

PUBLIC-PRIVATE PARTNERSHIP AS A TOOL FOR IMPLEMENTING STATE POLICY

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Abstract: The article discusses the theoretical and methodological foundations for the formation and development of public-private partnerships in the modern economy, the need and economic essence of public-private partnerships, as well as models and forms of interaction in such partnerships, including examples of the implementation of this mechanism in various countries and regions. It is shown that in the modern world the institution of public-private partnership is becoming more widespread and constitutes the basis for the implementation of various infrastructure, municipal and community development, etc. projects at all levels of government. Based on the elements of case study method, public-private partnership is considered as the basis for the development of socio-economic systems in modern conditions.

Keywords: public-private partnership; infrastructure; project; investment; priority national segments; sustainability.

1 Introduction

Currently, within the framework of economic globalization, there is a growing tendency towards intensification of relations between the state and private business in the direction of the penetration of capital into the sphere of state property. At the same time, the functions of the state and the tasks associated with expanding the influence of the private sector on the world economy are changing. In this regard, an essential condition for the normal functioning of a market economy is the constructive interaction between business and government institutions.

In the modern sense, the partnership between the state and business is an institutional and organizational alliance between the state and private companies, banks, international financial organizations, and other institutions in order to implement socially significant projects. The nature of this interaction, methods and specific forms may vary significantly depending on the maturity and national characteristics of market relations. At the same time, the state is never free from fulfilling its socially responsible functions related to national interests, and business, in turn, always remains the source and accelerator of the process, the increment of social wealth.

Public-private partnership (PPP) without exaggeration can be called a legal phenomenon of the third millennium, which has deep socio-economic roots and covers various legal systems. Since the beginning of the 21st century, PPP laws have been adopted by Japan, the countries of Africa and Latin America, Central, Eastern, and Western Europe, model laws appear in the USA and Great Britain. The development of guidelines and standards in the field of PPP is carried out by such well-known international organizations as the United Nations Commission on International Trade Law, the Commission of the European Union, the Organization for Economic Cooperation and Development (OECD), the International Bank and the European Bank for Reconstruction and Development (EBRD) [3, 22]. This form of partnership in the literature is usually referred to by the term "Public Private Partnership" (PPP), but also "public-private cooperation" sometimes is used.

A developing partnership, unlike traditional relationships, creates its own basic models of financing, ownership relations

and management methods. At the same time, the rational use of public capital is a necessary condition for the satisfactory dynamics of both a developed and a developing market economy. On the other hand, namely private entrepreneurship is distinguished by mobility, high efficiency in the use of resources, and a propensity for innovation. It is possible to use the advantages of both forms of ownership without deep social changes and upheavals within the framework of various forms and methods of public-private partnership [8]. The arsenal of these forms accumulated to date makes it possible, while unconditionally retaining the most important national objects in state ownership, to transfer part of the owner's powers to the private sector. At the same time, the economic partnership between the state and business allows attracting additional capital, in particular foreign capital, to the public sector, easing the acuteness of budget problems, and shifting the main part of the risks to the business sector. In such a system, the resources and potentials of two economic entities are combined - the state in the form of its ownership and private business in the form of private entrepreneurial principles of management, investment, control, and innovation.

At present, the most active partnership between the state and business is carried out, first of all, in the real sector of the economy - in the segments of industrial infrastructure (energy, railway transport, roads, ports, airports, main gas transportation, public utilities), i.e., in the industries that form the basis of the life support of the economy and society. Large-scale experience in the redistribution of property rights between the state and private business is also available in the so-called public service sectors (in particular, in the infrastructure sectors). Namely in these sectors, the traditions of delegating a number of key powers by the state to the private sector have historically developed [4, 5]. The state is responsible to society for the uninterrupted provision of its public goods, which in principle explains the tendency to preserve the relevant sectors of the economy in state ownership, introducing a kind of private goods that create conditions and prerequisites for the effective functioning of infrastructure facilities, optimal management of them, rational use of resources in the traditionally public sector of the economy.

All of the above indicates the importance of studying the formation and development of partnership institutions, designed to play a significant role in the development of modern market structures and relations, especially in the digital economy and against the backdrop of the Industry 4.0 landscape.

The transition to a digital economy has led to the assignment of new tasks to PPPs for the development of intellectual, scientific, technical, and implementation activities. In modern conditions, the implementation of innovative projects in the era of the digital economy can no longer be fully funded from the budget, the possibilities of which have recently been noticeably reduced due to the reallocation of funds to more demanded positions. Now, the implementation of such projects largely depends on the involvement of representatives of the business sector and the use of their significant potential.

2 Materials and Methods

The methodological basis of the study is an integrated approach and dialectical principles, which made it possible to identify the essential characteristics of the studied processes of creating and developing successful PPP projects in their various models, the forms of their manifestation, highlight their inherent contradictions and determine their development trends. The study was conducted using the methods of logical, comparative, historical, and statistical analysis. When analyzing country-based trends and socio-economic results in the field of PPP, elements of the case study method were applied.

