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IMPROVEMENT OF THE PUBLIC-PRIVATE PARTNERSHIP SYSTEM IN THE ROAD TRANSPORT SERVICES MARKET

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Introduction. The active use of the institution of public-private partnership (PPP) allows us to distinguish PPP from the totality of financial and economic relations between the state and the private sector based on the principles of equality and freedom of PPP participants, stability of the agreement and its flexibility, responsibility of the parties, competitiveness, non-interference, incentive and guarantees, retribution.

The research hypothesis. The algorithm for selecting and assessing the effectiveness of projects in the road transport market to select the most effective form of financing with the participation of the state and the private sector will create conditions for attracting private investment in the development of transport infrastructure on the basis of public-private partnership.

The purpose of this article is to improve the system of public-private partnership in the market of road transport services.

The methodology of the study: expert, statistical, comparative, factor and scenario analysis; empirical data analysis using grouping, generalization methods.

Results. An algorithm for selection and evaluation of the efficiency of projects in the sphere of the road service market to select the most effective form of financing with the participation of the state and the private sector has been proposed and tested, in particular: four alternative options for project financing to select the optimal one (state order, life cycle contract (LCC) without extra-budgetary financing, LCC with extra-budgetary financing, concession agreement); clarification of the methodology for evaluation of commercial, socio-economic and budgetary indicators of the road service market.

Conclusions. Theoretical provisions developing the methodological basis of public-private partnership were formulated, including: the concept of public-private partnership was defined and its main principles were highlighted; classification of PPP forms and models was proposed taking into account the existing world and national practice; methodological tools for evaluation of PPP projects efficiency were improved.

Keywords: public-private partnership; life cycle contract; automotive services.

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**УДОСКОНАЛЕННЯ СИСТЕМИ
ДЕРЖАВНО-ПРИВАТНОГО ПАРТНЕРСТВА
НА РИНКУ ПОСЛУГ АВТОМОБІЛЬНОГО
ТРАНСПОРТУ**

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Вступ. Активне використання інституту державно-приватного партнерства (ДПП) дозволяє виділити ДПП з усієї сукупності фінансово-економічних відносин держави і приватного сектора на підставі принципів рівності і свободи учасників ДПП, стабільності угоди і його гнучкості, відповідальності сторін, конкурентності, невторчання, стимулювання і гарантій, оплатне.

Гіпотеза дослідження. Алгоритм відбору та оцінки ефективності проектів на ринку послуг автомобільного транспорту для вибору найбільш ефективної форми фінансування за участю держави і приватного сектора дозволить створити умови для залучення приватних інвестицій у розвиток транспортної інфраструктури на основі державно-приватного партнерства.

Метою даної статті є удосконалення системи державно-приватного партнерства на ринку послуг автомобільного транспорту.

Методи дослідження: використані експертний, статистичний, порівняльний, факторний і сценарний аналіз; аналіз емпіричних даних за допомогою методів угруповання, узагальнення.

Результати. Запропоновано і апробовано алгоритм відбору

та оцінки ефективності проектів в сфері ринку автомобільних послуг для вибору найбільш ефективної форми фінансування за участю держави і приватного сектора, зокрема запропоновані: чотири альтернативні варіанти фінансування проекту для вибору оптимального з них (державне замовлення, контракт життєвого циклу (КЖЦ) без позабюджетного фінансування, КЖЦ з позабюджетних фінансуванням, концесійну угоду); уточнення методики оцінки показників комерційної, соціально-економічної та бюджетної ефективності, що дозволяють врахувати специфіку проектів ДПП; інтегральний показник для зіставлення зазначених варіантів і вибору найбільш оптимального з них.

Висновки. Сформульовано теоретичні положення, що розвивають методичні основи державно-приватного партнерства, в тому числі: визначено поняття державно-приватного партнерства і виділені його основні принципи; запропонована класифікації форм і моделей ДПП з урахуванням ситуації, що світової та вітчизняної практики; удосконалено методичний інструментарій оцінки ефективності проектів ДПП.

Ключові слова: державно-приватне партнерство; контракт життєвого циклу; автомобільні послуги.

Formulation of the problem. The most progressive way to increase the efficiency of the state's performance of public functions is the public-private partnership (PPP), which provides for the transfer of economic, organizational and management functions to private business in the production of public goods, provision of public services to the population, management of state property. This is legislated by a number of laws and by-laws (the Law of Ukraine "On Public-Private Partnership" [1]; the Law of Ukraine "On Amending Certain Laws of Ukraine regarding the Removal of Regulatory Barriers to the Development of Public-Private Partnership and Stimulation of Investments in Ukraine" [2]; the Law of Ukraine "On Concession" [3], etc.). These documents substantiate the architectonics of the organizational and legal basis for interaction of state partners with private partners and business; determine the basic principles of public-private partnership on a contractual basis.

