

THE PREREQUISITES FOR ENTREPRENEURIAL UNIVERSITIES FORMATION IN UKRAINE

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Abstract

Universities of a new generation need to unite the representatives of science and business who are interested in turning ideas into a real market product. This paper provides an original analysis of prerequisites for the formation and development of entrepreneurial universities in Ukraine.

This study used the results of the generalization of literature on entrepreneurial universities and European experience on their formation. It has shown the main approaches to the understanding of the nature and features of entrepreneurial universities and underlines its global impact. Analysis of the results of research has allowed to formulate the author's definition of "entrepreneurial university" and to form a synthesis of the key judgments about entrepreneurial universities. It was concluded that the key focus in determining of the entrepreneurial university must be made on the results of the commercialization of research activities of universities, as well as the practical training of students up to the demand of business.

Statistical data and international ranking reports were used to illustrate the current state of the higher education system of Ukraine. Peculiarities of the educational environment in the context of global changes and the identified trends in world studies were considered. The constraints faced by the educational system of Ukraine were allocated, including legislation base, the autonomy of universities issues, the diversification of funding sources. This leads to the conclusion that the use of European experience will allow adapting the educational space of Ukraine to the requirements of time and the global labour market.

The functioning of higher education system became the basis for the substantiation of prerequisites of the establishing of entrepreneurial universities in Ukraine, defining the catalysts factors of entrepreneurial activity of universities and identifying barriers to their development.

Keywords: *Entrepreneurial University, entrepreneurship, higher education, university funding, educational space.*

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I. Introduction

Entrepreneurial universities are one of dynamically developing structures of modern higher education which were declared as a fundamental social institution of a new post-industrial society more than three decades ago. According to the model of the third-generation university [1], high educational institutions must become the initiators of new activities, the base for implementation of knowledge in practice and a platform for regular contacts between representatives of the academic and business environment without reducing the level of academic training and research work. In the study process, students must receive the support of their business initiatives and experience of their own business projects management. The students can try their hands as idea generators, implementers and managers of innovative projects. This will allow them to more accurately assess their potential and to choose a better career.

The main characteristics of the entrepreneurial university are the commercialization of generation and distribution of ideas, the flexibility of organizational structure and the focusing on strategic interaction with the environment. At the level of higher educational institutions, it is the necessity of strategic reorientation to the entrepreneurial University as a new generation institute that meets the requirements of the environment.

II. Research Methods

The methodological basis of the article is a combination of philosophical, ideological, general scientific and special legal methods and scientific approaches to the knowledge of state thought and private initiatives to form entrepreneurial universities - educational centers of a new type. The study is based on the principles of science, objectivity, historicism, pluralism, systemacity. The determining method of research was the systemic method, which allowed to consider a certain inviolability of the elements that form this regularity, taking into account historical circumstances, directed the search to reveal the integrity of the phenomenon of education in general and the university as its center, as a result of which a single theoretical background stands out. The historical method made it possible to reveal the evolutionary development of university education, to enter into the internal determinism of individual decisions, legally enforceable enactments, and to study the conditionality of certain actions in the reform of the education system. The activity method (behavioristic) makes it possible to take into account the motives of people's behavior, through their activity it becomes possible to determine the balance of power in society, to show how legal regulations and economic models were introduced into everyday life. Using the axiological approach, a value analysis of the concepts for the development of entrepreneurial universities has been carried out. The structural method made it possible to uncover the place of entrepreneurial universities in global education, taking into account the economic realities of globalization processes.

III. Literature review

Research on university entrepreneurship is clearly burgeoning, yet it remains a fragmented field [2]. The review of literature shows the significant difference in the meaning of entrepreneurial universities depending on the context,

purposes, tasks and activity area.

Burton Clark [3] introduced the term entrepreneurial university in which he defined its core elements: a strengthened steering core with a clear vision and mission, boundary spanning structures and mechanisms to interact with the “outside” world (external stakeholders), a diversified funding base (less state funding), inter - and multidisciplinary activity and an integrated entrepreneurial culture.