3 Results and Discussion

In the world scientific discourse devoted to the study of public-private partnerships, there is no unity in its understanding, and even the principles for defining public-private partnerships are established differently not only at national levels as whole, but also in various sectors and areas, cover many types of contracts and interactions between the state and the private party [15]. Having been developing for a considerable time, PPP has taken various forms and includes a significant number of examples of the practical implementation of partnerships between the public and private sectors, showing, according to experts, "variability along the spectrum from greater responsibility of the public sector to greater responsibility of the private party" [17]. Public-private partnership is understood as a type of state policy, as a management tool, as a specific form of project implementation, and as a broad socio-economic phenomenon [18].

Nevertheless, the analysis of studies on the concept of PPP leads to the conclusion that most scientists consider it as a mutually beneficial cooperation based on the distribution of risks and aimed at achieving the goals set by the Government. For example, many authors understand PPP as the involvement of the private sector in order to achieve the objectives of socio-economic development by a public partner in the performance of maintenance, operation, reconstruction, modernization, construction of public infrastructure facilities, the provision of public services using them on the terms of long-term mutually beneficial cooperation, sharing of risks, competence and responsibility, by concluding and executing a PPP agreement [29].

The main characteristics of the partnership between the state and private investors are the following: legal registration of relations between partners, regulating their rights, duties and responsibilities; equality of economic interests between partners and freedom to make managerial decisions within their competence; non-intervention of the state in the sphere of responsibility of private partners; long-term (at least three years), mutually beneficial nature of cooperation, common interest in the innovative development of the territory; joint capital investments in the form of investment projects; the principle of competition, holding tenders for the development of individual projects to reduce costs; improving the efficiency of the use of budgetary funds; guarantees to a private investor of a preferential and stable tax regime for the entire period of the investment project implementation; equal (non-discriminatory) treatment of foreign companies; the principle of mandatory consideration of environmental requirements, social living conditions of citizens and their safety.

The models and structure of the PPP itself are very diverse, but they are united by some characteristic features that make it possible to single out partnerships as an independent economic category [7]. The partnership is built as a formalized cooperation of public and private structures, specially created for certain purposes, and is based on the relevant agreements of the parties. Equity or share participation of private capital in a state enterprise (joint venture) implies a higher level of integration of public and private capital in the implementation of partnerships to achieve socially and economically significant goals [25]. Within each of institutional alternatives to PPPs and the many specific options for the distribution of power between the public and private sectors, it is possible to use effective incentive systems that correspond to the concentration of property rights.

PPP is not a simple addition of resources, but synergy. Moreover, it should be understood that each of the parties to the partnership has its own goals, solves its specific tasks, and has different motivations. Thus, the state is interested in increasing the volume and improving the quality of services provided to the population and economic agents by infrastructure and socially oriented industries. The private sector, on the other hand, seeks to consistently receive and increase profits [19, 27]. Moreover, a strategically thinking business builds its priorities, first of all, not just according to the size of profits, but in the interests of sustainable receipt of income from projects. At the same time, both parties are interested in the successful implementation of

projects in general. PPP projects often make it easier for the national business community to enter the world capital markets, activate the attraction of foreign investment in the real sector of the economy. PPP is of particular importance for the regional economy, where it is the basis for the development of local markets for capital, goods, and services. However, the interests of the state and business may not just not coincide, but may even have an opposite character [16, 28]. Therefore, the signing of a partnership agreement should be preceded by complex (often, difficult) negotiations between the parties, balancing these interests and the goals of the projects.

Each of the parties to the partnership contributes to the overall project. On the part of business, such a contribution is: financial resources, professional experience, effective management, flexibility and efficiency in decision-making, the ability to innovate, etc. Participation of the business sector in joint projects is usually accompanied by the introduction of more efficient working methods, improvement of equipment and technology, development of new forms of organization of production, the creation of new enterprises, including those with foreign capital, the establishment of effective cooperative ties with suppliers and contractors. The labor market tends to increase demand for highly skilled and well-paid occupations [11-13]. The contribution of the state to PPP projects is the authority of the owner, the possibility of tax and other benefits, guarantees, as well as the receipt of certain amounts of financial resources. The state, as the dominant subject and the main regulator, has the right to redistribute, if necessary, resources from purely production programs to social purposes (education, health care, science, culture), and in many cases this not only contributes to the overall improvement of the socio-economic climate, increases the investment rating of the country, but also directly affects partner projects. Moreover, in PPP, the state gets a more favorable opportunity to focus on the performance of its main functions - control, regulation, observance of public interests.

In the 1990s, a qualitatively new stage in the development of public-private partnerships began in Europe, where the modern concept of such interaction was formed. The legal framework for the development of public-private partnerships in the territory of the European Union is the "Green Book on Public-Private Partnerships" [1]. This law establishes that the concept of public-private partnership refers to forms of cooperation between public authorities and the private sector in the implementation of public tasks, in which the necessary resources are jointly managed, and project risks are allocated in an appropriate way based on the risk management skills of project partners [65].

A significant contribution to the development of the PPP mechanism in Europe is the experience of the British system, and in particular the public-private company Partnership UK, which was formed thanks to the "Private Finance Initiative" program of the government of John Major.

