N	Legal and regulatory framework	Professional standards, seminars with employers
	Business participation in the implementation of the educational programs	N	Legal and regulatory framework	Changes in the requirements for graduation, staffing and basic education ***
Departments, Departments of Education, NPI Atameken	Business participation in the assessment of the quality of education	O	Monitoring and evaluation	Rating
Institute for Vocational Education, Training Center for blue-collar occupations	Development and implementation of dual education	N	Legal and regulatory framework	Implementation of professional standards, seminars with employers
		E	Stimulation	Reimbursement of costs to enterprises ***
Departments	Business participation in monitoring the effectiveness of training	O	Monitoring	Monitoring system ***
Resource Centers	Mobility, internships, exchange	E	Stimulation	Incentives for employers ***
The Education-Science function is implemented in the scientific publications market				
Partnership Centers	Exchange of professional information	O	Information and consulting support	Offline and online events, networking
The Science function is implemented in the market of scientific and technical products and services				
Research Institutes / Centers, Laboratories, Departments of Science	*Joint research	E	Financing support	Business co-financed grants
	Mentoring PhDs and Masters' Works	O	Information and consulting support	Offline and online sessions ***
<i>Note — Compiled by the authors</i> <i>* Assume the conclusion of contracts</i> <i>** Methods — economic — E, organizational — O, institutional — I, technological — T, normative — N</i> <i>*** Tools have not worked yet or tools have just started to be used in Kazakhstan.</i>				

Table 4. Forms of interaction and methods, levers and instruments of influence on new functions

Infrastructure for interaction	Interaction form	Means of achieving goals		
		Method**	Lever	Tool
The Education-Entrepreneurship function is implemented in the market of basic and supplementary educational services				
Departments	*Targeted training on business' order	E	Financial support	Government order, business grants
Departments, Methodological Centers, Centers supplementary learning	*Supplementary / long-life learning for employees	E	Stimulation	Academics stimulating
			Economic analysis	Analysis of the market for supplementary education services ***
Centers for Distance / Open Learning, Business support Centres	Creation of an educational environment and an open network of knowledge	T	Information support	Online platforms
		E	Stimulation	Stimulation and motivation of academics ***
Function—Science—entrepreneurship is implemented in the market of scientific and technical products and services				
Departments of Science and Innovation	*Carrying out research in order	E	Financial support	Grants, Public Private Partnership ***
	Business Consulting	E	Stimulation	Stimulation and motivation of academics ***
Departments	Business cases for students	N	Legal and regulatory framework	Project management ***
The Entrepreneurship function is implemented in the market of innovative products and services				
Incubators, Startup Centers, Accelerators	* Opening and maintaining startups	E	Financial support	Tax Incentives, Grants, Consortia, Venture funds ***
		T		Investment and innovation portal, Registry of startups
Offices of Technology Transfer (OTT)	*Commercialization of R&D results through Spinoff for the sale of created technologies or creation of production	E	Stimulation	Incentives for academics and OTT staff
			Labor rationing	Reducing the administrative burden of teaching staff
		T	Information support	Website for university offers and business inquiries / Online platform ***
Science and Technology Parks	*Organization of small-scale production	E	Financial support	Tax Incentives, Grants, Consortia, Venture funds ***
The Management function is implemented in the corporate control market				
Partnership Centers	Voluntary contributions	E	Financial support	Tax incentives, Endowment funds
	Business participation in university management	O	Planning and control	Board of Trustees and Supervisory Boards
The Integration function is implemented in the long-term investment market				
Centers for Strategic Partnerships	*Creation of joint subdivisions: Training centers, Research and development centers, Business incubators, etc.	E	Financial support	Public Private Partnership***
<i>Note — Compiled by the authors</i> <i>* Assume the conclusion of contracts</i> <i>** Methods — economic — E, organizational — O, institutional — I, technological — T, normative — N</i> <i>*** Tools have not worked yet or tools have just started to be used in Kazakhstan</i>				

This interaction is carried out both directly and through its internal divisions, as intermediaries who interact with business on different types of markets, attracting business to participate in the implementation of traditional, entrepreneurial (Pavlova, 2016), management and integration functions of the university. The forms of interaction according to the functions of the university through intermediaries at the micro-level, through internal intermediaries, and at the meso-level through external intermediaries with a description of the methods, levers, and instruments of influence on these forms.

