

Infographic Modeling of the Functioning of Public-Private Partnership in the Activity of Information and Technological Services in Construction

V.O. Chulkov^{1,a}, G.O. Chulkov^{2,b} and K.Yu. Losev^{1,c}

¹Moscow State University of Civil Engineering, 26 Yaroslavskoe sh., Moscow, 129337, Russia

²Scientific & project center "City Development", 19 Prospect Mira, building 3, Moscow, 129090, Russia

^avitoch@gmail.com, ^bg.chulkov@mail.ru, ^cLossevKY@mgsu.ru

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Abstract. Public private partnerships (PPP) consider interaction on mutually beneficial terms of the state and private entrepreneurship (as a form of business) for solving socially significant tasks. Different specialists consider PPP in different ways. In the field of information technology services in construction the basis for PPP is the following: • The parties to such a partnership are the state and private business; • the interaction of the parties is enshrined on an official legal contractual basis, it is of an equal nature and clearly expressed social orientation; • the parties consolidate resources and deposits, allocate financial risks, costs and expected results in strictly defined proportions between the parties in the concluded contracts beforehand on the basis of PPP. The success of PPP objectives is facilitated by: • political will; • regulatory framework; • the emergence of projects that encourage private business to create opportunities for their implementation. The article deals with visual-figurative (infographic) modeling, which facilitates the decisions adoption at the stage of interaction formation between the parties of PPP.

Introduction

The variety of "public-private partnership" (PPP) term meanings is an "open" set [1], which requires research within the framework of administrative and financial law in relation to the production and economic activities of management different branches [2]. Propose models for assessing the operations sequence rationality, the risk level and the degree of each partnership sector participation. The PPP research in construction object (dyad design - construction production), demonstrates a number of sequences [3, 4, etc.]: • "Designing - Construction"; • "Operation - Maintenance"; • "Construction - Investing"; • "Construction - Investment - Maintenance"; • "Lease - Development - Exploitation"; • "Designing - Construction - Exploitation"; • "Designing - Construction - Investing - Exploitation - Maintenance"; • "Construction - Ownership - Exploitation"; • "Concession".

It is impossible to predict accurately all possible risks when concluding a PPP contract and distribute them between the partnership partners. The PPP project implementation can last for years. Unforeseen circumstances and the emerging nuances of legal and industrial relations between partners are difficult to predict and mention in the PPP contract initially.

There are positive and critical assessments of the PPP implementation facts in the construction. Some critics dispute the thesis on the effectiveness and financial viability of PPP, referring to cases of unsustainable increase in general and operating costs or reduce (for the sake of profit increase) quality of finished construction products and the buildings reliability.

The foreign authors publications and the international scientific community forums results ([5-17] and others) are devoted to the problems of: • modeling and metrological evaluation of the interrelationships of the society functional-activity sectors basic (state, business and civil society); • research of options for a two-sector social partnership (public-private, public-public and public-private); modeling and research of the content and organisational forms of the intersectional (three-sector) social partnership; • local aspects of the multicomponent and multi-parametric problem of social functional-activity partnership in various sectors of management (included in construction).

Domestic construction science of Russia is also studying the problem of PPP, as it is evidenced by numerous publications in domestic and foreign professional publications, as well as dissertational research ([18-24] and others).

Methods

In relation to the study of the social functional-activity partnership problem, one of the most important methods is the method of infographic modeling. Infographics offer to form an idea about the problem contours or task under study and the roadmap for solving it in the environment of visual-visual representations (visual infographic models).

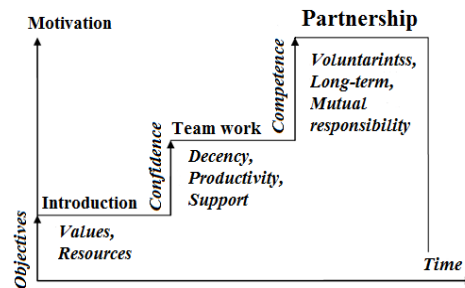
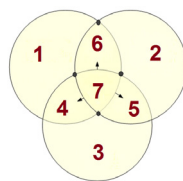


Fig.1. Infographic model of the formation in time of the partnership organisational form as a result of building up the structure and motivation scope [B.R. Aleev, 2016].