Created in 2000 on the basis of the Treasury Task Force group, a special public-private company Partnership UK, 51% owned by the private sector represented by private equity funds and banks, and 49% belonging to the Government of Britain and Scotland, Partnership UK acts as a consultant, appraiser, and project developer for public-private partnership in cooperation with public authorities. The main goal of Partnership UK is to create and systematize new cooperation tools and standardize existing contracts between public authorities and private companies. Also, this organization contributes to the creation of similar structures in other countries: the Portuguese Parública, the Canadian Partnership BC, Infrastructure Ontario were created with the help of Partnership UK [2].

The countries of the European Union create their own country organizations with similar functions - for example, the Spanish agency SEITT, the German organization Partnerschaft Deutschland, etc.

To date, the EU countries have the most developed regulatory and practical framework for regulating the sphere of public-private partnership, which has already gone beyond the

boundaries of one country and spread to the whole of Europe. Directive 2004/18/EC and Directive 2004/17/EC regulate public-private partnerships in the field of water and energy supply, transport, public contracts for the supply of goods and services [14, 18]. The above-mentioned "Green Book of Public-Private Partnership" is a unified methodological base in the field of public-private partnership in the territory of the European Union.

The main financial model for PPP in Germany is state forfeiting (65%) [22]. This model is built on the interaction of three participants: the state body, the project company (the SPV company), and the creditor bank. The SPV-company partially sells to the bank the obligations of the state body to it, arising from the contract for the construction of the facility, and in the future, the bank becomes a creditor for the state. In this regard, the risks of improper performance of work by the project company, bankruptcy of the project company arise, assumed by the state party, as well as operational risks associated with control over the implementation of the project. This model contradicts the idea of risk sharing, since in case of low productivity, the private partner does not lose payment [21].

In Canada, an SPV-company enters into an agreement with a government agency that is tasked with reducing most of the design, construction, and operational risks for subcontractors. In particular, SPV signs agreements on financing from one or more sources, such as debt from the private sector, debt from domestic and international banks, pension funds, insurance companies, or bond investors with limited maturities [23, 24]. The return of funds from lenders is a regression of the flow of payments available to the SPV under the project agreement over the life of the project. In practice, a wide range of PPP types are used, including such as "Design-Build-Finance-Own" (DBFO), "Design-Build-Finance-Maintain" (DBFM), or "Design-Build-Finance-Operate-Maintain" (DBFOM), based on the British private finance initiative model, which involves a long-term concession and includes significant financing and risk taking by the private sector. It should be emphasized that in Canada, PPP is not considered as the privatization of public assets in the event of a complete or significant disposal of public sector assets [62].

In 2016, the Canada Infrastructure Bank was created, a federal Crown corporation that provides loans for the implementation of PPP projects in the development of public infrastructure at a reduced rate. A Canadian PPP Project Fund (P3 Canada Fund Projects) was also created to finance infrastructure projects (at federal, state, and local levels) aimed at economic growth or sustainable development of communities.

In some provinces, regional governments have created their own specialized departments or agencies, but in the regions of Canada with Arctic territories - Nunavut, the Northwest Territories, and Yukon - such structures are absent. Although PPP is not as widely developed in these regions as in Canada's more southern provinces, Nunavut and the Northwest Territories have experience with PPP projects and are increasingly considering the use of PPP in social infrastructure development initiatives. The only exception here is Yukon, where the provincial government prefers the traditional model in the implementation of socially significant infrastructure projects in the social sphere. In the Arctic northern regions of Quebec, there is also no experience of public-private partnerships, however, the provincial government plans to expand the practice of implementing PPP projects in these areas in the future and invest about \$80 billion in the next 20-25 years [67]. The provinces of Canada have developed policies and guidelines used in the evaluation of PPP projects, and while these documents are not mandatory, they contain best practices and standards and serve as information banks for various stakeholders involved in the infrastructure PPP projects. In recent years, some municipalities have also issued regulations to ensure transparency and consistency in the implementation of public-private partnerships in local communities [31, 32]. Participation of this level in the PPP market is expanding - Canadian municipalities are increasingly interested in PPPs as an alternative form of financing, since a growing population and aging infrastructure

require renewal of resources and the development of social sectors. One such industry where public-private partnerships are, in principle, regarded as the most preferable mechanism for ensuring the modernization, construction, financing, maintenance (etc.) of infrastructure facilities is the healthcare system - namely in this area, a third of all PPP projects in Canada have been implemented. (102 out of 290) [67]. And despite the fact that the implementation of PPP projects in healthcare is often criticized, their impact on the economic and social development of communities is generally assessed positively, especially for the country's remote North Arctic territories.

The experience of PPP in the United States also has a rather long history, during which the concept of public-private partnership was developed as an agreement where a private company, in an agreed and approved form, is allowed to participate in state ownership, as well as perform functions that traditionally lay in the responsibility of state power.