A lot of researches [2, 4, 5] use the term proposed by Clark. Others called it as third-generation university [1]. Henry Etzkowitz [5] has foreseen the entrepreneurial future of universities and suggests hybrid organisational forms as most suitable to balance interaction with industry and public organisations with increasing independence of university.

M. Guerrerois and D. Urbanois [6] in their research reach the conclusion, that university authorities need to recognize their core role not only in building but also in reinforcing the university environment that nurtures entrepreneurial potential (incentives, new learning tools, role models). Universities need to stimulate skills, competences, that are most useful to create entrepreneurial mindsets that drive innovation, thus becoming entrepreneurial organizations.

Of particular interest is the study of J. Bronstein and M. Reihlen [7], where they argued that four different logics drive the nature of the entrepreneurial university – researching, industrialization, servitization and commercialization. The proposed archetypes – research driven, industry driven, service innovation driven, and knowledge commercialization driven – help better understand the ways of organizational development of high educational institutions.

Literature review has shown the six areas of research under the theme “entrepreneurial university”: organization and development of entrepreneurial research university; the creation of offices for the promotion and technology transfer; the creation of new firms about the profile of the work of the universities; the creation of innovation networks with universities; the phenomenon of "academic entrepreneurship"; "case studies" for different countries and universities, where "academic entrepreneurship" is being successfully implemented or starting to settle down. Such a variety of areas of research of the phenomenon of the entrepreneurial university in different countries shows the relevance of the problem and its global impact.

Despite the large number of publications, question of the formation and development of entrepreneurial universities in Ukraine remains debatable. The solution of this problem should be based on world experience with regional characteristics of the formed system of higher education taking into account.

The purpose of the paper is to explore the prerequisites of formation of entrepreneurial universities in Ukraine and to identify macro and micro factors that affect their development.

IV. Research results

The value of the contemporary university as an "entrepreneurial organization" as well as changing organizational models of higher education are reflected in the Road map of educational reform in Ukraine for 2015 – 2025 [8].

According to the World Economic Forum’s Global Education Initiative [9], higher education institutions have a critical role as intellectual hubs in entrepreneurial ecosystems by serving as an incubator for innovation and research as well as a focal network for collaboration among researchers, students, professors, companies, venture capital firms, angel investors and entrepreneurs. This process means the transition to multi-channel financing of university based on

independent search of sources of additional funds and the transformation of learning content.

However, the concept of "entrepreneurial university" is not fixed in regulatory legal acts of Ukraine. The authors have tried to interpret the term "entrepreneurial university" using the classifier of text documents – a method of k-nearest neighbors. On the basis of the classification the word forms, which are often used for the description of the concept of "entrepreneurial university", were derived. Received results have formed the basis of the semantic network that reflects the inner content of the term.

Thus we propose to interpret the entrepreneurial university as a new type of organizational structure of educational institutions, which specializes in the production of new knowledge and its capitalization; allows to train the competitive professionals with creative entrepreneurial thinking, able to implement innovative projects in various fields; adapts education to the needs of the labour market; forms and maintains connections with the business environment and society that leads to the diversification of sources of income and economic autonomy.

The author's definition does not contradict with the features of the "entrepreneurial university", formulated by Burton R. Clark [3]. It also complements and expands the concept as it respects the definition of entrepreneurship given by Professor of Harvard Business School G. Stevenson: "entrepreneurship is the pursuit of opportunities beyond the resources you currently control" [10]. It is conformed with the basic criteria of leading ratings such as Academic Ranking of World Universities [11], QS World University Ranking [12], Financial Times Global Master in Management Ranking [13] and others. It allows to conclude that the key focus in determining of the entrepreneurial university must be made on the results of the commercialisation of research activities of universities, as well as the practical training of students. The essence of the implementation of this concept in the field of higher education means the transformation of educational institutions into a source of technology and knowledge that would benefit the society and the university.

So the content quality of entrepreneurial universities is a synthesis of the following key judgments.

1. There is the complete cycle of reproduction of new knowledge: from methods of new ideas generation and production of implicit knowledge to creation of prototypes of product innovations and subsequent market testing. This means that the present intellectual capital in entrepreneurial university must lead all research and educational solutions to the final product form.

