

ОБРАЗОВАНИЕ И ОБУЧЕНИЕ: МЕТОДОЛОГИЯ, ТЕОРИЯ, ТЕХНОЛОГИЯ

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INNOVATIVE INFRASTRUCTURE OF THE UNIVERSITY: SMALL INNOVATIVE ENTERPRISE

Abstract

Currently, most Kazakhstani universities have identified a new direction of development for themselves and are being transformed into universities of an innovative and entrepreneurial type. This implies the creation of an innovative infrastructure and the formation of an innovative development strategy. The article discusses one of the elements of the innovation infrastructure of universities – a small innovative enterprise. The significant role of innovation in the modern economy is undeniable. The creation of competitive products with a high degree of science intensity is impossible without the use of innovations. This fact applies to the sphere of education as well as to any branch of the economy. The creation and development of small innovative enterprises can act as one of the tools for developing modern universities in Kazakhstan since it creates conditions for the active involvement of students in innovative activities and forms entrepreneurial potential. As a result of the creation and development of small innovative enterprises in universities, the material and technical base, educational and pedagogical elements are improved. Through the development of small innovative enterprises, universities strengthen their competitive positions and can also enter new markets. By acquiring patent rights, universities can ensure a competitive position in the creation of knowledge-intensive goods and services. To strengthen the innovative potential of the university, it is possible to manage intellectual property and develop know-how. Thus, the creation and development of small innovative enterprises in Kazakhstani universities is a mechanism for providing innovative infrastructure and realizing entrepreneurial potential.

Key words: higher education, innovative infrastructure, entrepreneurial potential, competitive positions, intellectual property, small innovative enterprise.

Today, in the context of the development of the Kazakh economy along an innovative path, the main form of increasing the efficiency of university management is the creation and development of small innovative enterprises as elements of the innovation infrastructure of universities and tools for their development. Let us consider in more detail the essential content of the term small innovative enterprise as an element of innovation infrastructure and a tool for developing a university.

Small business is an entrepreneurial activity conducted by subjects of a market economy under certain criteria (indicators) established by law, state bodies and other representative bodies that determine the essence of this concept.

The main criteria for small businesses are turnover and number of employees. In accordance with the Entrepreneurial Code of the Republic of Kazakhstan: “Subjects of small business are individual entrepreneurs without the formation of a legal entity and entities engaged in entrepreneurship, with an average annual number of employees of only one hundred people and an average annual income of no more than three hundred thousand times the monthly calculation index established by the law on the republican budget and valid as of January 1 of the corresponding financial year” [1].

The experience of countries with highly developed economies shows that small business is a basic component of a market economy.

Small business is a completely independent and most typical form of organising the economic life of a society with its own distinct features, advantages and disadvantages, development patterns. The main features of small business include the functioning of small innovative enterprises in the local market, quick response to changes in the market situation, direct relationship with the consumer,

narrow specialisation in a certain segment of the market for goods and services, the ability to start your own business with a relatively small start-up capital. All these features of small business are its advantages, which increase its stability in the domestic national market, but under certain conditions, become disadvantages that hinder its development [2].

The important role of small business is that it provides a significant number of jobs, saturating the market with new goods and services. In addition, small business, as a creative manifestation of the economic initiative of citizens, is the foundation for the independence of workers and their families [3].

Based on the available statistical and analytical data, it is possible to single out many main problems that small businesses face in their activities, including in the field of innovative activities of universities:

- ◆ imperfection of the regulatory framework in the field of small business in the higher education system;
- ◆ lack of effective financial and credit mechanisms and material and resource support for developing small innovative entrepreneurship in universities;
- ◆ imperfection of the taxation system;
- ◆ unfair competition;
- ◆ imperfection of the state system of support for small innovative entrepreneurship in universities;
- ◆ underdevelopment of the information support system for small innovative entrepreneurship in universities;
- ◆ problems of staffing training of specialists for small innovative entrepreneurship in the higher education system;
- ◆ administrative barriers [4].