In the United States, a large number of mechanisms and institutions have been created that contribute to the dynamic development of the practice of public-private partnerships, but the leading role belongs to the National Council for Public-Private Partnerships (NCP3P). Its main functions include information support for PPP, providing links between the private sector and public authorities, educational activities and removing obstacles to the implementation of public-private partnership projects. Board members are 130 private organizations and government representatives, including Bank of America Merrill Lynch, Deloitte, Parsons, Office of Public-Private Partnerships, District of Columbia. Representatives of the private sector are companies that occupy leading positions in their industries and have rich experience in implementing PPP projects, representatives of government bodies are departments and specialized institutions of public-private partnerships of seven states [26]. Until 2015, in the US, public-private partnerships were mainly presented in the form of concessions on toll roads. The US federal government has plans to implement social infrastructure targets, but projected spending exceeds current budget constraints. It is worth noting that US infrastructure has traditionally been financed with tax-exempt municipal bonds, which means that a significant increase in the infrastructure spending is likely to require additional funding sources [65]. Partnerships between public and private sectors (P3) represent an increasingly popular funding alternative. In the US, private financing of infrastructure projects is expected to be strengthened, especially if legislative support for private financing with tax incentives is adopted [26]. PricewaterhouseCoopers' analysis notes an increase in P3 project implementation over the past few years as local governments seek to use P3 infrastructure projects as a way to bridge the budget gap. Transport is a leader in the use of the PPP mechanism, but projects in the field of energy, waste and water, and social infrastructure are widely represented. In fact, the biggest constraint on infrastructure investment today is the lack of suitable, bankable deals.

In 2018, through a public-private partnership between the City of Anchorage, housing authority Cook Intel Housing, WeidnerApartmentHomes, the Rasmusson Foundation, the First National Bank of Alaska, and a number of other local foundations, businesses, and community organizations, the Path to Independence project was launched, under which the homeless are provided with housing, financial assistance, and employment. The initial funding for the project was \$650,000, and the total number of public and private sector participants is more than 203. It is noteworthy that in 2019 this project was awarded the Strong Communities Award, established by the Federal Mortgage Bank of Des Moines (FHLB DesMoines). The award in the amount of \$15,000 received by the First National Bank of Alaska was directed to the ongoing PPP project [65].

In May 2020, the Alaska Mental Health Authority (AMHTA) invested \$500,000 in the Home for Good Anchorage PPP project, implemented since 2019 by the United Way of

Anchorage in partnership with numerous private and public organizations. In June 2020, AMHTA awarded 62 grants totaling over \$1.2 million to local partner organizations that could provide services to AMHTA beneficiaries affected by COVID-19. The private party also allocated about \$1.5 million for the implementation of this PPP project [16].

Another example of the implementation of PPP projects aimed at the development of the social sphere is the creation of a nationwide wireless broadband network FirstNet in all states, including Alaska. The concession agreement signed in 2017 between the First Responder Network Agency (FRNA), representing the government in this PPP project, and the mobile operator AT&T with a total capital intensity of about \$45 billion, includes the creation, operation, and maintenance of a special network for all services of emergency care (medical, police, fire) [8].

However, the American model has serious limitations. First, PPP projects are implemented only by American contractors. Thus, the participation of a foreign investor in public-private partnership projects in the United States remains practically inaccessible [34-37]. Secondly, there is no uniform legal basis for public-private partnerships in all states, which creates institutional and political obstacles. Thus, the development of the practice of public-private partnership is hampered by the lack of uniform legislation and limited access for foreign investors.

As a result, when evaluating the US experience, it can be concluded that partnerships are most often created and regulated at the municipal level, where projects in the field of road construction and utilities prevail.

Initially seen in the United States and Canada as an innovative way to implement infrastructure projects, public-private partnerships developed in the territories of these two North American countries due to the fact that the public sector, limited in funds, sought such infrastructure development that would stimulate the economic growth, while the private sector was looking for productive investments, but with greater income security. Under such conditions, PPP has come to be seen as an effective way to ensure that both parties maximize their benefits: the desire of the public sector for the common good, and the private sector' striving for the efficient use and savings of funds [8].

PPP projects, during their implementation in the global space, have proven their effectiveness in many countries, but the scale of replication at the international level is very different. In Canada, the formation of public-private partnership dates back to the early 1990s [15], when the first PPP projects were implemented in the development of the education system (building schools in Nova Scotia and New Brunswick), transport infrastructure (highway 407 and the Confederation Bridge), health care (Royal Ottawa Hospital and Brampton Civil Hospital in Ontario). Later, public-private partnership in Canada has received significant development, including in terms of shifting the direction of this institution towards a greater representation of the interests of society and the satisfaction of socially significant needs.

In the United States, until the early 2010s, public-private partnership projects were not so widespread. This was largely due to the well-developed municipal bond market, which provided local administrations with resources for the development of public infrastructure [15]. However, the global financial crisis of 2007-2008 significantly reduced the ability of the bond market to finance such initiatives. And namely this factor appeared among of the main ones that influenced the development of the PPP institution in the United States. The main area of application of the PPP mechanism in this country initially was the transport infrastructure, but over time, on the terms of public-private partnership, projects in the field of development of social infrastructure facilities have increasingly been implemented. At the same time, both in the USA and Canada, public-private partnerships have not been considered exclusively as a source of financing. Rather, such projects were evaluated collectively - as an opportunity to obtain additional funding and improve the efficiency of public infrastructure.

The BRICS countries also show positive dynamics in the development and application of public-private partnerships. The Chinese practice of attracting large investments through PPPs has been going on since the early 2000s. In China, PPP projects are used in the construction of railways and subway lines. More than half of the infrastructure facilities intended for the Olympic Games in Beijing were built on the basis of PPP mechanisms [3].