Discussions

Based on the results of theoretical studies of the organizational and economic mechanism, its essence, structure and elements, as well as models of interaction of shareholders in the process of their evolution, the authors propose the university-business strategic interaction model (Figure 3).

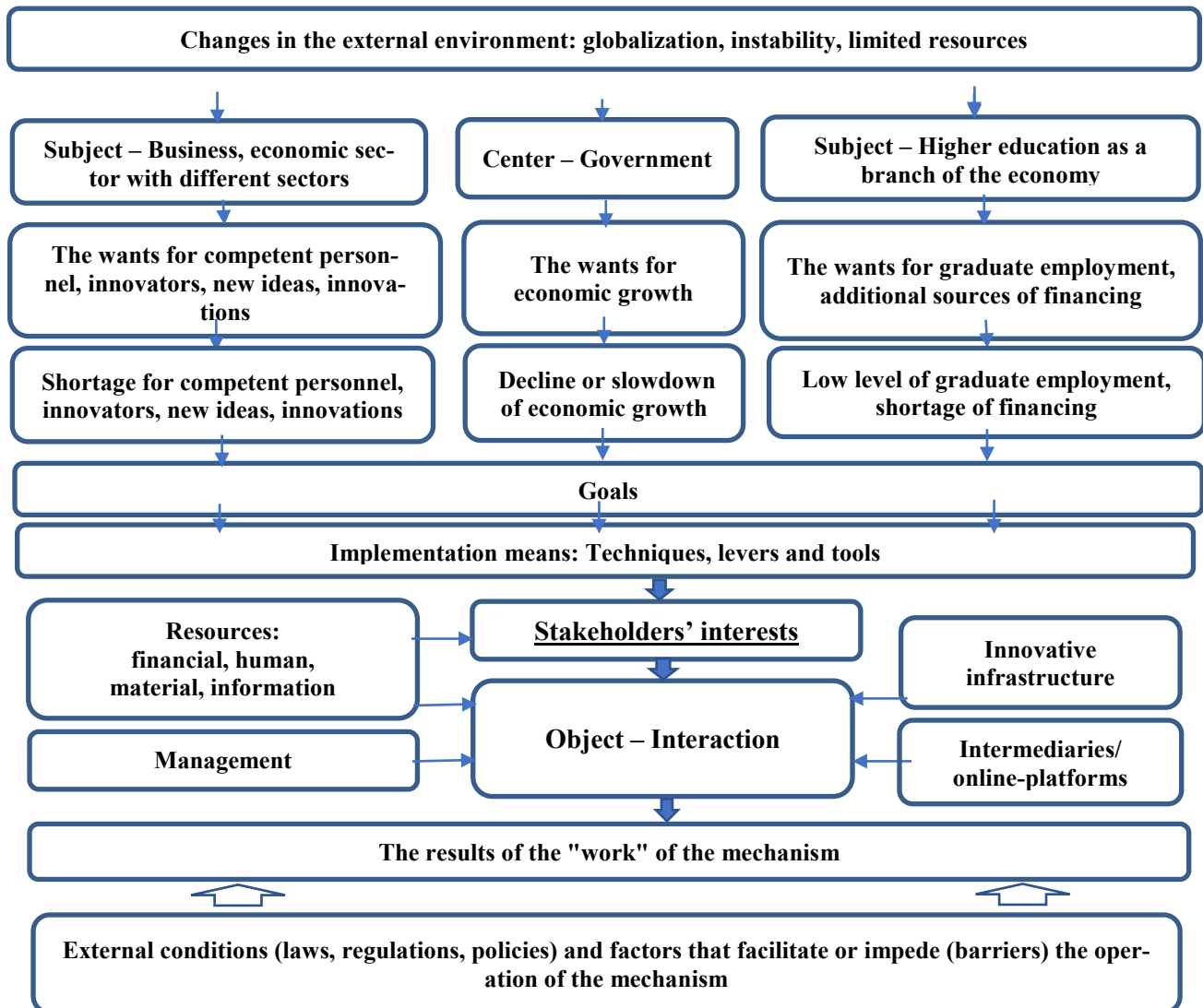


Figure 3. University-business strategic interaction model (UBSIM).