The first one is the infographic model (Fig. 1, [B.R. Aleev, 2016]) of the formation in time of the organisational form of partnership, as the identification of the activity motivation and the result of building up the structure and motivation scope. *Motive* is an image associated with positive or negative emotions about the meaning and value for a person in a particular activity. The motive requires a lot of inner work for one's awareness. *Motivation* is the action; a psycho-physiological process that manages the person's behaviour, setting its direction, organisation, activity and sustainability; the person's ability to actively meet one's needs. There are aspects of motivation (external, internal, positive, negative, stable, etc.).

The second visual infographic model (Fig. 2, [V.O. Chulkov, 2007]) demonstrates the interactions of the society construction industry functional-activity sectors basis.



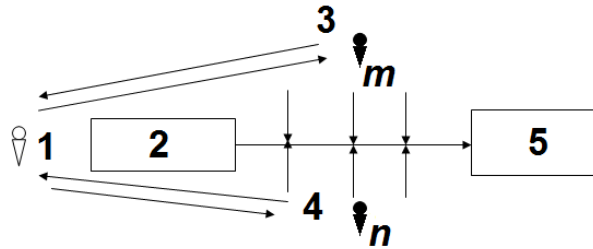
Legend: *Basic functional-activity sectors of the society*: 1. State (administrative-command sector); 2. Business (commercial sector); 3. Civil society (non-profit sector). *Fields of a two-sector social partnership*: 4. State-public partnership; 5. Public-private partnership; 6. Public-public partnership. *Intersectoral (three-sector) social partnership* (position 7 in Fig.2).

Fig.2. Infographic model of the interactions of the society construction industry functional-activity sectors basis. [V.O. Chulkov, 2007].

State-private partnership (position 6 in Fig.2) is a zone of joint interests and responsibility of the state and business (1↔2). *Public-public partnership* (position 4 in Fig. 2) is a zone of joint interests and responsibility of the state and civil society (3↔1). *Public-private partnership* (position 5 in Fig. 2) simulates a zone of joint interests and responsibilities of business and civil society (2↔3). *Intersectoral social partnership* (position 7 in Fig. 2) is the targeted and profitable interaction of its state, commercial and non-commercial sectors to the direct participants of the project and to the population of the society, which provides a synergetic effect from the addition of the potentials and resources of each of the parties to the interaction.

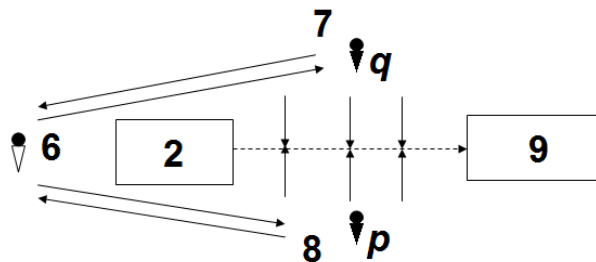
Experimental Part

The mobilisation task of the Russia market economy consists of the information technologies development, the creation of modern tools and standards for the management of information technology services (IT-services). Russia's lag in IT-services is very significant. This situation requires the active participation of the state in enhancing the role of GDP component and supporting the IT-services industry. As international practice shows, business related to innovative IT-services is a very profitable occupation. This situation helps to increase the private companies activity in the creation of the IT-services industry. We consider infographic models of the IT-services industry development process taking into account the state interests (Fig.3) and private business (Fig.4).



1 - The state. 2 - The industry of IT-services (available). 3 - Investors in IT-services. 4 - Branch investors. 5 - IT-services industry (will be available).