The development of public-private partnership in Ukraine, given the limited financial resources of the state, should become one of the factors of economic growth and development of its infrastructure sectors. It is assumed that budget investments in the economy should stimulate private investment growth and contribute to the formation of modern transport and engineering infrastructure. One of the reserves for optimizing the structure of budget expenditures is the active use of mechanisms of public-private partnership, which allows to attract investments and services of private companies to solve state tasks.

The advantages of public-private partnerships are confirmed by the practice of their use in foreign countries. In particular, PPP makes it possible to attract financial resources from the private sector in industries and spheres of activity under the state responsibility, to use the experience of private structures to improve the efficiency of public property management, and also promotes the introduction of innovative technologies in capital-intensive industries. Implementation of the first PPP projects in Ukraine has started relatively recently, mainly in the infrastructure sector (transport, energy, housing and utilities sector, etc.). At the same time, the analysis of their implementation process reveals the insufficient level of theoretical, legal and methodological support for PPP in Ukraine, which prevents successful implementation of such projects.

An analysis of recent research and an unresolved part of the problem. In the domestic literature on the topic of public-private partnership and its mechanisms of use, the most significant are the works of R. Kucher [5], M. Solodarenko [6], Y. Pashchenko [7], K. Lernichenko [8] and others. The works of Graeme H., Carsten G. can be noted in foreign literature on the topic of PPP. H. Graeme, G. Carsten [9], G. Fishbein, B. Suman [10], A. Quim [11], T. Frye, A. Shleifer [12], as well as materials and publications by specialists of

the World Bank, International Monetary Fund, consulting organizations, departments responsible for implementation of PPP projects in foreign countries. Despite the high degree of development of the problem of implementation of PPP projects abroad, this problem requires detailed analysis and generalization from the standpoint of the specifics of the national economy. In recent years, there is an increased interest to this topic in the Ukrainian scientific environment. At the same time, the available publications are mainly of theoretical, fragmented nature. In this regard, the conceptual apparatus and methodology in this field need to be developed; the theoretical generalization of the first results of PPP projects implementation in Ukraine is necessary. It is also necessary to identify the main problems of implementing PPP in the system of providing socially important services, including motor transport, and develop specific proposals for their solution in order to improve the efficiency of budget funds use and development of this sector of the economy.

The aim of the article is to improve the system of public-private partnership in the market of automobile transport services.

Research results. Legislation in Ukraine identifies 11 main areas of PPP, which include: construction and / or operation of highways; provision of socially important services to the population, which include road transport services. Efficient functioning of the road complex is the main condition for modernization of the Ukrainian economy and improvement of the quality of life of the population, the activity of which is carried out in accordance with the Concept of Long-term Social and Economic Development of Ukraine until 2050 and the Transport Strategy of Ukraine for the Period until 2030 [4] and other strategic documents on transport development.

The successful functioning of the road transport complex depends on the coherence of the work of executive authorities, enterprises and organizations: public and commercial carriers, repair factories, petrol stations, bus stations, motor stations, logistics enterprises and road services.

One of the directions of GPT system reforming is introduction of strategic management elements [6]. The highest level of management is public authorities. At this level, the task of organization of centralized transportation management on a single base with the possibility of effective data exchange between dispatching and information systems of different ministries and departments, ensuring coordination of transport and other subdivisions of city services during the performance of functional tasks is solved. Functions of road transport regulation should be assigned to an organization (government agency) that will be administratively independent from the carriers. This agency should concentrate all primary information about the city's transport operations, collected by technical means, the reliability of which will not depend on the human factor.

It is reasonable to assign such basic functions to the state institution of road transport management:

- formation of indicators of planned work and schedules of rolling stock movement on the route network;
- fixing the actual work of the rolling stock and operational dispatching control of traffic on the entire route network;
- preparation of reports on the work of the rolling stock on the line to cover the losses of carriers from the budget (for work on social routes).

The transport policy of the state in the field of GPT as a whole should be based on the principle of distribution of state regulation functions of the region and performance of economic functions. At the same time, the state, reducing its participation as a business entity in competitive sectors of the road transport services market, should improve the efficiency of intersectoral regulation in transport, directing it to improve the quality of service and reduce public costs associated with transport activities.