In this aspect, the innovation infrastructure in the form of the creation of small innovative enterprises based on the university performs an integrative function. It is aimed at uniting the scientific, technical and educational spheres in the creation and application of new technologies, as well as the production and commercialisation of an innovative product in the humanitarian sphere. The key goal of developing small innovative enterprises based on the university is to create organisational conditions. These conditions ensure the self-development of universities and the growth of competitiveness of educational products and services by introducing new technological processes, corporate structure, and the effective use of the achievements of science and technology.

Small innovative enterprises based on universities can be considered as enterprises participating in the process aimed at translating the results of R&D or scientific and technical achievements of the university into an improved product or a technological product used in the practice of university partners. A distinct feature of such enterprises is their knowledge-intensiveness, which makes it possible to assert their practical feasibility of an institution for regulating the competitiveness and development of universities. Innovation is the result of the innovation activity of the university, which has been embodied in the form of a new or improved product sold on the market (product innovation) or in the form of a new or improved technological process used in practice (process innovation) of partners of the university [5].

Thus, entrepreneurial activity in the field of direct production of goods can be primary or auxiliary for a university. The main areas include those types of entrepreneurial activity that produce goods ready for consumption, namely, in the field of innovation activities of the university – an innovative product. The auxiliary ones include the types of entrepreneurial activity of the university in the development and transfer of innovations to direct producers in the form of methods and techniques that will increase the quality characteristics of the goods. The result of the university's innovative activity is the development and transfer of new equipment and technology to direct commodity producers. Ancillary activities include such entrepreneurial activities as engineering, design, consulting, marketing, leasing activities, methodically provided by the university.

Entrepreneurial activity in the field of innovative intermediation of universities allows combining the economic interests of business, science and society in the shortest possible time. The mediation of the university from a business viewpoint, increases the degree of work efficiency. It makes it possible to focus on the activity of the engineer-innovator only on production, transferring the functions of promoting the goods to the consumer to the intermediary university. In addition, the inclusion of an

intermediary university in the relationship between business and society significantly reduces the period of capital turnover and increases the profitability of a small innovative enterprise. It increases the competitiveness of the university, improves its image in the eyes of applicants who understand the possibilities of building a career for themselves in various spheres of the economy.

It is also necessary to consider that small innovative entrepreneurship based on universities due to its specificity has a pronounced regional aspect. Small innovative enterprises at universities build their activities based primarily on the needs of the local market, the volume and structure of local demand. In the context of the development of economic independence of the regions, small innovative enterprises at universities should become the main catalysts for optimizing the structure of the regional economy. Entrepreneurship on the scale of a small innovative enterprise as an element of the innovation infrastructure and a tool for developing the university has several qualitative features.

First, it is worth noting the unity of ownership and direct management of a small innovative enterprise.

Second, the limited scope causes a special, personal nature of the relationship between the management of the university and employees, which makes it possible to achieve real work motivation and a higher degree of job satisfaction.

Thirdly, the market of monopolistic competition itself does not allow small innovative enterprises to exert any serious influence on prices and the total sectoral volume of sales of goods, which reduces the likelihood of unfriendly actions in relation to both the enterprise and university that created it.

Fourth, the personified nature of the relationship between the entrepreneur and clients is promising.

Fifth, the manager is fully responsible for the results of management, not only because of property interests, but also because of his direct involvement in the production and organisational processes of the university.

Sixth, the specifics of doing business dictate the direct involvement of university staff and students in the activities of a small innovative enterprise, which allows the university to form its own personnel reserve.

The seventh feature is related to financing of small innovative enterprises at the university. Small innovative enterprises at universities rely on relatively little funding from venture funds, local budget funds, own funds and an “informal” capital market (money from friends, relatives, and so on).

Eighth, it is possible to single out a high proportion of working capital in comparison with the main one.

Also, in several functions of a small innovative enterprise as an element of an innovative infrastructure and a tool for developing universities, it is important to note the complex of economic and social functions:

- ♦ university as a participant in the production of products and services and a catalyst for business development, a taxpayer, an agent of market relations;
- ♦ through small forms of entrepreneurial activity, the student power and the teaching staff reveal and realise their innovative potential;
- ♦ small enterprises produce places of industrial training as a «testing ground» for young creative personnel, contributing to the generation of innovative ideas;
- ♦ today, the environmental function of small business is relevant, focused on the processing of industrial waste of large- and medium-sized enterprises based on innovative technologies.