2. The entrepreneurial universities, in contrast to the traditional, set a goal of formation not established knowledge, but creative competence, or the awareness of the way to reproduce independently the new knowledge and competences. The linkage of the university with the production process has the task of developing of the innovative economic thinking and creativity, which is a specific form of the intellectual profit of university. It will be subsequently converted to the corresponding university brand, characterizing it as an incubator of key competencies, providing the employability of graduates.

3. The entrepreneurial universities have a relevant organizational structure that reflects its applied and "competence-based" orientation of their activities. The organizational component of entrepreneurial university should include not only special research departments, but also venture enterprises, consulting organizations, as well as their own experimental base.

4. The entrepreneurial universities are characterized by high dynamics of changes of educational standards, which is consistent with the requirements of the accelerated reproduction of large-scale and continuing economic and other innovations.

5. The entrepreneurial universities have a strong decentralized system of management of scientific-educational

and production-business activities. The formation and development of the "leadership network" will provide the passionate and innovative thinking of employees in all areas of higher education.

6. Following the logic of development of modern large-scale and continuous innovation, the entrepreneurial university should not only be an incubator of creative leaders, but also the central point for all those who studied it before or want to be a student. The innovative scientific-educational solutions of entrepreneurial University should be tested by well-established mechanism of feedback of all generations of alumni. So, let's explore the prerequisites for the formation of entrepreneurial universities in Ukraine.

Currently Ukraine has the educational system that according to the Human development report 2018 [14] allows to include Ukraine to the countries with high human development. It has 88 rank of 189 countries and gross enrolment ratio in tertiary education of 81%. As of December 2017 there were 212 public and 77 private universities and their affiliates which are separate legal entities [15].

The production of new knowledge and its capitalization is definitely relevant to Ukrainian universities. The criteria of "Innovation activity of universities" was additionally included into the national ranking system for HEIs [16] that confirmed the aggravation of the needs of the Ukrainian economy in innovative development. This criterion is quantitatively characterized by the volume of investments made by business into the startups of the universities.

In Ukraine since 1991 to 2018 the number of organizations that conduct research and development has been reduced from 1344 pieces to 963 45, 8% of which belong to the state sector of economics, 39,0% – to the entrepreneurial sector, 15,2% – to the higher education [17]. It can be explained by the social-economic situation in the country, the uniting of organizations to optimize their efforts, decreased funding for research programmes and not always the relevance of research and development due to insufficient communication of scientific research organisations and business.

There are four kinds of research in Ukraine: fundamental and applied researches, scientific-technical services and scientific and technical developments. The amount of performed works in this field since 1996 to 2018 has increased on fundamental research – from 13% to 20 % of the total volume of funds, on scientific and technical services – from 4% to 11%. At the same time the applied research have the reduction from 29% to 18 %. Despite the increase in the total amount of performed works, it is necessary to consider the inflation processes.

The sources of financing of innovative activity in Ukraine are own funds, state funds, funds of foreign investors, and other funding sources. According to [17] in 2000-2018 the financing of innovative activity by state has been ranged from 0 to 4,5 % of the total amount. The highest inventive activity has the educational institutions and scientific organizations of the National branch Academies and Ministries. The analysis of inventive activity of institutions of education and science indicates the number of applications filled by HEIs annually, three times exceed the number of applications filled by institutions of academic science.

For the entrepreneurial University the territorial reference, the level of development of innovative and technological policy in the region are extremely important. Analyzing the indicators of the inventive activity of national applicants in the regional context, it should be noted that traditionally the most active organizations are located in the industrialized regions. Thus, in 2018, applicants from Kyiv received about 30% of the total number of applications for inventions and utility models, Kharkiv – 15,5 %, Lviv – 7,8 %, Dnipro – 5,6 %, Odesa – 5 %. The high results of innovative activity of scientific academic institutions and educational institutions of Kyiv and Kharkiv can be explained by the activity of industrial parks, branch clusters, business incubators, start-up centres.

Despite the way of the formation of the entrepreneurial university, the central element of its activity is the commercialization of the results of scientific research and protection of intellectual property of universities. The tax system is not oriented to innovative development so the commercialization of inventions in Ukraine is resisted. And as a result, one can see that according to the Global Innovation Index [18], Ukraine has the lower-middle level of innovativeness. In comparison with EU countries the lag of Ukraine from the "Regional Innovation leaders" is approximately 3 times, from the "Regional Innovation followers" – 2 times, from the countries of "Regional Moderate innovators" – 1.6 times.