Note — Compiled by the authors

Changes in the external environment, such as globalization, instability, limited resources, reduce competitiveness, having a negative impact on the Center and Subjects of the university-business strategic interaction model. The actors face the new challenges, which become reasons for interaction. Further, it is necessary to determine goals, interests and means of their achievement. Exact means start the interaction mechanism. The right tools and sufficiency of resources can "ignite" the interests of stakeholders. With the help of resources and infrastructure for interaction, the mechanism starts to move for getting results. In the absence of interests or the impossibility of their realization, there is no driving force that sets in motion the entire or-

ganizational and economic mechanism. The authors suggest the matrix of interests for shareholders in Table 5.

Table 5. The matrix of interests for the actors on new functions.

Interaction form	Business	HEIs			Government
		Administration	Academics	Graduate	
Supplementary / long-life learning for employees	Reducing the cost of additional training employees	New ways to generate income	Possibility to receive additional remuneration	Acquiring additional skills	Creation of a lifelong learning system
Targeted training on business' order	Opportunity to get a specialist of the required qualifications	Ensuring the admission of applicants, maximizing budget and commercial funding	Providing workload for academics	Guaranteed employment	Training of personnel capable of realizing the development needs of the region / country
Creation of an educational environment and an open network of knowledge	Access to educational resources of the university	Scaling	Mastering and using new learning technologies	Choice of courses	Formation of a distance learning system
Carrying out research in order, Business Consulting	The ability to obtain a solution to a specific problem	Earning income by the university	Possibility of additional reward	Gaining experience in research and consultation	Development of applied research
Opening and maintaining startups, spinoffs	Receiving dividends	Attracting investment to student and academic projects	Earning income	Acquisition of practical knowledge and experience in starting and running a business	Increase in the number of SMEs
Commercialization of R&D results	Acquisition of new technologies	Receiving income from commercialization	Possibility of additional reward	Experience in the commercialization of projects	Increase in labor productivity
Organization of small-scale production	Debugging production business processes	Attractiveness of the university for applicants	Practice	Practice	New productions and products
Business participation in university management	Status upgrade	Improving the quality of decisions	Increasing the loyalty of academics	Receiving the business scholarships, grants	Creating a culture of corporate governance
Creation of joint subdivisions	Receiving additional income from investments	Creation of infrastructure for interaction	Improving the infrastructure of the university	Improving the infrastructure of the university	Creation of infrastructure for interaction

Note — Compiled by the authors

It is supposed that quantity of shareholders is more than three. So, as HEIs represent such shareholders as administration, academics and graduates. Without doubts, it is necessary to consider mutually beneficial interests of all the actors (Rybnick, Königsgruber, 2019) which will be a driver for successful interaction for achieving the general goal — increasing the competitiveness of the domestic economy.

Conclusions

The changes occurred in Kazakhstan's education have expanded the possibilities of academic and administrative autonomy for implementation of academic, management and financial freedom. Business has started to interact with university activities related to implementation of traditional and entrepreneurial functions. The universities have implemented entrepreneurial culture forming positions of universities as open systems. The key factor that creates the preconditions for the development of the universities autonomy in

Kazakhstan, the regulatory system with a global change in the role of the state, the main function of which is to change the traditionally rigid system of administrative and public administration of the sphere of higher education to the public-state one, should aim universities at the strategic needs and interests of society, which requires the development of new mechanisms of interaction among business, educational institutions and society.