In South Africa, there is an independent PPP department, consisting of various units (financial, legal, business development, design and evaluation, municipal). The activities of such management body are carried out at the expense of state budgetary funds. The powers of the PPP Department include consideration and analysis of feasibility studies for proposed projects, organization and conduct of public tenders, signing of contracts with their winners, as well as supervision and control [9].

To substantiate the thesis that public-private partnership is a tool that links the elements of the sustainable development concept, it is expedient to pay attention to excerpts from some documents adopted as a result of international meetings. Thus, the final document of the UN General Assembly "Transforming our world: The 2030 Agenda for Sustainable Development" adopted in 2015 contains 17 global goals and 169 corresponding tasks; for the first time, in a UN document a call to action, addressed to the private sector, was clearly heard. Let us pay attention to the last, seventeenth goal, formulated as "Partnership for sustainable development". The goal is to "strengthen the means of implementation and revitalize the work of the Global Partnership for Sustainable Development" [38-44]. An analysis of the tasks that contribute to the implementation of this goal shows that, to a greater extent, the goal lies in the global partnership of governments of states for the joint achievement of sustainable development, however, it should be carried out with the participation of many stakeholders, stimulating and encouraging effective partnership between government organizations, between the public and private sectors and between civil society organizations, drawing on the experience and strategies of using partners' resources. In this connection, one can rightly argue that the interaction of the state, economic entities, and the public concerned in the environmental sphere is nothing more than an effective mechanism for achieving sustainable development goals, officially proclaimed at the international level.

The world practice of partnership in the infrastructure sectors shows that each of the economically developed countries has its own top-priority industry for the use of PPP. In the United States, such an industry is roads, in the UK it is healthcare and education, in Germany it is education, in Italy and France it is healthcare [10].

The creation of territories of advanced socio-economic development largely depends on the investments of budgets of all levels and participation by domestic and foreign investors in the form of investments, which is eventually combined into a common project and indicates the coexistence of public-private sector resources [45, 46]. Namely in the course of the creation and fruitful functioning of the territory of advanced socio-economic development, the goals and objectives of the state policy in the field of creating new jobs, infrastructure facilities can be achieved, while the private sector will receive the planned dividends in the form of income from the organization of production.

In recent decades, the role of government structures in the provision of infrastructure services has changed: while remaining their guarantor, the state is increasingly no longer their supplier; in fact, the private sector is playing an increasingly important role in the provision of such services [29]. An urgent problem is that the PPP approach may lead to less careful selection of projects by public authorities and further inefficient management [33]. Political risk factors, macroeconomic failures and improper contract structuring undermine the effectiveness of infrastructure investment, especially in developing countries, leading to an unfavorable attitude towards PPPs [65]. However, the optimal distribution of

risks levels out economic costs, introduces incentives for effective management, and reduces the need to renegotiate contracts in the future, including at the request of creditors [68]. An analysis of the effects of market reforms in the electricity industry in 27 OECD countries determined that both privatization and regulation have a negative impact on the market, while market liberalization brings positive changes [17].

The creation and modernization of electricity generation, transmission, and distribution facilities through PPP mechanisms are a new form of investment attraction. PPP can be attractive for the development of cost-effective, low-carbon, climate-specific infrastructure projects, provided there is sufficient institutional capacity, a stable regulatory environment and proper structuring [25]. PPP, focused on innovative model of the integrated development of natural resources, has significant prospects. According to international practice, PPP mechanisms are an important aspect in supporting knowledge-intensive energy industries, including in the field of renewable energy. Public-private partnership mechanisms are applicable not only at the stage of commercial exploitation of technology, but also at the stage of research. One of the most interesting examples of such a research partnership is the Algae Testbed Public-Private Partnership, which was established in the USA [16]. Algae-based bioenergy technologies have great development potential, they represent one of the most promising renewable energy technologies. However, at present, these technologies have not yet reached the stage of commercial application due to high costs. Further R&D and demonstration projects are still required to improve technology performance, reduce risk and uncertainty, and diminish costs. Namely for the purpose of such research projects, a consortium has been created that brings together academic institutions, commercial enterprises, and national laboratories of the US Department of Energy, as well as numerous testing laboratories located in different geographical conditions [48, 49]. The aim of the consortium is to obtain cost-competitive algae-based biofuels. The world has accumulated a fairly solid experience of public-private partnership in the field of renewable energy, which is represented primarily by mechanisms for the return of funds from private investors invested in renewable energy projects. In the US, such mechanisms are mainly electricity purchase agreements, in other countries – “green” tariffs and tenders for the selection of renewable energy projects.

In many countries, the development of renewable energy is faced with a large number of obstacles. The most important problem of the industry is that some players (companies or individuals) invest in it, while the benefits are enjoyed by the whole society together [51-56]. The result is the so-called “free rider effect”, a situation where those who bear the cost may not always be able to collect payment from those who receive the benefit, since “free riders” cannot be excluded from the number of users of the service. One of the solutions to this problem is the use of public-private partnership mechanisms [57-61]. In this case, PPP is especially commonly understood as medium-term or long-term interaction between the state and business in order to solve socially significant problems, in which the private sector assumes significant risk and responsibility for management.