Ukrainian education system does not fully meet the needs of the economy that can be confirmed by the Global Competitiveness Report [19]. Ukraine ranked 83rd out of 140 countries, Ukraine scored most on components such as Skills (45th position), Market Size (47th), Infrastructure (57th) and Innovative Ability (58th); the components that pull Ukraine down were Macroeconomic Stability, Financial System, and Growth Rate of Innovative Companies.

The number of implemented reforms of last years and the updating of the regulatory framework has changed the legal basis of the business and investment climate in the country. Although it has not led to a substantial increase in business but allowed Ukraine to jump in the ranking "Doing Business – 2018" [20] to 76th position in 2018 among 190 countries in the World. At the same time, according to the World Bank, reforms implemented in Ukraine are controversial, so the results demonstrate alternating the significant improvement of the business environment and on the contrary, rapid decline in comparable positions. Besides, the changes have not contributed to considerable improvement of qualitative and quantitative characteristics of entrepreneurship development.

One of the most important indicators of development of entrepreneurship and entrepreneurial activity of citizens is the measure of the number of small businesses per 10 thousand persons. During 2010-2017 in Ukraine it was fluctuated at a mark of 72. This indicator differs by regions: Kyiv has 266 small businesses per 10 thousand of the population, Odessa - 103, Kharkiv - 91, Dnipro – 83 and Zaporizhzhya – 80 [21]. Only in these regions this figure exceeds the average values for the country. This is due to the specific characteristics of regions, such as existence of typical phenomenon of "capital maximum" in business activity for most of the countries; the growth in the traditional industrial centres; the intensity of inventive activity, the development of innovative and technological infrastructure in the region; the diversified system of higher education institutions forming student community with creative entrepreneurial thinking. In Ukraine the entrepreneurship is taught mostly at universities of economic orientation. An emphasis in training is made to creating of own business, although international practice understands the entrepreneurial skills as the ability to change the environment.

The level of mutual interest in the triad "higher educational institutions – business – society (the state)" in the formation and maintenance of long-term beneficial links can be illustrated by statistics of education funding. According to [15], Ukrainian HEIs received mainly public financing (69.9%), that is lower than the average in EU (79%). Ukrainian business investments in higher education are extremely low. Public and private expenditures on higher education nominally increased in Ukraine within 2010-2017. At the same time, indicators in prices of 2010 reveal that mainly state funding was growing. The state increased expenses on vocational and technical training (+11%), on colleges and technikums (+24%) and on universities (+6%). While households and business increased expenses only on aftergraduate education (+12%) and cut expenses colleges (-38%) and universities (-34%). The negative indicators of financing of higher education institutions from the business due not only to the economic situation in the country, but also to the absence (insufficiency) of the culture of funding and appropriate mechanisms.

The analysis of trends in education of Ukraine [22] shows that the development of educational services on national levels is being financed from the state budget as a residual, the educational system is very inert and slow in responding to new requests of labour market. The World Bank research [23] shows that the employers are unsatisfied by the level of training, especially with practical skills, while employers are not in contact with the HEIs and do not affect the situation (less than a quarter of Ukrainian companies cooperates with universities).

One of the most important questions is the possibility to achieve the autonomy of higher educational institutions in Ukraine and reality to diversify sources of income of higher education institutions. As to Law of Ukraine “On Higher education” [24], the autonomy of HEIs is the independence and responsibility of higher educational institutions in decisions regarding the development of academic freedoms, the organization of educational process, research, internal management, economic and other activities, selection and placement of staff. But the full autonomy of state HEIs is not legislatively defined in Ukraine.

Autonomy implies not only the existence of various rights of entrepreneurial universities, but also duties that are directly related to the target groups, at the first place, to society. Full autonomy of universities is not always a necessary basis for the functioning of HEIs in Ukraine, but sufficient freedoms provide more flexibility in determining future directions for development, compliance trends of the environment changes.

