Educational-Innovative Platform of Business-Knowledge as Fundamentally New Approach to Cluster Cooperation and an Interactive Tool for Innovative Research Network

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Decades ago, under the planned economy of the Soviet Union, Ukrainian technological research institutes, experimental research centers and also universities were performing the role of technological progress carriers. Huge industrial enterprises operating in large cities were the centers of industrial research and to a large extent they were performing the integrative function chaining together production capacities and education opportunities. They also provided there was a strong link between graduates skills and industrial labour demand.

With the Soviet split, many of economic and industrial connections seized to exist, and numerous connections between industries, research centers and higher education were ruined. Today, Ukraine still has a large research potential, however, its key problem is the lack of real connections with industrial production and thus, lack of business funding for R&D. Partially, this problem is now being solved by means of foreign aid and EU grant opportunities. Another solution to the urgent problem of research funding is the establishment of technoparks and business incubators. The third components of the so-called "knowledge triangle", that is business, is harder to attract, since enterprises and companies are least of all interested in the innovative development of the country overall, and all their innovative efforts are concentrated on improving their internal processes and products [4].

Our statistical materials show that today research financing in Ukraine is roughly about 20 times lower than the European average [3]. Noteworthy, vast majority of Ukrainian research is carried out by own means of enterprises, 97,2% of all research spending as of late 2015. While state funding and the share of foreign investors are really minor – less than 1% (see Table 1).

Table 1 - Sources of innovative activity financing

Years	Total spending	By means of:			
		Enterprises' funds	State budget of Ukraine	Foreign investors, including angel investors	Other sources
	Mln UAH				
2011	14333,9	7585,6	149,2	56,9	6542,2
2012	11480,6	7335,9	224,3	994,8	2925,6
2013	9562,6	6973,4	24,7	1253,2	1311,3
2014*	7695,9	6540,3	344,1	138,7	672,8
2015*	13813,7	13427,0	55,1	58,6	273,0

* Data excluding the annexed territories of Crimea and the zones of the ongoing military conflict on the Donbass *[5]*

Under such conditions universities basically are left with only one potential sources of research financing – that is, self-financing of own research, occasionally universities are also able to attract some funds from local budgets or from local companies interested pragmatically in the development of a particular product, or from NGOs which require research on rather specific topics, actually [1].

Therefore, we come to the conclusion that today in Ukraine the so-called knowledge triangle is rather unbalanced, especially when it comes to the financial side of the matter.

Another problem related to R&D financing is its unbalanced distribution. In most cases such funding is obtained by enterprises, while innovations are being developed in the academic and research environment. According to the official statistics, during the last year every tenth Ukrainian enterprise purchased a research development or project, or a technological innovation. However, from this quantity only 13% have actually implemented these innovations, while 3,3% sold them further, and 1.5 of these enterprises sold them somewhere abroad [2].

According to European experts who have been analyzing this situation, there are four main causes for low research intensity in Ukrainian economy:

1) Dominance of traditional industries in the general structure of national economy, such as metallurgy, chemistry, mining etc.;

2) Banks tend to support mostly traditional business, and do not want to cover the risks of innovative activities. And this lack of banking support adds to other financial macroproblems, like inflation and foreign exchange fluctuations;

3) Low level of technical and technological preparedness for innovative activity. Even though in Ukraine there are such institutes like technoparks, business incubators, technology transfer centers, their performance is not really efficient;

4) Preferential financial coverage. Both business and banks would prefer to invest in trade development, construction, real estate etc., rather than in risky innovative projects.

The situation described above leads force Ukrainian universities copy the mistakes made by their European colleagues several years ago, that is, the EU experience is actually followed, but in a very wrong way [6]:

1. Underfinancing of academic research leads to lower publication activity of university researchers and also to the decreasing number of registered patents and licenses. Lack of financing in the university environment also contributes to the so-called brain drain, that is, the most prominent young researchers leave, either to start their career in business, or they emigrate to work at the universities abroad.

2. Inefficient cooperation with business leads to the situation of closed innovations. That is, the already developed innovations later are not implemented into real business practice.

3. The state financing of research is very much selective. This leads to widely spread corruption and emergence of "shadow schemes" in distribution of such funding. Besides, bureaucracy related such financing hinders significantly all the processes, and thus, there is high uncertainty whether a particular project would be funded by the state or not.

4. The state is very much unflexible in its attempt to reach the compliance between academic research capacities and the real demand in innovations from the side of industries [6].

The described above bottlenecks have lead us to the idea that in the triangle of knowledge, that is "research – the state – business" it is the university that must become its heart and nucleur. Since only a university can combine here the macrolevel (demands of the national economy's innovative development), the mezolevel (the needs of the society) and the microlevel (the demands of particular business objects).

Therefore, the university is able to solve economic, social and research problems at the same time. Such a comprehensive approach is probably the most constructive one when it comes to particular products and services. Since it is able to link together the innovative demand and the innovative capacities of potential developers. And it is also able to coordinate the efforts of all the stakeholders involved.

Since all three components of the knowledge triangle are in the process of constant development, periodical revision of their contents would be needed. And for this, openness and transparence of all inside process are of special importance. Another important elements in this regard are independence of the decision-making at the local levels and also creative thinking. Independence and creativity in the application of innovative approaches contribute to widening the innovative employment opportunities. Since in the results of their smart application, the youth does not have to search for employment places – they are creating their own

employment options themselves. And for this matter, leadership skills development also becomes of vital importance.

Competitiveness and stability of operations of a university depends on the right setting of its priorities, smart planning and wise distribution of strategically important tasks. In the ideal form, university competitiveness means synergy of its educational processes, research results and their practical implementations in business life. In the regional and international prospective, all three aspects of university performance must guarantee its integration into European research space.

Education Innovative Approach to Implementation of Cluster Cooperation within the Innovative Education Chain

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Numerous challenges of the XXI century require today an interdisciplinary approach and also well coordinated actions related to the solution of the related problems. Searching for alternative solutions to the problems of energy source, environmental protection, green transport development, sustainable development and responsible consumption, efficient and responsible industrial production, increasing the healthcare standards and promotion of higher education development of mass population – all require much closer interaction and involvement of public institutes and systemic actions on the state level.

The current state of affairs in higher education sector of Central and Eastern Europe proves that majority of local government are indeed paying attention to modernization of higher education sector, and universities too make certain steps in this direction, including training and retraining of their personally, enlarging and diversifying their research activity, involving in more interactive relations with local enterprises so that to consider the most recent labour market requirements to graduates' competences.

During the last decade in Central and Eastern Europe indeed quite a lot has been achieved in to promote and develop the innovative performance of universities and their research centers. First of all, regulatory basis and the related legislation was revised so that to include the innovative policies' mechanisms and thus, to create fundamentals of the related infrastructure. However, despite quite obvious higher innovative potential in the region, the innovative components in the actual development of university education are mostly "invisible", that is, not used. Besides, the most recent statistical data shows that during the last years a gradual decrease in innovative activity of universities has been observed, and sadly, in all the countries of the region in question.

Therefore, there is an obvious necessity to search for radically new methods and solutions related to innovative performance of universities, and this concerns not only modernization and reengineering as such, but also the development of brand new directions of university activities. Our analysis of the current situation also shows that the current gap between the level of preparation of today's graduates and the today's labour market requirements has a range of common features which are basically common mistakes of nearly all universities. The central problem here is: