The concept of the mechanism of public-private partnership in the context of development of scientific sector

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Abstract. The purpose of public-private partnership (PPP) in the scientific sphere is development of scientific researches and creation a concept products on the basis of accumulation of resources and use of competences of subjects of partnership, coordination of their interests at all stages of implementation of the project. Features of PPP at implementation of projects in the scientific sphere consist in the solution of a complex of target tasks in need of ensuring role function of the state. The account and observance of the specified requirements and a public orientation of projects of PPP in the scientific sphere will allow to gain effects in a context of expanded use of resource potential, competences and experience of partners.
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Introduction

The situation in domestic science is characterized by low level of financing (expenses on research and development make, by estimates, 1,04% of gross domestic product; in the USA – 2,77%, Japan – 3,44% [1]), lack of strategic reference points, stagnation of processes of reproduction of personnel potential, a lag effect of development of applied science, not demand of results of scientific researches, a rupture of communication in conceptual model of the organization of interaction "science-ROC-production", ineffective mechanisms of commercialization of scientific development, imperfect legislative ensuring intellectual property rights. All this indicates the need of change and formation of a new state policy for the scientific sphere. Activity of the state has to increase in the scientific sphere. Consolidation of the state, society and business, formation and development of new constructive mechanisms of interaction of the state and the private business, the interests based on consensus are necessary for intensive development of science.

Existing division of labor between scientific and production spheres in a context of practical application in production of results of scientific researches leads to science alienation with its non-material product from the intellectual rent generated on the basis of these scientific results [2]. Necessary conditions of overcoming of "right-of-way" are the innovative behavior of business structures and orientation of the scientific organizations to commercial application of results of researches. The business structures focused on technological loans of a foreign origin for economy of means, scientific researches invested in development, are doomed to lag, loss of competitiveness and commercial effectiveness that, naturally, leads to economic stagnation.

Creation of a platform of interaction of the state and private business in the form of public-private partnership can become one of potential alternatives of prevention of dangerous consequences of own delusions, hits in "trap" of intellectual dependence on foreign innovations.

Active participation of the state in development of economy and, in particular, science is confirmed by existence of the government institutions occupied with financing of scientific researches and development. In the USA the National scientific fund (the budget about 7 billion dollars) finances fundamental science; The Agency of perspective defensive research projects, Agency of perspective researches in the field of power and some other agencies finance the projects, riskinesses differing by high level [3]. In Finland in 1983 the National technological agency, Tekes, which purpose – financing of scientific researches and design development is founded. The volume of allocations for these purposes reached 3,2% of gross domestic product by 2000 [4].

In utilitarian sense public-private partnership interaction of bodies of the public power and business structures in the course of implementation of socially significant projects or programs without change of the relations of property, functions and powers of the power. As a rule, it is applied when the state doesn't possess necessary financial resources, sufficient for

realization, development or support of these or those projects or programs.

Management of science development in a context of public-private partnership.

The purpose of public-private partnership in the scientific sphere development of scientific researches and creation a concept products on the basis of accumulation of resources and use of experience (competences) of subjects of partnership, ensuring consensus of their interests at implementation of research projects and production of intellectual products [5].

Genesis of public-private partnership is connected with development of traditional forms and methods of interaction of the state and the private capital in the conditions of lack of the conflict of their economic interests and objective development of a private initiative.

Experience of economically developed countries in use of institute of the public-private partnership (PPP) for development of infrastructure testifies to expediency of application of such form of interaction of the state and the private capital. Thus we will notice that in some countries the concept of PPP is submitted only as concession or provider of service. In other countries of PPP it can be presented as interaction of the public and private sectors as outsourcing or a venture.

According to the European investment bank of Europe [6] from 1990 for 2009 on the basis of PPP 24 countries realized 1340 projects by total cost of 253744,0 million euros, from them on a share of Great Britain, Portugal, France, Germany, 92% of projects (1233) are necessary Spain and Italy, and the share of cost of the PPP projects of Great Britain made 53% of the cost of all European projects. The greatest development of PPP is characteristic for transport infrastructure (especially in the sphere of road construction throughout all studied period from 1995 to 2009) . The number of the PPP projects realized by all countries (excepting Great Britain) at a construction of roads, makes about 70% of number of all projects which are carried out in the sphere of transport in 2005-2009, and their cost comes nearer to 78% (in 2000-2004 exceeded 80%). The median of the PPP projects in Great Britain and the European Union countries made (top level): on sector "transport" in 1995-1999гг. more than 250 million euros, in 2000-2004 – more than one billion euro, in 2005-2009gg. – over 600 million euros; on sector "education" – respectively: 1995-1999 – about 30 million euros, 2000-2004 – about 40 million euros, 2005-2009 – about 130 million euros.