According to the “Law on higher education” [24] the Universities can open their own accounts, obtain loans, dispose of property. Funds received by a higher educational institution as tuition, training, retraining and advanced training or for the provision of educational services cannot be withdrawn to the state or local budgets. Ukrainian HEIs can diversify the sources of their income by creation of science parks and enterprises, establishing funds and using the passive income from them, transferring and receiving funds from participation in scientific and educational associations.

The legal status of private funds of the HEIs in Ukraine not enshrined in law. It is well known that all the funds of state university are budget, and therefore, they are used in accordance with the regulatory legal acts which establish the procedure of disposal of the budget funds [25]. The additional authorities for fund control are the State Treasury of Ukraine, State Financial Inspection of Ukraine, State Tax Administration of Ukraine, State Property Fund of Ukraine; Pension Fund of Ukraine and others. In such a situation, most of Ukrainian universities faced with many limitations in attracting and freely using non-state funds, such as resources of private business, non-profit organizations, international grant programs and the like [26]. As a consequence, the national universities do not receive sufficient incentives and motives for their own activities.

Thus giving the universities the right to freely use their own funds nowadays does not meet the current legal regulation of the activities of University institutions. This makes impossible the comprehensive implementation of the functions and tasks of entrepreneurial universities.

V. Conclusions

The Ukrainian education system does not fully meet the needs of the economy. The reforms to improve the business environment and investment attractiveness have contributed the changes, but this has not provided significant improvement in the qualitative and quantitative characteristics of the development of entrepreneurship in Ukraine. The creation of entrepreneurial universities can be the solution.

Modern preconditions of formation of entrepreneurial universities in Ukraine are characterized by several trends:

1. Ukraine has a great human potential, which is characterized by a significant level of enrolment in higher education per capita in the country, the desire of young people to receive higher education, the willingness for long life learning, as well as the steadily growing quality of educational services.

2. It should be noted that the analysis of indicators of inventive activity of universities indicates three times greater activity of educational institutions compared to academic research organizations. This shows the high level of flexibility of educational institutions and high responsiveness to market demands.

3. High rates of inventive activity in the most economically developed regions of Ukraine due to the development of appropriate infrastructure, as technoparks, innovation and start-up centres, business schools' network, etc.

According to researches of J. Bronstein and M. Reihlen [7] we can say that the most real choice for Ukraine is research and knowledge commercialization driven archetypes of entrepreneurial university.

The analyzed conditions of formation and development of entrepreneurial universities in Ukraine have led to the following conclusions.

1. Entrepreneurial universities are relevant to modern trends of education development in Ukraine. Modern entrepreneurial universities need to overcome the limitations in the field of knowledge generation. It is necessary not only to conduct fundamental research, but also to generate knowledge which is necessary for the business at present. The university has to solve problems that go beyond the existing academic restrictions. At the moment it is one of the main obstacles to the formation of entrepreneurial universities.

2. The strategic goal of the entrepreneurial university is to create a high-performance cultural, educational, scientific and innovative environment, which provides training for creative professionals with entrepreneurial skills for various areas of economy. It will provide a real contribution to the development of the education system of Ukraine and society as a whole.

3. Ukraine has significant potential for transformation of the leading universities into the entrepreneurial universities. The relevant organizational elements have been already widespread in Ukraine, such as the university experimental base, training in entrepreneurship (interaction with employment centres), interaction with business, infrastructure for starting a business (as start-ups, fablabs, coworkings, etc.)

4. The main barriers for the formation and development of entrepreneurial universities in Ukraine are the imperfection of the legislative base regulating the functioning of entrepreneurial universities and their structures; lack of priorities, goals, objectives of entrepreneurial universities and their relationship with the environment; the inertness of the interactions in the triad "society - business - education" despite mutual interest and an urgent need for cooperation; low efficiency of innovative structures in universities, the limited transparency and accessibility of information on the results of their activities, including the commercialization of researches.

Ukrainian HEIs must pass the stage of awareness of the benefits from the market sale of their innovations. The state must create the political and legal conditions for research activities of universities considering the social benefits and effects received by the society from the development of higher education. Only under such conditions we can hope for the appearance of universities of new generation as innovative competitive actors in the global market of educational services.

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