

# Transformation of Public-Private Partnership Ecosystem

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## ABSTRACT

The paper discusses key ways of modifying public-private partnership ecosystem. The necessity of making changes is caused by the COVID-19 pandemic. The article systematizes the concept of interaction between participants of public-private partnership projects within the ecosystem. The project participants are classified as obligatory and optional ones. Appropriate methods have been proposed and accordingly, structural patterns for implementation of public-private partnership projects have been stated. They are to be classified as basic and variable ones. The variables are cumulative and may include up to 3 elements. The most efficient patterns for implementation of public-private partnership projects have been stated, taking into account that the investment capacities of business entities are reduced. The digital transformation strategy for public private partnership has been developed. It implies virtualization of interactions and automation of all related processes.

**Keywords:** *public-private partnership, project, transformation*

## 1. INTRODUCTION

Nowadays the public-private partnership in the Russian Federation is still at early stages of development, however most regions have some experience in this field.

The first quarter of 2020 has seen a fourfold reduce in launched projects in comparison with the same period of 2019. The COVID-19 pandemic has triggered the lockdown, which resulted into the economic slump.

The projects that are focused on interaction of local authorities and business entities are experiencing the greatest difficulties. "Rosinfra" (a project support platform) states that as of the 1st of June 2020 only 40 projects of this category are being implemented in Russia. It is the lowest number among all the project categories.

The project participants interaction methods have certain flaws, in particular, when we speak about the functions of partners in terms of construction and/or reconstruction of object of agreement. These flaws have revealed some burning issues that cannot be settled online now.

The COVID-19 pandemic has revealed that public-private partnership ecosystem is to be modified.

There are many scientific works dedicated to management and regional economics, in which the interaction of business entities and public authorities is treated as a key for mutually profitable partnership, however, the ecosystem approach and transformation background are neglected.

The objective of this paper is to describe key lines of transformation in terms of public-private partnership ecosystem, which can facilitate the interaction of project participants during and after the pandemic.

To reach our objective, we should perform the following: to define the concept of the category "Transformation of

public-private partnership ecosystem"; to describe the participants of this ecosystem; to propose changes for implementation patterns for public-private partnership projects; to develop digital transformation patterns for public-private partnership ecosystem.

## 2. STUDY METHODOLOGY

The primary research method is a complex analysis. The simulation method was used by the development of public-private partnership patterns.

The open data of official page that contains information of all the Russian tenders and "Rosinfra" - a project support platform have been studied.

## 3. RESULTS AND DISCUSSION

### 3.1 The concept of the category

**"Transformation of public-private partnership ecosystem"**

In many scientific works dedicated to management the interaction of business entities and public authorities is treated as a key for mutually profitable partnership.

The term "public-private partnership" was introduced into economic literature of the UK in the 1980s [1].

The Russian economic and legal community believes that public-private partnership is one of the most efficient tools for performing long-term tasks that are vital for the process

of meeting public interests. It is suitable for any situation, as it has many kinds and forms [2].

E.A. Gromova argues there are several factors for the further development of this establishment, including the fact that the state should settle the issues of public importance and meet public interests. Another important factor is that the state resources are limited and therefore, the state is unable to achieve set goals at full extent [3].

The Federal Law № 224-FL states that public-private partnership is a legal collaboration of a public and private partner that implies resource aggregation and risks allocation and has a specified duration period. This collaboration is stipulated by the agreement on state-private or municipal-private partnership, aimed at attracting private investments, providing availability of products, jobs and services and improving their quality (this is the task for public authorities or local government bodies).

Public private partnership takes place at federal, regional and municipal levels (state-private partnership and municipal-private partnership respectively).

I.Yu. Alexandrova believes that “regional projects of public-private partnership intermediate the creation of particular financial relations, associated with engagement of investment or other financial resources, their utilization in order to implement important regional economic projects, as well as with distribution of results of ongoing projects” [4].

It is worth mentioning that foreign legal entities and sole proprietors can't become a private partner.

O.A. Baulina, V.V. Klushin A.M. Silunina [5] and V.L. Inozemtsev [6] mention transformation, when they speak about the necessity of transition to innovative post-industrial economic pattern.

O.A. Baulina, V.V. Klushin A.M. Silunina support the idea of M.K. Belyaev and S.A. Sokolova [7] and point out that the municipal public partnership projects in urban communities are crucial, if we want to maintain favorable conditions for investments and innovations [5].

G.S. Sologubova regards transformation in the light of digital technologies implementation and their impact on business ecosystems [8].