In a number of the countries (France, Denmark, Hungary, Italy, the Netherlands) the share of private investments into implementation of the PPP projects is so small that in certain cases it can be equated to error size. In such countries as Spain, Ireland, Portugal and Great Britain, private capital investments, by data during 2005-2009, made from 7,4% (Ireland) to 26,4% (Great Britain) of the total amount of investments.

Thus domination of the public investment in the PPP projects is obvious, and this tendentsiy remains during rather long period that indirectly is confirmed by not decreasing volumes of government procurements in the European Union countries [7]. At the same time we will notice that the increase in volumes of private investments in инфрастуктуру on the basis of the PPP projects serves as strong incentive of its development [8].

The essential difference in volumes of capital investments in the PPP projects in different sectors of infrastructure is characteristic for all countries. For example, in 2009 number of the realized PPP projects in the rest sphere (the leisure organization) and cultures more than 6 times smaller, than in education, at cost – almost by 20 times. In 2007-2009 implementation of the PPP projects in transport infrastructure significantly grew in comparison with the period of 2001-2006. The number of the PPP projects in transport sector made 22% of total number of projects in Europe, and cost – about 50%; during this period in educational sector – 27 and 14%; in health care – 22 and 12% respectively [6].

Absence of projects on development of scientific sector in the sphere of interests of public-private partnership testifies to existence of "gaps" in infrastructure that is explained, on the one hand, by imperfection of a state policy in the scientific sphere, with another – disinterest of private business in investment of projects with high degree of economic risk. However need of elimination of the existing infrastructure "gaps" generating risks, presses for expansions of a project financing on the basis of application of effective forms of public-private partnership [9] including mechanisms of risk management [10].

Disproportion of dissimilation of PPP mechanisms in different sectors of infrastructure is explained by utilitarian interests of private business concerning fast generation of profit. At the same time recently the tendency of expansion of scopes of PPP, growth of its activity in implementation of projects and programs in a context of ensuring public interests is observed. However it must be kept in mind that functions of public authorities and business structures as subjects of partnership in the sphere of PPP are various. Especially essential distinction in their functions is observed in the

science sphere: the state invests development of basic researches, production of knowledge and critical technologies, creation of objects of infrastructure and standard and legal conditions for attraction of investments, private business – finances applied researches, ROC, development and production of the knowledge-intensive, hi-tech and competitive products (goods, services).

Regulatory function of the state as confirms foreign experience of application of PPP, in a context of implementation of the PPP projects in the scientific sphere unambiguously isn't defined as it (function) has to bring an order and regularity in processes of extraction of the intellectual rent which reproduction is connected with production of knowledge. Feature of this function is the rigid limiter of dissimilation of private resources within the PPP project.

Therefore the public-private partnership in the scientific sector which is traditionally in the sphere of interests of the state, has to be carried out with observance of the following conditions:

association of assets of administrative competences, technologies, know-how, etc. both subjects of PPP;

risk management and their elimination (legal, economic, financial) mainly or completely state;

control and regulation of internal decision-making processes by the state connected with its obligations for long terms of implementation of the project;

the decentralized responsibility for commercial risks in the course of industrial use of design development;

compatibility is more whole also coherence of interests of the state and private business;

implementation by the state of role (leader) functions in decision-making at all stages (phases) of life cycle of the PPP project.

Only at observance of these conditions it is possible to expect efficiency of application of PPP in the scientific sphere.

However, and in the civilized, economically developed countries among the PPP projects realized in different branches of economy, practically it is impossible to find the PPP projects in the scientific sphere. The main reason for such phenomenon – venture nature of scientific researches and the long-term period of "financial capitalization" their results.

In the majority of the countries special bodies for coordination of processes of cooperation of the public and private business for preparation of the PPP projects and decision-making on their realization are created: in the USA - National council on public-private partnership, in Great Britain – "A private financial initiative", in France – "Mixed economy communities" [11]. At the same time the PPP models with primary public financing are applied in a number of the European countries. Moreover, in the developed countries the direct public expenditures on development of innovations remain and continue to grow. For example, such mentioned earlier government institutions of the USA as National scientific fund, Agency of perspective researches in the field of power, NASA, management of economic development, etc., conduct active financing of fundamental science and perspective research projects [3].