Countries with different levels of development have different quality elements for the development of the advanced industry of tomorrow. But even the most well-resourced (in organizational, legal, and financial planes) countries such as the USA and Germany cannot guarantee success in mastering the latest technologies if the work of the subjects of national innovation systems is not coordinated (in the triangle “state - business – universities”). Coordination and long-term, strategic thinking is the main prerequisite for the success of the strategic and technological development of countries and regions [63, 64, 66]. And public-private partnership in technology can no longer not be a necessary (albeit not always sufficient) condition for national competitiveness.

The modern technological revolution to varying degrees affects the rate of change in different technologies in various spheres

and areas of the world economy (the technological map of changes is very diverse and even in theory cannot be determined with a sufficient degree of clarity). But the practice of PPP implementation in the world shows that PPPs can always help speed up the process of cooperation between the elements of the R&D of countries and regions for the development of any technology, at any stage of their individual, specific industry maturity. In this regard, PPP structures can help both the birth and development of the entire technology system at an optimal pace. The passage of the so-called “valleys of death” of new technologies is increasingly impossible without PPP.

The United Arab Emirates can rightly be proud of unusual projects: the tallest building in the world, an artificial island in the shape of a palm tree. Now the Middle Eastern state has a new ambition - to connect not only cities with a railway laid in the desert, but also countries. The UAE ranks 115th in the world in terms of area and has a population of about 9.5 million people, 80% of whom are foreigners, while infrastructure projects worth tens of billions of US dollars are underway [50]. In 2015, the UAE issued a new law designed to develop cooperation between private capital and public authorities in the implementation of public projects. The law defines the conditions for public-private partnerships and establishes a ceiling on the cost of projects, decisions on the implementation of which can be made by heads of government departments. At the departmental level, the fate of projects worth up to 200 million dirhams (54 million US dollars) can be decided, while projects worth up to 500 million dirhams can be approved at the level of the financial department of the emirate, and above this amount - at the federal level [50]. Executives, top managers, and sustainability experts from various national and international companies in the UAE highlight the importance of cooperation and joint action between the government, the private sector, and society in order to promote the transition to a sustainable circular economy in the country and around the world, and to achieve the Sustainable Development Goals. Among the latest circular economy initiatives and programs, there are those announced by the UAE Government, in particular, the UAE Circular Economy Policy - a comprehensive framework to define the country's approach to achieve sustainable management and ideal use of natural resources by introducing consumption and production practices that ensure the well-being of the current and future generations [66]. The policy includes several key objectives, in particular, those promoting environmental health, supporting the private sector in adopting environmentally friendly production methods, and reducing natural environmental pressures to achieve the country's vision as a global green development pioneer. Moreover, the policy provides a framework for setting priorities in terms of consolidating the concept of the circular economy in several priority sectors, in particular in green infrastructure, sustainable transport, sustainable manufacturing, sustainable production and consumption of food, as well as in other areas such as technology, innovation, research and development, while raising awareness, building capacity, building partnerships and collaboration platforms, and achieving integrated waste management [70]. These policies and their results are expected to bring significant economic benefits to the country, mitigate the environmental burden, secure the supply of raw materials, increase competitiveness, motivate innovation, enhance economic growth, and create jobs.

It is worth noting that within the same framework, the UAE Circular Economy Council was established, the purpose of which is to oversee the implementation of the strategy in coordination with the relevant authorities, as well as approve performance indicators related to the adoption of the strategy, harmonize federal and local strategies within the framework of policy requirements, offering a common framework for sectoral plans and projects, encouraging the participation of the private sector in projects and initiatives related to the circular economy, promoting partnerships between the public and private sectors, and facilitating scientific research in relevant areas.

It is advisable to cite some indicators that illustrate the role of infrastructure in the development of the non-oil economy for the

UAE. Back in 2016, a global infrastructure investment rating was prepared, evaluating the markets of more than 40 countries in terms of attractiveness and opportunities for investors, companies participating in contracts, in which the UAE took 3rd place in the world (up from 4th place in 2012). As noted, the UAE successfully relied on public-private partnership (PPP) mechanisms and maintained the course for the implementation of new projects, especially in Dubai, despite the strongest drop in world oil prices in 2014-2016 [16].

In general, breakdown of completed PPP projects during the period of 2009-2016 in developed countries is shown on the Figure 1 below [47].

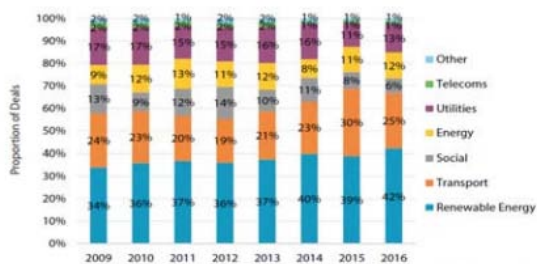


Figure 1. Completed Infrastructure PPP deals by industry, 2009-2016

When choosing a specific option for the implementation of a PPP project, it is important to initially determine as clearly as possible the role of the state, which, in accordance with the proposed classification, can be passive (if, for example, a public authority acts exclusively as a tenant), parity, or leading [71]. In the latter case (for example, when implementing the most socially significant projects, the transfer of which to non-state ownership is inexpedient), a private investor may play a secondary role (for example, acting as the owner of a non-controlling part of the project).