During the formation of a promising financial and economic model for the functioning of road transport, the State is called upon to address the following tasks:

- make it impossible to create unjustified competitive advantages for some operators over others;
- to reduce monopoly spheres of activity with gradual replacement of direct state regulation (including by means of tariff setting) by market regulation methods (including by methods of antimonopoly regulation and control);
- when subsidizing certain types of activities, to ensure a transition from covering losses of transport operators to the purchase of transport services or to targeted compensation of consumers of transport services.

The improvement of the system of SPT regulation should, in our opinion, cover a number of important areas.

One of the promising areas of improving the efficiency of the transport industry in general and SPT in particular is the attraction of private capital in the form of public-private partnerships. The PPP mechanism also makes it possible to overcome the limited opportunities for financing infrastructure projects. With the help of the PPP mechanism, it is possible to optimize the distribution of risks between the state and private sector, to establish effective control over the use of budgetary funds. It was important to keep in mind the advantages of PPPs, such as the distribution of public and private sector obligations, the sustainability of their interaction, ownership of assets and profit sharing.

The main features of the institution of public-private partnerships for road transport service provision are:

- unification of possibilities of the state and private business for general provision of socially significant services and implementation of socially significant projects;
- finding the optimal balance between two extremes - 100% state provision of services and their full privatization;
- preserving the PPP object (depending on the source of investment and creation of this object) in public or private ownership;
- direct regulation of activities of the sole operator of transport services where it is impossible or unreasonable to develop competitive environment;
- transparency of relations between the state and private sector and competitiveness in the choice of commercial contractors.

When assessing the feasibility of implementing a PPP-based project in each case, it is important that the higher cost of attracting financing is compensated by an increase in the efficiency of project implementation through a better distribution of risks and introduction of new technologies. In the world practice for these purposes is used indicator of comparative cost (Public comparator, PSC), not without disadvantages.

The main directions of the development of the transport system of Ukraine are determined in the approved program documents based on the needs of the development of the economy as a whole and the need to eliminate "bottlenecks" on the transport network, on the basis of which a list of objects can be formed, and thus the problem can be presented in the form of a diagram according to Figure 1.

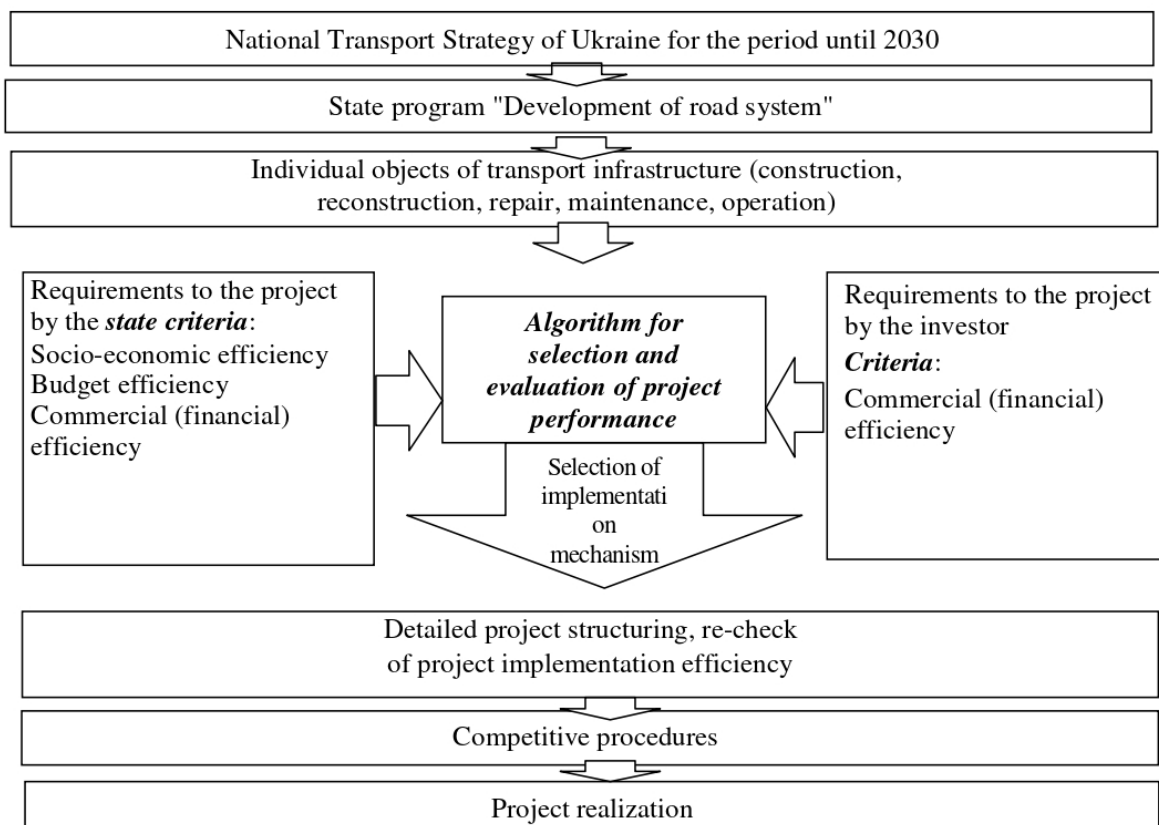
Possible schemes of project implementation depend mainly on the level of its profitability as well as on the level of project risks. Implementation of a complex contract, uniting several stages of the object's life cycle (LC) can be carried out both without attracting extrabudgetary funding and with its involvement. Methodological recommendations on efficiency assessment of investment projects do not take into account the specifics of PPP and do not establish any order or algorithm of decision-making on the implementation of projects based on PPP as an alternative to the public order.