In order to ensure that the interests of the actors in the interaction coincide, it is necessary to develop an organizational and economic mechanism that will unite and create a cohesion of all tools and levers to achieve the main goal. A mechanism would ensure the development of the economy in a constantly changing external environment, taking into account the economic interests of the concerned parties. Improving the organizational and economic mechanism is currently one of the ways to mobilize resources to maintain them at the proper level, create a synergistic effect and increase the competitiveness of the real sector of the economy.

References

- Bölling M. Collaboration with society: The future role of universities? Identifying challenges for evaluation / M. Bölling, Y. Eriksson // *Research Evaluation*. — 2016. — Vol. 25 (2). — P. 209–218. Doi:10.1093/reseval/rvv043.
- Brescia F. Organizational structures of Knowledge Transfer Offices: an analysis of the world's top-ranked universities / F. Brescia, G. Colombo, P. Landoni // *The Journal of Technology Transfer*. — 2016. — Vol. 41 (1). — P. 132–151.
- Bronstein J. Entrepreneurial university archetypes: A meta-synthesis of case study literature / J. Bronstein, M. Reihlen // *Industry and Higher Education*. — 2014.- Vol. 28, No. 4. — P. 245–262.
- Clark Burton R. *Creating Entrepreneurial Universities: Organizational Pathways of Transformation* / R. Burton Clark // Oxford: UK: Pergamon. — 1998. — P. 163. Retrieved from http://www.finhed.org/media/files/05-Clark_-_Creating_Entrepreneurial_Universities.pdf.
- Drakh T.P. The effectiveness analysis of the university-business interaction institutional mechanism and recommendations for its improvement / T.P. Drakh, Z.A. Salzhanova, A. Vitrenko // *Bulletin of the Karaganda University. Economy Series*. — 2020. — No. 2 (98). — P. 32–41. Doi: 10.31489/2020Ec2/32–41.
- Feliu V.M. Knowledge transfer and university-business relations: Current trends in research / V.M. Feliu, A.D. Rodríguez // *Intangible Capital*. — 2017. — No.13 (4) — P. 697–719.
- Freeman R.E. *Strategic Management: A Stakeholder Approach*. / R.E. Freeman // London: Pitman Publishing. — 1984.
- Galan-Muros V. The UBC ecosystem: putting together a comprehensive framework for university-business cooperation / V. Galan-Muros, T. Davey // *Journal of Technology Transfer*. — 2019. — No. 44. — P. 1311–1346. Doi:10.1007/s10961-017-9562-3.
- Galvao A. «Triple helix and its evolution: a systematic literature review» / A. Galvao, C. Mascarenhas, C. Marques, J. Ferreira, V. Ratten // *Journal of Science and Technology Policy Management*. — 2019. — Vol. 10 (3). — P. 812–833. Doi:10.1108/JSTPM-10-2018-0103.
- Jonsson L., Baraldi E., Larsson, L.-E. A broadened innovation support for mutual benefits: Academic engagement by universities as part of technology transfer/ L. Jonsson, E. Baraldi, L.-E. Larsson, // *International Journal of Technology Management and Sustainable Development*. — 2015. — No.14. — P. 71–91. Doi:10.1386/tmsd.14.2.71_1.
- Kimatu J.N. Evolution of strategic interactions from the triple to quad helix innovation models for sustainable development in the era of globalization / J.N. Kimatu // *Journal of Innovation Entrepreneurship*. — 2016. — No. 5. — P.16. Doi:10.1186/s13731-016-0044-x.
- Kitagawa F. Third mission as institutional strategies: Between isomorphic forces and heterogeneous pathways / F.Kitagawa, M.S. Barrioluengo, E. Uyarra // *Science and Public Policy*. — 2016. — No. 43 (6). — P. 736–750.
- Kobicheva A. The Development of an Interaction Mechanism between Universities and Other Innovation System Actors: Its Influence on University Innovation Activity Effectiveness / A. Kobicheva, T. Baranova, E. Tokareva // *Journal of Open Innovations: Technology, Market and Complexity*. — 2020. — No. 6. — P.109. doi:10.3390/joitmc6040109
- Leydesdorff L. “Open Innovation” and “Triple Helix” Models of Innovation: Can Synergy in Innovation Systems Be Measured? / L. Leydesdorff, I. Ivanova // *Journal of Open Innovations: Technology, Market and Complexity*. — 2016. — No. 2 (1). — P. 1–12. Doi:10.1186/s40852-016-0039-7.
- Miller K. The changing university business model: A stakeholder perspective / K. Miller, M. Mcadam, R. Mcadam // *R&D Management*. — 2014. Doi: 44. 10.1111/radm.12064.
- Rybnicek R. The importance of interpersonal and social factors in university–industry collaboration / R. Rybnicek, J. Plakolm, L. Baumgartner, A. Gutschelhofner // — 2017. Doi:10.20472/BMC.2017.005.012.
- Rybnicek R. What makes industry–university collaboration succeed? A systematic review of the literature / R. Rybnicek, R. Königsgruber // *Journal of Business Economics*. — 2019. — No. 89. — P. 221–250.
- Бычкова А.Н. Экономический механизм: определение, классификация и применение / А.Н. Бычкова // *Вестн. Ом. гос. ун-та. Сер. Экономика*. — 2010. — № 4. Режим доступа: <https://cyberleninka.ru/article/n/ekonomicheskiy-mehanizm-opredelenie-klassifikatsiya-i-primenenie>.