It is also important to classify the types of PPP depending on the ownership of the partnership object. As a rule, in this area, in one form or another, there are two proprietary rights: the right of ownership and rent. However, in our opinion, the development of types of public-private partnerships based on the use of other real rights provided for by law, such as, for example, the right of economic management or operational management, is also promising - such rights are narrower in content in comparison with the right of ownership, but at the same time allow the state to more carefully control the progress of the project and reduce the risk of dishonesty on the part of representatives of private business.

Depending on the urgency factor, it is possible to single out a PPP with a strictly established period (for example, a conventional concession for the development of subsoil), a PPP that is implemented before reaching some economically or socially significant goal (for example, a PPP to train teachers in the region in information technology or to improve the territory at the expense of private companies with the provision of any preferences to the latter in the given territory - the specific terms of such projects can be quite "vague", but the criteria for achieving the goals of the partnership in any case should be formulated as clearly as possible), as well as a conditionally unlimited partnership, in the contract of which a specific completion date is not clearly defined.

Meanwhile, critical success factors for PPP, for example, in construction industry, do not differ much between regions, which is evident from the comparison of the UAE and UK (see Figure 2).

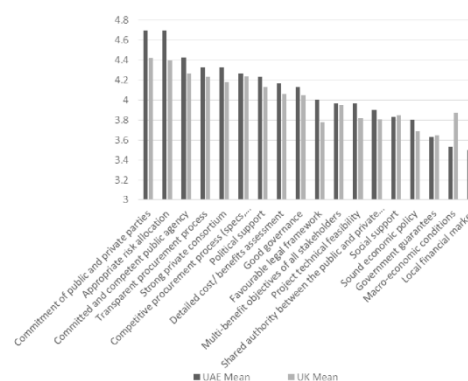


Figure 2. Critical success factors for PPP: A comparative analysis between the UAE and the UK [2]

In world practice, the choice of a PPP mechanism for the implementation of a project is justified only after assessing its feasibility for the public side in comparison with existing (or hypothetical) alternatives. This is the basis of the Public Sector Comparator (PSC) - a special quantitative analysis tool that allows comparing traditional project organization models, in which the private sector acts as a contractor under a public contract, with a particular PPP model. PSC makes it possible to determine the costs (including contingent liabilities) and benefits for the public side associated with the participation of the private sector, and even the best business partner for the implementation of a joint project [30].

The PSC method is based on the concept of "value for money", which is also known in the context of the cost and quality ratio optimization. The PPP mechanism is considered as one of the potential opportunities to spend budgetary funds more efficiently, for example, by transferring some risks to the private party. In a number of countries, PSC has become, in fact, the state standard and the basis of the routine procedure for substantiating the method of organizing the implementation of state projects [21].

In world practice, various mechanisms are used to effectively implement PPP projects. In publications on PPP issues, as a rule, there are five main models of partnership between the public and private sector: the model of operator; cooperation; concessions; leasing; contracts [14]. These PPP models are implemented in practice through certain mechanisms (for example, construction - operation / management - transfer (concession)).

Recently, such a form as a "life cycle contract" has been increasingly used between public and private partners. In this case, the public partner does not invest in the object of the agreement. Design, construction, and commissioning of the facility is carried out at the expense of the contractor. The public partner does not finance the facility itself, but only the maintenance services of the existing facility during the entire period of its operation on the principle of "no service - no payment". The implementation of projects through this PPP model allows speeding up the time of putting the facility into operation, since the payment for the service by the public partner arises only after its commissioning. In addition, innovation and high technology are used more widely, as the savings from their application go directly to the contractor. Prerequisites are created for the performance of work at a high quality level, since in the event of a failure, all costs for the repair of the facility are borne by the contractor. All this leads to a significant reduction in the cost of the facility and its maintenance, more rational spending of funds, and a reduction in technological and project risks.

However, the choice of a particular form of partnership is influenced by the objectives of the PPP project and its economic efficiency. A serious influence on the choice of model is exerted by such factors as: features of the country's legislation; industry affiliation of the PPP project; investment risk distribution

scheme; experience in contract management; determination of final payers for the facility's services.

It should be noted that public-private partnership is a new driver of digital transformation. For example, the National Innovation Strategy of the UAE was part of the Vision 2021 program. In this program, digital technologies were identified as one of the seven priority national sectors. The emphasis in digitalization is on the development of smart cities, software, as well as initiatives that include advanced technologies, such as artificial intelligence, nano-technologies, and the rapid introduction of high technologies in various sectors of the economy. In particular, the government's plan to develop Smart Dubai and Smart Abu Dhabi implies collaboration between private and public partners to promote effective urban experiences that provide a safe and comfortable environment for residents and visitors [2].

Saudi Arabia, in its Vision 2030 program, declares a very ambitious goal: to become one of the leading countries in the world, determined on the basis of the E-Government Survey Index. In addition, in accordance with the Kingdom's National Transformation Plan 2020, digitalization is included among the four priorities. This document outlined the creation of 5 digital platforms, the implementation of 29 information and communication initiatives in key sectors of the country's economy. Along with this, the National Transformation Program 2020 provided for solving, for example, such important practical tasks as improving the efficiency of healthcare through the use of digital technologies, creating technology companies to participate in the development of the local ICT sector. Mostly, these goals set were met until now.