State and business interaction within PPP in the scientific sphere has to be based on the following principles:

openness (transparency) - information on the purposes, tasks and expected results of implementation of the PPP project has to be equally accessible, reliable and full for all its participants, that is free or non-discriminatory access to primary and secondary data is provided;

innovation – innovative use of resource potential ("rigid", traditional resources: material, labor, financial and "soft": information, knowledge, administrative know-how, a high tech - technologies, skills, abilities, experience, administrative competences);

decentralization (concentrated) – the decentralized responsibility for implementation of the project and financial expenses, the free introduction in the competitive relations with stakeholders, transfer of part of functions of management and powers of government institutions to business structures. Latent process of adoption of subjective decisions by private business can appear a consequence of transfer of part of functions, powers and obligations from the state to business structures in the conditions of weakening of the state control;

outsourcing – unlike the devolyution meaning transfer of duties, functions or the rights, essence of outsourcing in the sphere of science is involvement of the specialized organizations (for example, the experimental laboratories owning the unique scientific equipment) or external experts, owning hi-tech technologies, for carrying out scientific experiments with observance of two conditions: urgency and responsibility;

convergences – rapprochement of economic interests of the state and business structures as a condition of ensuring steady financing at all stages of implementation of the PPP project and, respectively, a continuity of process of

researches, development and implementation of this project;

structuring – a certain sequence interpolated actions:1) definition of requirements for financial and administrative resources; 2) formation and assessment of financial assets and administrative competences; 3) assessment of risks (size of possible losses), connected with project implementation; 4) identification of factors (external and internal), constraining, slowing down process of implementation of the project; 5) development of a complex of jet and preventive measures for their prevention.

The mechanism of management of PPP is connected with implementation of a complex of special functions, in particular: converting, communication, regulating, providing, estimated, redistributive, stimulating, etc. Without opening the content of the specified functions, we will mark out features of some of them.

Redistributive function consists in redistribution of risks between the state and business structures in the conditions of expanded use of the resource potential accompanied by growth of efficiency and productivity, especially when really there is a big danger of emergence of effect of "boomerang" - return of responsibility for administrative, economic, financial, commercial, etc. risks to the state.

Feature of communication function is defined by that information asymmetry is most inherent in the monopolistic market in which competitive forces of monopoly it is destructive influence balance of interests of subjects of the market in a context of a free access to information resources. In this regard the state is obliged to guarantee to all participants of partnership equal opportunities in the sphere of access, an exchange and use of information, technologies and competences.

Converting function, being special function, transforms the heteropolar purposes and interests to the mutually additional purposes and common interests (naturally, a temporality) and forms conditions for alternative search of effective decisions.

Regulating function consists in regulation organizational (an interaction configuration), economic (financial and other resource security) and administrative (technologies, methods, competences) the relations arising in the course of interaction of subjects of PPP.

Stimulating function is focused on application of special stimulating measures of the tax, financial and organizational character compensating existing defects of the state scientific and technological policy. The most effective measures from them are tax privileges and creation at the expense of means of the state of objects of infrastructure. However these measures are interfaced to direct expenses of considerable public funds and "compression" of revenues of the budget in the absence of full confidence of receiving positive results therefore the expert assessment of admissible losses (expenses) has to precede application of the specified measures.

Feature of PPP in the scientific sphere consists and) in formation and realization of effective scientific policy: carrying out basic and applied researches; creation, development in the knowledge-intensive production and advance on the market of intellectual products and b) the solution of a complex of target tasks: financing of the PPP projects mainly due to attraction (mobilization) of private investments; infiltration in a control system of PPP of modern technologies, methods of management and competences; legal determination of results of scientific researches as objects of intellectual property; minimization of a factor cost and transactional expenses (including subsidizing by the state of part of expenses of private business); commercialization (commercial application) scientific development; distribution of risks between subjects of PPP for minimization of the public expenditures on the guarantees provided by the state. One more feature of PPP in the scientific sphere is need of preservation of fundamental leadership of the state, its role function for the solution of problems of scientific and applied researches.

Depending on a format and character of the tasks solved within the PPP projects, a form of their realization, despite variety, it is possible to typify (for example, the National council on public-private partnership of the USA allocates 18 types of partnership) [12] and to classify as model. The PPP projects realized in the scientific sphere, can be developed on the basis of various models adapted for features of process of scientific researches. As argument it is possible to refer to the international experience of application of the PPP models for implementation of infrastructure projects.

In particular, concession forms (models) of partnership are rather widely applied, for example, in US Transportation P3's during the period from 1998 to 2012 was realized in the DBF format (to project-build-finance) 6 (% ~27) projects from 22, on the basis of concession payments – 12 (54,5%) [13].

Conclusion

Indispensable conditions of public-private partnership in the scientific sphere are, in our opinion, prepotent leadership of the state in the solution of the tasks connected with implementation

of the project; direct access to its infrastructure assets; association of financial and other resources and administrative competences; the guarantees provided by the state, on hedging of risks of capital investments at all stages of implementation of the project, in particular at a stage of commercialization of results of scientific researches in a different form; "soft" state regulation of the potential conflicts of interests of participants of the project or their opportunistic behavior by providing preferences (tax, budgetary, property, legal, etc.), centralization of responsibility for implementation of the project and finance or redistributions of powers on the basis of the principle of decentralization of management, etc.

Performance of these conditions is a basis for economic success of PPP translating the state assets on competitive Wednesday of the free market [11] and allowing effectively to use resources of private business for increase of efficiency of realized projects.

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