- Гриненко С.В. Организационно-управленческое моделирование научно-образовательной инфраструктуры профессионального сообщества: от взаимодействия к сотрудничеству и партнерству / С.В. Гриненко // Таганрог: ТТИ ЮФУ, 2009. — 271 с. Режим доступа: <http://www.aup.ru/books/m1525/>.
- Днишев Ф.М. Предпосылки и условия формирования модели «тройной спирали» инноваций в Казахстане / Ф.М. Днишев, А.С. Габдулина // Экономика: стратегия и практика. — 2018. — № 3. — С. 43–55.
- Журавлев Д.М. Организационно-экономический механизм управления устойчивым развитием региона / Д.М. Журавлев // Креативная экономика. — 2019. — Т. 13. — № 2. — С. 249–260. doi: 10.18334/ce.13.2.39905.
- Ицковиц Г. Тройная спираль. Университеты — предприятия — государство. Инновации в действии / Г. Ицковиц. Под ред. А.Ф. Уварова; пер. с англ. — Томск: Изд-во Том. гос. ун-та систем упр. и радиоэлектр., 2011. — 237 с.
- Кельчевская Н.Р. Разработка механизма взаимосвязи вуза и предприятия — объективная необходимость XXI века / Н.Р. Кельчевская, М.И. Срогович. — Екатеринбург: ГОУ УГТУ–УПИ, 2002. — 112 с.
- Князькина А.А. Понятие и состав организационно-экономического механизма стимулирования инвестиционной активности в АПК / А.А. Князькина // Фундаментальные исследования. — 2015. — № 2–6. — С. 1246–1251. Режим доступа: <http://www.fundamental-research.ru/ru/article/view?id=37013>.
- Куязова С.К. Разработка организационно-экономического механизма функционирования региональных «стартап-центров» по развитию молодежного бизнес-предпринимательства / С.К. Куязова, А.А. Титков, С.Ж. Ибраимова // Вестн. Караганд. ун-та. Сер. Экономика. — 2016. — № 3 (83). — С. 133–141. Режим доступа: <https://rep.ksu.kz/handle/data/994>.
- Павлова И.А. Трансформация институтов высшей школы и новая социально-экономическая парадигма: роли, функции, взаимодействия современного университета в региональной инновационной системе: моногр. Том. политехн. ун-т. — Томск: STT, 2016. — 232 с.
- Ситенко Д.А. Развитие инновационной экосистемы и инфраструктуры вузов Республики Казахстан / Д.А. Ситенко, А.С. Есенгельдина // Вестн. Караганд. ун-та. Сер. Экон. — 2018. — № 2 (90). — С. 99–108. Режим доступа: <https://rep.ksu.kz/handle/data/3870>.