Small innovative enterprises at universities, as a rule, appear when it is necessary to help business in the manufacture of small batches of products with a constantly updated innovative nomenclature and assortment of manufactured products; in the use of insignificant sources of raw materials and materials in conditions of a limited number of consumers. Such enterprises can be called diversified small innovative enterprises at universities. Thus, small enterprises at universities, with a comparatively saturated market find themselves in the refinement of products, considering the individual needs of the customer, in the production of small items or products, the manufacture of which is technologically predominantly innovative. Small enterprises at universities also dominate all areas of activity with a high level of risk of getting a zero result. It can be innovation, and the development of new technology, new types of products – these are venture capital small innovative enterprises and business incubators [6].

Small innovative enterprises of intensive direction, created by the university, are designed to give a powerful impetus to the development of large enterprises. Encouraging small innovative enterprises

at universities in a priority area, purposefully selected by the state, is designed to prepare a scientific and technical breakthrough in this area, test the sales market for new products, debug technological processes, and work out the main issues of retraining personnel as part of the innovative educational activities of a university for large enterprises. An intensive small economy is a testing ground for all aspects of science and technology policy. However, there is no possibility, and there is no need to consider everything to the smallest detail during global changes in the economy. This “fine-tuning of major transformations” is designed to provide small innovative enterprises, created at universities, but only in an extensive direction. Small enterprises of this direction will also be engaged in filling the markets of small settlements and remote areas with new goods.

Many universities, in particular large university complexes, are building their strategy for developing innovative infrastructure based on the construction of small innovative enterprises with the business of incubators for the commercialization of the created innovative developments. Also small innovative enterprises of a unique profile at universities, which voluntarily unite in consortia to solve a specific innovation problem implement a scientific and technical programme and implement a large innovative product ordered by a business or society.

A consortium is a voluntary association of university and business structures to solve a specific problem, implement a programme and implement a major project. A consortium assumes the division of responsibility between founders, equal rights of partners and centralised management. It can include enterprises and organisations of different forms of ownership, profile and size. The consortium members retain their full economic independence and are subordinate to the jointly elected executive body in that part of the activity that relates to the goals of the consortium. After completing the assigned task, the consortium is disbanded. Research consortia operate in two forms: a focal point (secretariat) and an inter-firm research centre [7]. Consortia, created as an inter-firm research centre have their own research base. The centres employ either permanent employees or scientists sent by the consortium members, the university.

Finally, an international joint small innovative enterprise at a university can be defined as an institution of inter-firm cooperation in the development, production, or marketing of an innovative product. It crosses national borders, is not based on short-term market transactions, and involves contributions from partners in the form of capital, technology or other intellectual assets. In many cases, management responsibilities are divided between partner firms. The motives for creating joint small innovative enterprises at universities can be different: obtaining advanced production technology; obtaining the right to use a trademark; export promotion; receipt of raw materials and equipment; making up for the lack of funds; gaining experience in management, etc. It should also be borne in mind that in a crisis economy, it is difficult to count on the stable functioning of a university if large and small businesses are not interested in it, as well as the state with its plans to modernize and improve the system of economic management.

Therefore, the main result of the creation of small innovative enterprises as elements of the innovation infrastructure and tools for developing universities is to stimulate cooperation between large business, the state and public organisations based on a rational economic policy, increasing the sustainability of development, localizing administrative risks and reducing transaction costs. The presence of small innovative enterprises at universities will raise the economic potential of the higher education system and then the relationship between business, science and society will rise to a new level.