In this connection, an algorithm of project selection has been proposed that provides for comparison of the following implementation options (both for projects with and without income flow), taking into account project risks (hereinafter – options 1 – 4 respectively):

1) the traditional state order which assumes the conclusion of separate state contracts for each stage of life cycle of object (estimation of cost of realization of the project on the given variant taking into account risks corresponds to PSC indicator used in world practice);

2) CGC without extra-budgetary funding;

- 3) CGT with attraction of extrabudgetary funding, with reimbursement of costs and cost of financial resources to a private party at the stage of operation;
4) Concession with reimbursement of costs to the private party from the flow of income from the object, including state support at the stage of market entry.



Source: proposed by the author.

Figure 1. Selection of mechanism for implementation of PPP projects in the automobile transport services market

The efficiency of projects for their subsequent selection and ranking is assessed on the basis of commercial (financial), socio-economic and budgetary efficiency. Calculation of these indicators can be carried out in accordance with current methodological documents (indicators of net present value (NPV), internal rate of return (IRR), payback period (PBP) and discounted payback period (DPBP) for the project as a whole, as well as these indicators for budget cash flows (VNPV, VIRR, VRVR) and economic cash flows (ENPV, EIRR, ERVR), taking into account the following clarifications due to peculiarities of PPP projects implementation:

- inclusion of the project debt sustainability indicators (DSCR and PLCR debt coverage ratios) in the calculation of commercial efficiency;

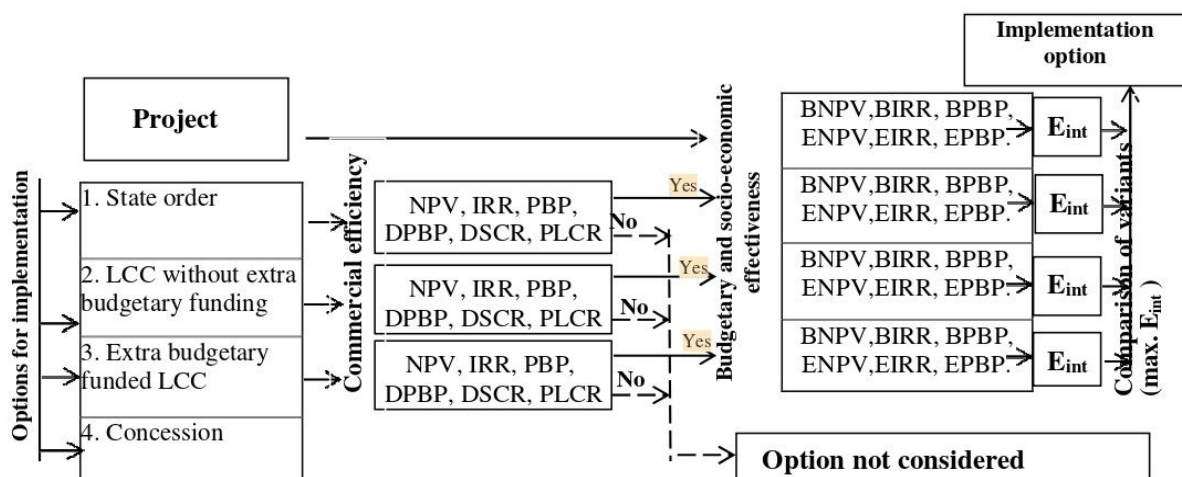
- calculation of social and economic efficiency based on monetization of external effects (monetary conversion) with subsequent inclusion in the financial model.