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Қазақстан үшін кәсіпкерлік жоғары оқу орындары мен бизнестің стратегиялық өзара іс-әрекеттесу моделін әзірлеу

Аңдатпа

Мақсаты: Зерттеу мақсаты — ұйымдастырушылық-экономикалық механизмнің теориялық зерттеулерін, оның мәнін, құрылымы мен элементтерін, сондай-ақ олардың эволюциясы процесінде мүдделі тараптардың өзара әрекеттесу модельдерін талдау негізінде университеттер мен бизнестің стратегиялық өзара әрекеттесу моделін жасау.

Әдісі: Талдау жүргізу үшін тарихи, ақпараттық және салыстырмалы талдау әдістері қолданылды. Негізгі ережелер мен тұжырымдарды әзірлеу үшін құрылымдық-функционалдық әдіс, аксиомалық әдіс және жүйелік тәсіл пайдаланылды.

Қорытынды: Мақалада жоо мен бизнестің өзара іс-қимылының ұйымдастырушылық-экономикалық тетіктері мен модельдерін сипаттайтын теориялық тұжырымдамалар мен тәсілдерді талдау нәтижелері, сондай-ақ авторлар әзірлеген жоо мен бизнестің стратегиялық өзара іс-қимыл моделі келтірілген.

Тұжырымдама: Жоо-лардың бизнеспен өзара іс-қимылының нәтижелілігін арттыру үшін өзара іс-қимыл тетігін іске қосатын олардың мүдделерінің ортақ түйісу нүктелерін табу қажет.

Кілт сөздер: ұйымдастырушылық-экономикалық тетік, жоо мен бизнестің өзара әрекеттесуі, кәсіпкерлік жоо-ның бизнес-моделі, үш бұралым тұжырымдамасы, өзара әрекеттесу нысандары, ықпал ету құралдары, мүдделі тараптардың мүдделері, жоо мен бизнестің стратегиялық өзара әрекеттесу моделі.

Т.П. Драха, З.А. Сальжанова, Е. Борисова

Разработка модели стратегического взаимодействия предпринимательских вузов и бизнеса для Казахстана

Аннотация

Цель: Разработка модели стратегического взаимодействия вузов и бизнеса на основе анализа теоретических исследований организационно-экономического механизма, его сущности, структуры и элементов, а также моделей взаимодействия заинтересованных сторон в процессе их эволюции.

Методы: Для проведения анализа были использованы методы исторического, информационного и сравнительного анализа. В целях разработки основных положений и выводов применялись структурно-функциональный, аксиоматический и системный методы.

Результаты: В статье приведены результаты анализа теоретических концепций и подходов, описывающие организационно-экономические механизмы и модели взаимодействия вузов и бизнеса, а также разработанная авторами модель стратегического взаимодействия вузов и бизнеса.

Выводы: Для того, чтобы повысить результативность взаимодействия вузов с бизнесом, необходимо найти общие точки соприкосновения их интересов, которые запускают механизм взаимодействия.

Ключевые слова: организационно-экономический механизм, взаимодействие вуза и бизнеса, бизнес-модель предпринимательского вуза, концепция тройной спирали, формы взаимодействия, инструменты воздействия, интересы заинтересованных сторон, модель стратегического взаимодействия вуза и бизнеса.