She points out that enterprises in the digital world are parts of a digital ecosystem, but not each of them is able to create its own ecosystem” [8].

French scientists L.Boltansky and L. Thévenot, who stick to institutional approach, pointed out that “active role of an organization-enterprise, a political party or a state is to find a compromise during interactions of participants” [9].

If we regard a public-private partnership in this light with emphasis on ecosystem approach, we can conclude that the interaction in question is based on a structural and economic compromise, which results in the development of infrastructure in the area, where the project is launched.

G.S. Sologubova argues that: “any enterprise is a part of any ecosystem, no matter whether it wants to or not, the only

thing that matters is whether the enterprise is able to get the highest benefits from this ecosystem” [8].

Business entities participate in public-private partnership projects under agreement.

Thus, the authors define transformation of public-private partnership ecosystem as a modification of managerial functions in the process of interaction of project participants, influenced by internal and external factors, as well as a possible change in the number of implementation participants and their roles.

### ***3.2 The participants of public-private partnership ecosystem***

The participants in the ecosystem of public-private partnership projects can be classified as obligatory and optional. Let's have a look at municipal projects. It should be noted that the implementation procedure for public-private partnership projects is the same at all levels.

The obligatory participants are:

- A business community representative, who acts as a private partner;
- A public partner, who is a municipal unit governor or any other authorized person or local government body that has a right to represent a municipal unit;
- An authorized municipal body, chosen pursuant to municipal unit charter, which is not a public partner and acts as a mediator between partners at pre-implementation stage and provides support during project implementation;
- An authorized regional body, usually it is a regional project office in constituent entities of the Russian Federation or any regional department office or ministry department, responsible for economic development.
- A municipal unit governor, who may not be a public partner, but is an obligatory project participant for he or she makes decision on project implementation. This decision can be negative, even if the project ratings have proven its efficiency and comparative advantage is confirmed. The comparative advantage is calculated per approved federal methods and reflects practicability with regard to budget effects from construction or reconstruction of an infrastructural object under municipal-private partnership.

– In most regions of the Russian Federation a regional authorized body is a project office.

The RF Government Decree № 1288, dated the 31<sup>st</sup> of October 2018, declares that a regional project office is established in government agency, created to maintain activity of the highest designated person (the head of the supreme government body) of a constituent entity of the Russian Federation or in the executive government body of the constituent entity of the Russian Federation as a separate department that has all the necessary powers in terms of project activity administration and interdepartmental interaction. The regional project office may resort to subordinate agencies to handle its tasks, if necessary.

The optional participants are:

- Investor, who provides loans to a business entity that acts as a private partner;
- Legal persons or entities, which can participate in projects at invitation of a public partner. They can perform control functions under state or private –municipal partnership.

It is worth mentioning that the relations between public and private partners are set in the agreement, in which enter only these participants of the ecosystem, irrespective of whether a business entity has resorted to investor or not. The minimal term of such agreement is 3 years.

If there are any investors, the relations between a public partner, a private partner and this possible ecosystem participant are regulated by a direct agreement.

For instance, a government order committee may act as an optional participant of public-private partnership projects. Such committees exist in many regions of the Russian Federation and can control public-private partnership agreement execution. The public partner in this case provides financial support.

### **3.3 Transformation of implementation patterns for public-private partnership projects**

Before the Federal Law № 224-FL came into force, Russian scientists used the public-private partnership patterns, developed by their foreign colleagues (BTO, DBFO, BOO, BOT, BOOT, BOMT, DBOOT). These patterns describe all the partnership stages and the rights and obligations, assumed by a private partner [10]. Most of these patterns are not valid for current legal environment.

The authors have analyzed valid regulatory sources and identified 186 possible patterns for interaction of business entities and authorities in public-private partnership.

The authors distinguish between basic and additional partnership patterns. The latter are cumulative, i.e., they are formed by joining additional elements.

To specify the introduced notions we may use the following definitions:

“A basic pattern for public-private partnership is a core set of project constituents that shows the way of business partner in a project and describes all the rights and obligations, assumed by a business partner under the agreement with federal, regional or municipal authority.

A cumulative pattern for public-private partnership is a sequence, based on one of the core patterns. This sequence shows both obligatory rights and responsibilities under a particular agreement with federal, regional or municipal authority and additional rights and responsibilities of both parties” [11].