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УНИВЕРСИТЕТТІҢ ИННОВАЦИЯЛЫҚ ИНФРАҚҰРЫЛЫМЫ: ШАҒЫН ИННОВАЦИЯЛЫҚ КӘСІПОРЫН

Андатпа

Қазіргі уақытта қазақстандық жоғары оқу орындарының көпшілігі өздері үшін дамудың жаңа бағытын айқындап, инновациялық және кәсіпкерлік үлгідегі университеттерге айналады. Бұл инновациялық инфрақұрылымды құруды және инновациялық даму стратегиясын әзірлеуді білдіреді. Мақалада университеттердің инновациялық инфрақұрылымының элементтерінің бірі – шағын инновациялық кәсіпорын қарастырылады. Қазіргі экономикадағы инновацияның маңызды рөлі даусыз. Ғылымды қажетсінетін жоғары дәрежесі бар бәсекеге қабілетті өнімді құру инновацияларды қолданбай мүмкін емес. Бұл факт экономиканың кез-келген саласы сияқты білім беру саласына да қатысты. Шағын инновациялық кәсіпорындарды құру және дамыту Қазақстанның қазіргі заманғы жоғары оқу орындарын дамыту құралдарының бірі бола алады, өйткені ол білім алушыларды инновациялық қызметке белсенді тарту үшін жағдай жасайды және кәсіпкерлік әлеуетті қалыптастырады. Жоғары оқу орындарында шағын инновациялық кәсіпорындарды құру және дамыту нәтижесінде материалдық-техникалық база, оқу және педагогикалық элементтер жақсаруда. Шағын инновациялық кәсіпорындарды дамыту арқылы университеттер өздерінің бәсекелестік позицияларын нығайтады, жаңа нарықтарды дамытуға болады. Патенттік құқықтарды алу жолымен жоғары оқу орындары ғылымды қажетсінетін тауарлар мен қызметтер жасауда бәсекелестік жағдайды қамтамасыз ете алады. Университеттің инновациялық әлеуетін нығайту үшін зияткерлік меншікті басқаруға және ноу-хауды дамытуға болады. Осылайша, қазақстандық жоғары оқу орындарында шағын инновациялық кәсіпорындарды құру және дамыту инновациялық инфрақұрылымды қамтамасыз ету және кәсіпкерлік әлеуетті іске асыру тетігі болып табылады.

Тірек сөздер: жоғары білім, инновациялық инфрақұрылым, кәсіпкерлік әлеует, бәсекелестік позиция, зияткерлік меншік, шағын инновациялық кәсіпорын.

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ИННОВАЦИОННАЯ ИНФРАСТРУКТУРА УНИВЕРСИТЕТА: МАЛОЕ ИННОВАЦИОННОЕ ПРЕДПРИЯТИЕ

Аннотация

В настоящее время большинство казахстанских вузов определили для себя новое направление развития и трансформируются в университеты инновационного и предпринимательского типа. Это подразумевает создание инновационной инфраструктуры и выработку инновационной стратегии развития. В статье рассмотрен один из элементов инновационной инфраструктуры вузов – малое инновационное предприятие. Значитель-

ная роль инноваций в современной экономике бесспорна. Создание конкурентоспособной продукции с высокой степенью наукоемкости невозможно без применения инноваций. Этот факт распространяется на сферу образования в той же мере, как и на любые отрасли экономики. Создание и развитие малых инновационных предприятий может выступать в качестве одного из инструментов развития современных вузов Казахстана, поскольку создает условия для активного вовлечения обучающихся в инновационную деятельность и формирует предпринимательский потенциал. В результате создания и развития в вузах малых инновационных предприятий происходит улучшение материально-технической базы, учебных и педагогических элементов. Посредством развития малых инновационных предприятий вузы укрепляют свои конкурентные позиции, возможно освоение новых рынков. Путем приобретения патентных прав вузы могут обеспечить конкурентное положение в создании наукоемких товаров и услуг. Для укрепления инновационного потенциала вуза возможно управление интеллектуальной собственностью и разработка ноу-хау. Таким образом, создание и развитие в казахстанских вузах малых инновационных предприятий является механизмом обеспечения инновационной инфраструктуры и реализации предпринимательского потенциала.

Ключевые слова: высшее образование, инновационная инфраструктура, предпринимательский потенциал, конкурентные позиции, интеллектуальная собственность, малое инновационное предприятие.