

**PUBLIC-PRIVATE PARTNERSHIP IN UKRAINE
AS ONE OF THE MECHANISMS TO OVERCOME
THE CRISIS TRENDS IN SCIENCE, TECHNOLOGY AND INNOVATION**

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The Ukrainian scientists have problems with the financing of innovation in the economic and political crisis. The intensification of the use of public-private partnerships can help to solve this problem. The aim of the article is to research the current state of public-private partnerships in science, technology and innovation sphere in Ukraine. The method of this article is based on analysis of the key national public-private partnership publications and Ukrainian national data. The main result is to present ways of development of public-private partnership in order to survive the Ukrainian science and increase innovation economy.

Key words: *Ukraine, Public-private partnership, PPP projects.*

În contextul crizei economice și politice, oamenii de știință ucraineni se confruntă cu probleme ce vizează finanțarea inovării. Intensificarea utilizării parteneriatelor public-private poate contribui la rezolvarea acestei probleme. Scopul acestui articol este de a cerceta starea actuală a parteneriatului public-privat în domeniul științei, tehnologiei și inovării în Ucraina. Metoda utilizată se bazează pe o analiză a principalelor publicații naționale privind parteneriatul public-privat în Ucraina și statisticile ucrainene. Rezultatul principal este de a propune modalități de dezvoltare a parteneriatului public-privat pentru a asigura supraviețuirea științei ucrainene și de a spori economia de inovare.

Cuvinte-cheie: *Ucraina, parteneriat public-privat, proiecte PPP.*

Украинские ученые в условиях экономического и политического кризиса испытывают проблемы с финансированием инноваций. Интенсификация использования механизмов государственно-частного партнерства может способствовать решению этой проблемы. Целью статьи является исследование текущего состояния государственно-частного партнерства в научно-технической и инновационной сфере в Украине. Использованный метод базируется как на анализе ключевых национальных публикаций о государственно-частном партнерстве в Украине, так и украинских статистических данных. Основным результатом является предложение путей развития государственно-частного партнерства для обеспечения выживания украинской науки и повышения инновационной экономики.

Ключевые слова: *Украина, государственно-частное партнерство, проекты ГЧП.*

JEL Classification: *H54; L32; L33.*

Introduction. Ukrainian economy needs to move from resource-based economy to an innovation model increasing energy efficiency, overcoming every year widening technological gap between the developed countries. Public-private partnership (PPP) successfully helps to solve the problem of modernization of the economy. One of the key objectives on the way of integration of Ukraine into the EU is to maintain and develop scientific, technological and innovation potential of the country.

Trend on the reduction of national scientific and technological capabilities has been negative since 1991 in Ukraine. Ukraine had 313 079 researchers in 1990 and more than four times less – 69 404 in 2014 [1]. The specific weight of R&D in the GDP was 1.35% in 1996 and only 0.7% in 2014. Causes are the lack of adequate public financing, liquidation of enterprises with a high share of high technology products, reduction of scientific developments in the military-industrial complex, underestimated prestige of scientist profession in the society. Funding for science was 0.29% of GDP in 1991 and would be less than 0.2% in 2015, which equates Ukraine on this indicator to underdeveloped countries.

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Organization for Economic Co-operation and Development (OECD) determines that PPP in science, technology and innovation is any official relations or arrangements at fixed/unlimited period of time between public and private stakeholders in which both sides interact in decision-making and investing limited resources such as money, personnel, equipment and information for specific purposes in a particular field of science technology and innovation [2]. PPP in science, technology and innovation is possible to consider as institutional and organizational alliance between the public and private business to implement joint projects in science, technology and innovation with the aim of development scientific, technological and innovation national capacity. There is a sufficient legal base for the development of PPP mechanisms in Ukraine. Basic laws are the Law of Ukraine of public-private partnership and the Law of Ukraine of concessions. However, there are no certain adopted laws that stimulate the implementation of PPP in science, technology and innovation. Despite the laws, there are no legislative incentives for this type of innovation in research and educational organizations and no developed practical mechanisms for protecting private investors with long-term, complex and socially necessary PPP projects.

The Ministry of Economic Development and Trade is the state institution responsible for the implementation of PPP projects in Ukraine. The State Agency of Investment and Management of National Projects and the Ministry of Infrastructure also deal with the development of PPP projects.

It is necessary to take various national programmes, action plans, concepts of development for the direct implementation of PPP in Ukraine. The Institute of Economy and Prognoses at the National Scientist Academy jointly with the experts of PPP development programme (USAID) promoted and accepted the concept of establishing of PPP in Ukraine in 2013-2018. Annually the main problems of these programmes are the lack of funding, the failure of the state authorities to fulfill the approved tasks and plans.

Ukrainian scientific organizations try to cooperate more closely with various international organizations to intensify the use of PPP in innovation projects. Under the aegis of both European and various international organizations were implemented centers of PPP, programmes of PPP mechanisms of development and the programmes of technical assistance and modernization of various sectors of the economy. An example of such cooperation is the accession of Ukraine to the EU Horizon 2020. This Programme with a budget of €13 095 million aims at the development of nanotechnology, biotechnology, new materials development and promotion of innovation in high-technology industries. The goal of Programme is to overcome barriers that hinder innovation in cooperation between the state and private companies in PPP projects. Ukraine received 95% discount on the entrance fee and the first annual fee for participation in this Programme is distributed in the following years.