At the same time, the commercial efficiency indicators, including debt sustainability, are the criteria of feasibility and attractiveness of the project for the investor, but not the efficiency of the PPP project in the automobile market for the government and society as a whole, therefore, their consideration as one of the criteria for comparing the projects when deciding on the implementation mechanism seems inappropriate.

Therefore, when choosing the implementation option, it is proposed to be guided by the criteria of budgetary and socio-economic efficiency during the project implementation period. The PPP option is considered when the financial efficiency values are positive. As an integral performance indicator (E_{int}), it is proposed to use the arithmetic sum of NPV of the budget and socio-economic performance indicator, since a large benefit for the budget (BNPV) can compensate for a lower socio-economic performance of the project as a whole (ENPV), and vice versa. In this case, the sum of these indicators reflects the benefit of the state and society as a whole, in accordance with equation (1).

$$E_{int} = BNPV + ENPV. \quad (1)$$

The variant with the highest value of the integral efficiency indicator is chosen as the most optimal one. Taking into account the above, the algorithm for selecting and assessing the effectiveness of transport infrastructure projects to determine the form of financing can be presented in the form of the following scheme in accordance with Figure 2.



Source: proposed by the author.

Figure 2. Algorithm for selection and evaluation of project effectiveness

For approbation of the proposed algorithm of selection and efficiency assessment of the projects, the investment project on provision of PAT "CONNECTOR" transport automotive services for penitentiary system enterprises was considered.

The calculations performed by the author have shown the realizability of variants 3 and 4 for the investor (variant 4 is more profitable – NPV for the investor makes UAH 2 80.0 m, against UAH 16.0 m in variant 3, IRR – 15.8% against 12.3%). Debt sustainability indicators are acceptable for financing organizations in option 3 (minimum DSCR values = 1.1 LLCR = 1.23 PLCR = 1.3), and may be unacceptable for financing organizations in option 4 (minimum DSCR value = 0.88 in the first year of project implementation). Estimated budgetary and socio-economic performance indicators for the above options are presented in accordance with Table 1.

Table 1

Value of performance indicators for different options of project implementation (for the period up to 2050)

Indicator	Case 1	Case 2	Case 3	Case 4
<i>Budget efficiency</i>				
BNPV, UAH million	-13 872,4	-12 831,7	- 6 852,3	- 18 630,8
BIRR, %	3,6	4,1	4,3	-
BPBP, years	19	20	21	25
BDPBP, years	33	31 года	30	35
BBCR, coefficient	0,85	0,87	1,00	1,01
<i>Socio-economic efficiency</i>				
ENPV, UAH million	-1 537,7	383,0	6 362,4	-6 313,1
EIRR, %	5,6	6,1	7,1	4,4
EPBP, years	19	18	18	19
EDPBP, years	29	25	24	29
<i>Integral index</i>				
Eint	-16 413,1	- 13 537,7	- 588,9	- 25 857,9

Source: proposed by the author.

Calculation of integral efficiency index for the analyzed project shows the highest efficiency of variant 3 implementation (Eint = - 219.9 million UAH with the project implementation term of 26 years). It should be noted that when extending the time interval for 12 years (the period between overhauls) the indicator takes a positive value, which indicates a long payback period even for projects of state and society as a whole.

Based on the analysis, the following conclusions can be drawn:

- the best option for the state to implement the project is Case 3 (LCD with attraction of extra budgetary funding);

- financial performance indicators indicate that the project is feasible for the investor as well as for the financing organizations (in terms of debt coverage ratios);

- the option based on concession with direct fee collection is more profitable for the investor, but less profitable for the state and society, which confirms the need to compare both PPP options within the selection algorithm;

- the project even with monetization of external effects shows positive budgetary and socioeconomic efficiency only for a sufficiently long period of time, which indicates the importance of monetization in the calculation of performance indicators.

The performed calculations allow us to say that the proposed project selection algorithm can be used when making decisions on the form of project financing with the participation of the state and private sector.

Conclusions and suggestions. Implementation of the proposed measures on improvement of mechanisms for financing of projects on development of automobile services market on the basis of PPP, including development of methodological tools for selection and evaluation of projects efficiency, improvement of regulatory regulation of PPP, as well as development of tools for financing and activation of attraction of private investments into PPP projects, will contribute to improvement of efficiency of financing of automobile services market, attraction of private investments and introduction of new technologies in this sector.

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