Fig.3. Infographic model of the IT-services industry development process taking into account the state interests [A.I. Mokhov, 2010].



6 - Manufacturer of IT-services. 2 - The industry of IT-services (available). 7 - Investors in IT-services. 8 - Investors from the infrastructure of the producer of IT-services. 9 - The IT-services industry (will be available).

Fig.4. The infographic model of the IT-services industry development process without state participation [A.I. Mokhov, 2010].

The state, represented by legislative bodies and profile ministries (contour figure in Fig.3), develops the project and plans activities to transform the established IT-services industry into a future industry of IT-services. The state also negotiates with investors investing resources in the industry development. Investors may be the traditional external depositors attracted to the economy development (black figure with index m), or domestic investors (black figure with index n), which are the profile economy sectors, whose development strategies include the strategy of IT-services development. Investors support the IT-services industry with their own resources, which are implemented in the form of medium- and long-term resource plans for the industry.

The IT-service provider (Fig. 4) develops the project and plans to transform the established IT-services industry into the future IT-services industry. The state (the contour figure with the "black head" in Fig. 4) also negotiates with depositors investing resources in the industry development. Investors can be either traditional external investors ("black figure" with index q), attracted to the enterprise development, or investors from the infrastructure of developers of IT services ("black figure" with the index p in Fig. 4). A new generation of developers has joined the Russian IT-industry over the past few years, a large number of young companies of Russian developers have

sprung up, ensuring high rates of release of projects. However, serious developers of IT-services in Russia are not numerous yet, compared to the USA, where there are several thousand. Market participants converge on the figure of 10-20 teams, the most famous of which are: "Akella", "Nival", "Softlab-Nsk", "Nikita", "K-D Lab" and "1C".

Summary

Although market research of the IT-market in Russia is extremely rare, the order of the market capacity is tens millions dollars annually. As a part of the IT-industry development, the positions of the state and private business coincide, but each has its own goals, identified at the round tables held in the Russian State Duma in 2010-2015. The state recognised the possibility of solving social and economic problems for IT-programs, gave them a high public appraisal as a modern and rapidly developing phenomenon that is becoming more and more massive and is approaching the film industry by profit, and is increasingly replacing books for the younger generation. The round tables identified and formulated the reasons for the future development of the IT-industry, for which government support is required:

- imperfection of the legislative framework in the field of state regulation and state support of the interactive technologies industry (in particular in the construction industry);
- lack of state support for IT-programs domestic producers in engineering and education, in particular, developers of educational resources devoted to the history and prospects for the development of the construction industry in Russia, based on Russian scientific and technical sources and innovative materials, organisational solutions and technologies used in domestic construction building production;
- a generally low level of mass vocational education in open areas of management;
- inadequate assistance of the RF state authorities in developing a balanced policy in the regulation of the IT-industry relations between market participants, professional and expert communities, public associations and government bodies;
- the lack of the export of Russian IT-programs support effective system, specific to the construction industry for foreign markets;
- lack of expertise and preparation of opinions on the activities of companies in the IT-industry;
- inadequate number of highly skilled specialists in information technologies, prepared by universities for the IT-industry;
- lack of a regular supervised in-service training system for university teachers of information technology disciplines, focused on training specialists in the IT-industry;
- insufficient development of electronic and distance learning in the Russian Federation;
- Insufficient measures to protect intellectual property and combat "piracy".

Private IT-business more efficiently achieves profit and competitiveness of IT-products (including, in comparison with foreign producers) with the participation of the state. Such an arrangement became the basis for the activity of private business in organising and holding the above-mentioned round tables. In the case of public-private partnerships, there is a concentration of professional partners and their experience in improving the IT-industry. The resource for achieving the goals of the IT-services producers consists of own resources, the state's resources (which perform the role of the IT-services investor indicated in Figure 3.), sector investors and depositors from the IT-service provider infrastructure.

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