The World Bank, the European Bank for Reconstruction and Development (EBRD), European Investment Bank and others are the international organizations that support the development of PPP in Ukraine.

According to the State Service of Ukraine for Regulatory Policy and Private Enterprise Ukraine had 480 business centers, 79 business incubators, 50 technology parks, 538 leasing centers, 4 148 non-banking financial institutions, 226 foundations of business support, 3 034 investment and innovation funds and companies and 4 238 advisory institutions at the beginning of 2014 [3]. Probably a tenth of those organizations that can support PPP carries out productive activities. These projects do not work without real programmes of state support, tax incentives and the interest of the regional authorities. Tools for private funding startups in Ukraine are extremely weak or not used in long-term projects in the innovation sphere.

Ukraine had 243 projects on PPP principles at the end of 2014 [4]. Among them 210 are concession contracts and 33 cooperation contracts. Table 1 provides information about the distribution of PPP projects in Ukraine in the spheres of economic activity.

Table 1

Distribution of PPP projects in Ukraine in the spheres of economic activity

The scope of economic activity	Number of projects
Waste recycling	116 projects (47.7% of total)
Collection, purification and distribution of water	79 projects (32.5% of total)
Construction and maintenance of roads, railways, runways at airports, bridges, trestles, tunnels and undergrounds, sea and river ports and their infrastructure	17 projects (7% of total)
Production, transportation and supply of heat	7 projects (3% of total)
Production, distribution and supplying of electric power	5 projects (2.1% of total)
Search, exploration of mineral resources and mining	3 project (1.2% of total)
Management of real estate	2 project (0.8% of total)
Tourism, leisure, recreation, culture and sports	1 project (0.4% of total)
Operation and maintenance of irrigation and drainage systems	1 project (0.4% of total)
Other areas	12 projects (4.9% of total)

Source: Data of the Ministry of Economic Development and Trade of Ukraine.

Within the Law of Ukraine of special regime for innovation activity in technological parks in 1999, began a period of intensive development of these innovative structures that have all the possibilities to implement PPP projects. Tax benefits allowed technology parks to spend funds, earmarked for payment of income tax, VAT, import duties on high-tech equipment and for their own innovative projects. The new government abolished the privileges provided in 2005, arguing that the firm registered in science are involved in schemes of evasion of customs duties and taxes. Despite the fact that sales of innovative products within the implementation of innovation projects of technological parks amounted to approximately US \$ 1.5 billion from 2000 to 2009, cancelled incentives have not been replaced by any state support and currently technological parks activities are insignificant in Ukraine [5]. Public financing in many countries in the industrial parks is from 50% to 90% of the cost of research and development. For example, the state finances around 50% of the cost of research and development in the USA and in China funding can reach 90%.

The scientific parks also have significant potential to promote PPP projects directly in science, technology and innovation. The Scientific Park "Kyiv Polytechnics" appeared at the National Technical University of Ukraine "Kiev Polytechnic Institute" in 2007. The main objective of the project is to establish a system of interaction between business, University and Scientific Park. Scientific Park has database of innovative projects, conducts scientific conferences, trainings, establishes business school and youth business incubator. The results of the work of the Scientific Park on project financing are insignificant. The Scientific Park "Kyiv Polytechnics" signed only 13 partnership agreements for the implementation of innovative projects and implemented 18 agreements on scientific-technical works for US \$ 338 000 in 2013.

Conclusions. Now many innovative projects using PPP arrangements had to be slowed down or closed owing to the political and economic processes in Ukraine. In fact, for the near future, Ukrainian scientists will not be able to count on the needed budget funding for their research. It is necessary to intensify the search for private investors for the development of PPP and improvement of the level of the innovativeness of the economy. Cooperation with EU countries, international economic organizations and banks of development is one of the possible sources of financing of PPP in Ukraine. Objective process is the gap of technological links, scientific cooperation with the Russian Federation. It is very important to pay attention to the search for new partners for scientific collaboration in China, Asian countries that are experiencing economic and technological rise. The absence of government guarantees and prospects for making a profit is not conducive to the effective involvement of business in PPP projects. The government must implement existing scientific developments in the sphere of energy saving, production and transmission of electricity, infrastructure development within the PPP projects. Fuel and energy complex of Ukraine requires complete modernization and innovation. It is necessary to attract resources of both bigbusiness in global PPP projects and to use such mechanisms at the municipal level. Both the National Academy of Sciences of Ukraine and the entire field of science and education require reforms. There is a need for the creation of scientific and technology parks based on leading technical universities of Ukraine. Now government financing of science goes mainly to finance salaries of scientists and utility payments. Without the use of this set of measures, implementation of mechanisms of PPP for the development of scientific and innovational potential the negative trends in Ukrainian science will continue to prevail.

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