References

- Bölling, M., & Eriksson, Y. (2016). Collaboration with society: The future role of universities? Identifying challenges for evaluation. *Research Evaluation*, 25 (2), 209–218. Doi:10.1093/reseval/rvv043.
- Brescia, F., Colombo, G., & Landoni, P. (2016). Organizational structures of Knowledge Transfer Offices: an analysis of the world's top-ranked universities. *The Journal of Technology Transfer*, 41(1), 132–151. Doi: 10.1007/s10961-014-9384-5.
- Bronstein, J., & Reihlen, M. (2014). Entrepreneurial university archetypes: A meta-synthesis of case study literature. *Industry and Higher Education*, 28 (4), 245–262. Doi: 10.5367/ihe.2014.0210.
- Bychkova, A.N. (2010). Yekonomicheskii mekhanizm: opredelenie, klassifikatsiia i primeneniye [Economic Mechanism: Definition, Classification and Application]. *Vestnik Omskogo universiteta. Seriya Yekonomika — Bulletin of the Omsk University. Economy Series*, 4, 37–43. Retrieved from <https://cyberleninka.ru/article/n/ekonomicheskiy-mekhanizm-opredelenie-klassifikatsiya-i-primeneniye> [in Russian].
- Clark, B.R. (1998). *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*. Oxford: UK: Pergamon. www.finhed.org Retrieved from http://www.finhed.org/media/files/05-Clark_-_Creating_Enterpreneurial_Universities.
- Dnisev, F.M., & Gabdulina, A.S. (2018). Predposylki i usloviia formirovaniia modeli «troinoi spirali» innovatsii v Kazakhstane [Preconditions and conditions for the formation of the Triple Helix model of innovation in Kazakhstan]. *Ekonomika: strategii i praktika — Economics: strategy and practice*, 3, 43–55. Retrieved from <https://esp.ieconom.kz/jour/article/view/36> [in Russian].
- Drakh, T.P., Salzhanova, Z.A., & Vitrenko, A. (2020). The effectiveness analysis of the university-business interaction institutional mechanism and recommendations for its improvement. *Bulletin of the Karaganda University. Economy Series*, 2 (98), 32–41. Doi: 10.31489/2020Ec2/32–41.
- Etzkowits, H. (2011). *Troinaia spiral. Universitety — predpriiatiia — gosudarstvo. Innovatsii v deistvii [Triple helix. Universities-enterprises-state. Innovation in action]/ A.F. Uvarov (Ed.)*. Tomsk [in Russian].
- Feliu, V.M., & Rodriguez, A.D. (2017). Knowledge transfer and university-business relations: Current trends in research. *Intangible Capital*, 13 (4), 697–719. Doi:10.3926/ic.990.
- Freeman, R.E. (1984). *Strategic Management: A Stakeholder Approach*. — London: Pitman Publishing.
- Galan-Muros, V., & Davey, T. (2019). The UBC ecosystem: putting together a comprehensive framework for university-business cooperation. *The Journal of Technology Transfer*, 44, 1311–1346. Doi:10.1007/s10961-017-9562-3.
- Galvao, A., Mascarenhas, C., Marques, C., Ferreira, J., & Ratten, V. (2019). Triple helix and its evolution: a systematic literature review. *Journal of Science and Technology Policy Management, Vol. 10–3*, 812–833. Doi:10.1108/JSTPM-10-2018-0103.
- Grinenko, S.V. (2009). *Organizatsionno-upravlencheskoe modelirovanie nauchno-obrazovatelnoi infrastruktury professionalnogo soobshchestva: ot vzaimodeistviia k sotrudnichestvu i partnerstvu [Organizational and managerial modeling of the scientific and educational infrastructure of the professional community: from interaction to cooperation and partnership]*. Taganrog: TTI YUFU. www.aup.ru. Retrieved from <http://www.aup.ru/books/m1525/> [in Russian].
- Jonsson, L., Baraldi, E., & Larsson, L.-E. (2015). A broadened innovation support for mutual benefits: Academic engagement by universities as part of technology transfer. *International Journal of Technology Management and Sustainable Development*, 14, 71–91. Doi: 10.1386/tmsd.14.2.71_1.
- Kelchevskaya, N.R., & Srogovich, M.I. (2002). *Razrabotka mekhanizma vzaimosviazi vuza i predpriiatiia — obektivnaia neobhodimost XXI veka [The development of a mechanism for the relationship between the university and the enterprise is an objective necessity of the XXI century]*. Ekaterinburg: GOU UGTU–UPI,112. Retrieved from https://elar.urfu.ru/bitstream/10995/30803/1/5-321-00240-1_2002.pdf [in Russian].
- Kimatu, J.N. (2016). Evolution of strategic interactions from the triple to quad helix innovation models for sustainable development in the era of globalization. *Journal of Innovation Entrepreneurship*, 5, 16. Doi:10.1186/s13731-016-0044-x.
- Kitagawa, F., Barrioluengo, M.S., & Uyarra, E. (2016). Third mission as institutional strategies: Between isomorphic forces and heterogeneous pathways. *Science and Public Policy*, 43 (6), 736–750. Doi: 10.1093/scipol/scw015.
- Knyazkina, A.A. (2015). Poniatie i sostav organizatsionno-ekonomicheskogo mekhanizma stimulirovaniia investitsionnoi aktivnosti v APK [The concept and composition of the organizational and economic mechanism for stimulating