In order to achieve the goals set in Vision 2030, the Digital Transformation Program was launched in the kingdom, in accordance with which the Fekra Tech platform was created to solve, first of all, problems in the field of Saudi healthcare. As a result, fifteen business models for the digitalization of medical services were proposed, which, through the introduction of "smart" hospitals and clinics, telemedicine and the Sehhi mobile ambulance, made it possible to halve the personal visits of doctors to patients and the waiting time for consultations and assistance from months to weeks, and in some cases up to five minutes [1]. In addition, the Digital Saudi platform oversees the activities of the National Committee for Digital Transformation in order to ensure acceptable economic and social impact from digital transformation projects in partnership with the private sector and entrepreneurs.

In August 2019, it became known that Saudi Arabia wants to build a super-city of the future in the middle of the desert. The new city was named Neom (NEOM). It should be located on the coast of the Arabian Peninsula near the border with Jordan. According to the initiators of the project, in terms of development, the city should overtake Silicon Valley, Hollywood, and the French Riviera combined [20]. The preliminary cost of the project, supported and financed by the Saudi State Investment Fund, as well as a number of private companies, is \$500 billion. All the latest achievements of science and technology will form the basis of the construction and life of Neom. Neom's economy will prioritize nine areas, including digital technologies, new energy, biotechnology, and media. "The focus on these sectors will stimulate economic growth and diversification," the Saudi authorities are sure [69]. This scale of the project was made possible namely thanks to its reliance on public-private partnerships.

Bahrain's digital strategy focuses on eight pillars: increasing community participation; development of partnership between the state and the private sector in the promotion of information and communication services; increasing the digital literacy of the population and civil servants; achieving a higher level of performance; ability to cooperate; government efficiency; offering quality services and strengthening communication channels with e-government; development of innovations and entrepreneurship.

In general, the structure of PPP projects by sector in Gulf countries looks as follows (see Figure 3 below) [30].

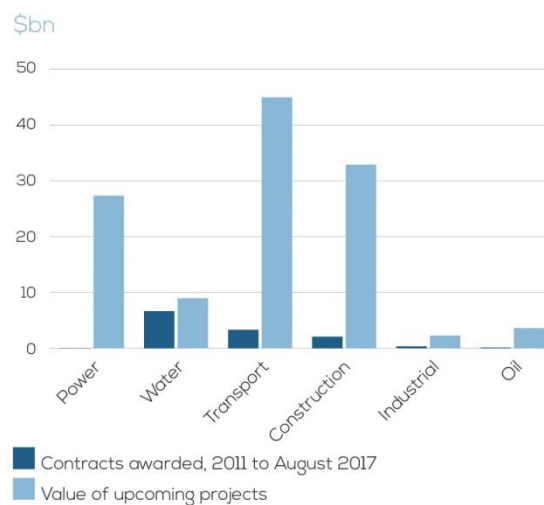


Figure 3. GCC PPP projects by sector

Separate mention should be made of the so-called GovTech - a digital approach to the modernization of the public sector, which can improve the quality of public services, simplify interaction with civil society, and increase the efficiency of public administration. The concept of GovTech can mean a number of very different areas of activity: from the formation of a "smart" urban environment to the use of digital tools to combat crime. GovTech has enormous potential, but turning digital initiatives into tangible, measurable, and consistent results in most countries remains a challenge. Moving towards GovTech requires a unified nationwide approach to digital transformation, the creation of a transparent management and decision-making system, and the use of the potential of public-private partnerships to attract competencies, innovations and investments from the private sector. The state purchases digital products or participates in the development of new software solutions through PPP mechanism.

In general, world practice shows that public-private partnership is an effective and flexible mechanism for attracting private investment for the implementation of capital-intensive facilities of particular importance to society. Despite the difficulties in implementing the PPP tool, it allows achieving optimal high quality results. The success of its implementation largely depends on a well-developed legislative framework, an established institutional environment, economic and organizational solutions to all aspects of existing problems. PPP contributes to the diversification of the economy in accordance with the strategic goals of the authorities, resulting in a high standard of living for service consumers, that is, for society as a whole.

At the same time, it is important that each PPP project has an evaluation mechanism from the very beginning, which allows each time during the entire life cycle of the partnership, including when changing project stages, at periods agreed by the participants or in the event of non-standard situations, to conduct regular analytical efficiency calculations. Conceptually, it is about creating a kind of monitoring system for regular and proactive performance evaluation (in a wider space than traditionally considered in the tasks of evaluating investment projects) and, as a result, identifying ways to ensure it at a level that satisfies each of the partnership participants.

Of course, the implementation of PPP projects does not bring only advantages and benefits. There are some general potential problems that may arise during the implementation of a particular project, such as the possible loss of public control and future government revenues, the risk of bankruptcy, etc. At the same time, PPP projects are relatively risky, but highly

profitable investments, which, combined with complex agreements and contracts that provide guarantees for both parties, make public-private partnerships an effective mechanism for their implementation and financing.

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Primary Paper Section: A

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