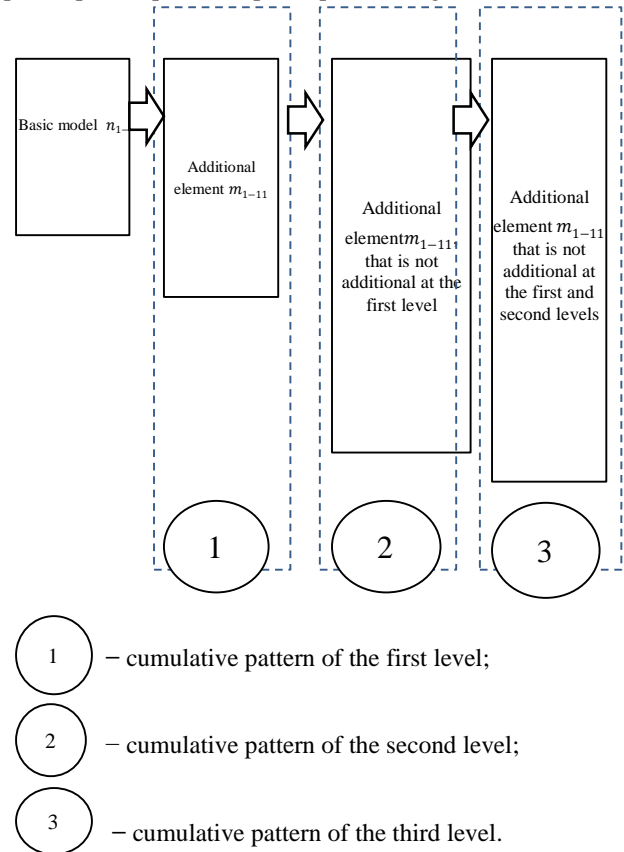
The basic patterns for public private partnership may be defined as follows:

1. CCOP (Construction – Co-financing – Operation – Property with burden);
2. CFOP (Construction –Financing – Operation – Property with burden);
3. CCTE (Construction – Co-financing – Technical maintenance – Property with burden);

4. CFMP (Construction – Financing – Maintenance – Property with burden);
5. CCOMP (Construction – Co-financing – Operation and Maintenance-Property with burden);
6. CFOMP (Construction-Financing-Operation and Maintenance – Property with burden).

Basic patterns are independent, they reflect variability of probable obligatory powers of business entities in partnership projects.

The process of development of cumulative patterns for public-private partnership is depicted in figure 1.



**Figure 1** Development of cumulative patterns for public-private partnership

The additional elements include: design, operational co-financing, operational financing, maintenance co-financing, maintenance financing, operational and maintenance co-financing, operational and maintenance financing, the operational sponsorship by a public partner, the maintenance sponsorship by a public partner, operational and maintenance sponsorship by a public partner, public partner property.

If we sum 11 additional elements up, then we will get: 11 cumulative models of the first level, 10 cumulative models of the second level and 9 cumulative models of the third level.

Let’s dwell on the examples of cumulative patterns (CCOP)

Cumulative pattern of the first level (CCOP +) – Construction-Co-financing-Operation-Property with burden-Public Partner Property.

Cumulative pattern of the second level (CCOP ++) – Design-Construction-Co-financing-Operation –Operational and maintenance financing of a public partner-Property with burden.

Cumulative pattern of the third level (CCOP +++) – Design-Construction-Co-financing-Operation- Maintenance co-financing-Property with burden-Public Partner Property.

It is worth mentioning that the element “Public Partner Property” will be obligatory, if the total project co-financing and the cost of state or municipal property, transferred to the private partner for project implementation, exceed the co-financing of a private partner.

Nowadays most projects are being implemented or are to be implemented pursuant to the following patterns: CFOP, CFMP and CFOMP (as per data of “Rosinfra” – infrastructural projects support platform).

We believe that in the future the projects, implemented by patterns CCOMP, CCTE, CCOP and their variants will become more popular. In our unstable world the patters that imply public partner co-financing will be a basis for equal distribution of risks among main participants of the ecosystem.

### **3.4 Digital transformation of public-private partnership ecosystem**

“Institutional role of business ecosystem is to ensure proper web-coordination of agents and their relations in a unified space that is as free as possible and to maximize the efficiency and profitableness of the infrastructure in general”[8].

To create a unified public-private partnership ecosystem, we should perform the digital transformation of conditions for interaction of business entities with other project participants within the system.

The digital transformation shall give the possibility to create a central storage of project data (partnership library); safe and easy review and discussion of documents, stated in FL №224, as well as proper data exchange with a public partner or other ecosystem participants, for instance, with financial institutions; unlimited access from any device to platform services that ensure proper implementation of public-private partnership projects at all stages, as well as to the required managerial functions of partners such as project execution control.