- investment activity in the agro-industrial complex]. *Fundamentalnye issledovaniia — Basic research*, 2–6, 1246–1251. Retrieved from <http://www.fundamental-research.ru/ru/article/view?id=37013> [in Russian].
- Kobicheva, A., Baranova, T. & Tokareva, E. (2020). The Development of an Interaction Mechanism between Universities and Other Innovation System Actors: Its Influence on University Innovation Activity Effectiveness. *Journal of Open Innovations: Technology, Market and Complexity*, 6, 109. Doi:10.3390/joitmc6040109.
- Kunyazova, S.K., Titkov, A.A., & Ibraimova, S.Z. (2016). Razrabotka organizatsionno-ekonomicheskogo mekhanizma funktsionirovaniia regionalnykh «startup-tsentrov» po razvitiu molodezhnogo biznes-predprinimatelstva [Development of an organizational and economic mechanism for the functioning of regional “Startup Centers” for the development of youth business entrepreneurship]. *Vestnik Karagandinskogo universiteta. Seriya Yekonomika — Bulletin of the Karaganda University. Economy Series*, 3 (83), 133–141 [in Russian].
- Leydesdorff, L. & Ivanova, I. (2016). “Open Innovation” and “Triple Helix” Models of Innovation: Can Synergy in Innovation Systems Be Measured? *Journal of Open Innovations: Technology, Market and Complexity*, 2 (1), 1–12 Doi:10.1186/s40852-016-0039-7.
- Miller, K., Mcadam, M. & Mcadam, R. (2014). The changing university business model: A stakeholder perspective. *R&D Management*. Doi: 44. 10.1111/radm.12064.
- Pavlova, I.A. (2016). *Transformatsiia institutov vysshei shkoly i novaia sotsialno-ekonomicheskaiia paradigma: roli, funktsii, vzaimodeistviia sovremennogo universiteta v regionalnoi innovatsionnoi sisteme: monografiia* [Transformation of Higher School Institutions and a New Socio-Economic Paradigm: Roles, Functions, Interactions of a Modern University in a Regional Innovation System: monograph]. Tomsk: STT [in Russian].
- Rybnicek, R. & Königsguber, R. (2019). What makes industry–university collaboration succeed? A systematic review of the literature. *Journal of Business Economics*, 89, 221–250. Doi:0.1007/s11573-018-0916-6.
- Rybnicek, R., Plakolm, J., Baumgartner, L., & Gutschelhofer, A. (2017). The importance of interpersonal and social factors in university–industry collaboration. Doi:10.20472/BMC.2017.005.012.
- Sigova S.V. & Kekkonen A.L. (2016). Comparative analysis of universities — business interaction models in the Arctic zone and European // EDULEARN16 Proceedings: 8th International Conference on Education and New Learning Technologies (4–6 July, 2016). — Barcelona, Spain, 6106–6115.
- Sitenko, D.A. & Yessengeldina, A.S. (2018). Razvitie innovatsionnoi ekosistemy i infrastruktury vuzov Respubliki Kazakhstan [Development of an innovative ecosystem and infrastructure of universities of the Republic of Kazakhstan]. *Vestnik Karagandinskogo universiteta. Seriya Yekonomika*, 2 (90), 99–108 [in Russian].
- Zhuravlev, D.M. (2019). Organizatsionno-yekonomicheskii mekhanizm upravleniia ustoichivym razvitiem regiona [Organizational and economic mechanism for managing sustainable development of the region]. *Kreativnaia yekonomika — Creative Economics*, 13 (2), 249–260. doi: 10.18334/ce.13.2.39905 [in Russian].