“The PCHP platform” can become an ideal solution during digital transformation of public-private partnership ecosystem. This platform will facilitate the online interaction of participants.

Table 1 presents description key automation areas or changes of interaction area. The data is valid, if public-private partnership projects are launched by business entities.

**Table 1** Description of key automation areas for the public-private partnership projects, launched by business entities

<b>Participant</b>	<b>Process name</b>	<b>Possibility of process automation or online activity</b>
Business entity	Preliminary negotiations, documents submission	Online or services, based on BIM AugmentedReality
Public partner	Consideration of proposal on project implementation: Document set analysis; quality analysis of submitted documents	Automation
Business entity	Making amendments online	Automation
Public partner	To admit public partner to evaluation	Automation
Regional authorized body	To review documents and values, stated in them, to assess the efficiency and advantages of a project	Automation
Municipal unit governor	To make decision on project implementation	Automation
Municipal authorized body	To announce about the project on the Internet	Automation
Municipal authorized body	To announce project tender ratings (to calculate and sum up, taking into account all weight ratios)	Automation
Public partner, business entity	To enter into agreement on public-private partnership	Automation
Investor (if any)	To assess the possibility to invest and support business entity	Automation is possible, including borrower evaluation procedure without human involvement
Business entity, financial organizations	To enter into direct agreement	Automation
Business entity	Project infrastructure development	No automation
Public partner, legal entities or bodies on behalf of public partner	Agreement execution control: project implementation, project financing and payments, defining object of agreement, control of technical and economic values object use under the agreement	Automation

In the given context a digital transformation implies integration of the available data services, in particular, automatic applying for tender and placing information at the official page – <https://torgi.gov.ru/>.

The MIS, which is to be the core of the proposed platform should be centralized, i.e., all data should be kept in central storage. To ensure automation and proper communication between participants BPMS tools can be used (Business Process Management Suite). You can also use any other tools of a similar kind.

The system should have 3-tier structure (the first tier is source, the second - storage, the third one – reporting).

The system should have the following functional subsystems:

The subsystem for collection, processing and downloading data. This system should collect the data from different sources, bring this data into the proper form and send it to the data storage subsystem;

data storage subsystem stores and sends data to the bodies that are responsible for decision-making in project tender;

The data reporting subsystem generates visual representation of data and makes reports pursuant to the function “Agreement fulfilment control”.

If we speak about a central storage, it is necessary to create a database with standard documents. These document can be classified by branches.

This approach will give more powers to regional or municipal authorized bodies, as each project will have its own supervisor according to the project branch.

In broad sense, the digital transformation safety issues may cause some problems that will impede proper management of digital transformation [12].

To facilitate review and discussion of documents, stated in FL № 224, we should ensure proctoring, mobile access and automatic compilation of final documents at every stage of public-private partnership.

Access rights differentiation for the users and System administrators should be based on the principle “what is not permitted is prohibited”.

The data security should meet the following safety requirements:

- the safety should be ensured by means of hardware/software tools and supporting managerial procedures;

- the safety should be ensured at all technological stages of data processing and in all operational modes, including repair and scheduled maintenance works.

Besides, it is worth mentioning that the platform should become a space, in which all the public-private partnership projects in Russia are to be launched.

A digital transformation of public-private partnership ecosystem should be performed by federal public authorities [13], as the process in question is a part of digitalization of the whole public management system.

## 4. CONCLUSION

The conducted research has driven us to the following conclusions:

- The transformation of public-private partnership ecosystem is a modification of managerial functions in the process of interaction of project participants, influenced by internal and external factors as well as a possible change in the number of implementation participants and their roles;

- The COVID-19 pandemic demonstrated that the public-private partnership ecosystem can be transformed in two ways: interaction of participants per patterns and development of digital environment to manage projects;

- The implementation of public private partnership projects implies the presence of both obligatory and optional participants;

- According to authors’ approach the patterns for infrastructural object development can be classified as main and optional ones. The optional ones can be further subdivided into cumulative models of the first, second and third level;

- The employed method of development of cumulative patterns is to increase the number of additional agreement clauses for one of the basic patterns. The number of such clauses may amount to 3;

- In the given context a digital transformation implies integration of the available data services, automation of the interaction processes in order to create a unified space.

- The results of the study are practically relevant for public authorities at state and municipal levels, experts in economics and management, digital economics.

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