

# **Role of Public-Private Partnership in the Development of Road Network in Russian Federation**

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Abstract  <p>The research was aimed on identification of economical essence, benefits and pitfalls of Public-Private Partnership in the development of road network in Russian Federation. The purpose of the research was caused by three reasons: low quality of roadways across the country, insufficient amount of money in the country's budget to ensure the proper scope of modernization and lack of integrated research of defining the mechanism of Public-Private Partnership.</p> <p>Based on the tasks and objectives, data was collected by using a qualitative research. Secondary data was obtained through different databases and statements of specialists, working in the sphere of transport. This data allowed author to create hypotheses, which were further tested through empirical study. E-mail interview with a leading specialist of Committee of Development Transportation Sphere in St. Petersburg and survey with employees of same organization took place just after the time, when hypotheses were made. Interview was made with the purpose of getting a deeper understanding of key concepts that were presented in the literature review. Survey was launched after the interview, in order to test intermediate hypothesis and to validate the final results. Total number of respondents was 42. For this specific topic it can be considered a reliable number.</p> <p>The results revealed the fact that successful implementation of Public-Private Partnership in realization of roads projects in Russia increases the quality of final services, finds new sources of investments, and promotes innovation and effective risk allocation. At the same time, weak legislative framework and lack of integrated approach of defining benefits of Public-Private Partnership decreases the efficiency of this collaboration in Russia.</p> <p>Based on the findings, author made recommendations and solutions in the end of the work. These solutions can be useful governmental institutions and private companies.</p>		
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# 1 Introduction

Recent global political conflicts, followed by dramatic social and economic changes, are causing more and more countries to experience various financial difficulties. The economic situation of today is far from being stable. In addition, there is a lack of governmental financial power forces. In this challenging situation, many countries realize the importance of close collaboration and cooperation between businesses and government institutions for the successful development of strategically important branches of a country's economy.

Russian Federation, being a big player in the world market for the last decade, could not hide away from economic difficulties, which hit at the interests of the government of strengthening and modernizing economy of the country. Military actions in the East of Ukraine and Syria were followed up by exposed economic sanctions by U.S. and majority of countries of European Union, which resulted in decrease of international economic trade (both export and import), decline in oil prices and devaluation of local currency (Galbert 2015, 2-6). Russia originally having market economy and relying on export of natural resources, suffered from these sanctions.

Consequently, the Russian government felt an urgent need to find and wisely allocate financial resources in order to maintain and develop the core branches of its economy. Transportation infrastructure has a great impact on Russia's economic development. The projects in the sphere of transportation often require heavy financial investments, which the Russian government cannot make in this unstable economic situation. Therefore, the collaboration with the private sector is vital for the country's sustainable economic growth.

There are different forms of cooperation between public and private sides. *Public-Private Partnership* (PPP) is one of the most attractive cooperation forms for the realization of transportation infrastructure projects, due to the fact that government is not losing full control over the object, but gives the right to private sector to step in into strategically important sector and invest into its development. PPP refers to a long-term contract between government and private sector for a realization of strategically important projects (Yescombe, 2010, 3).

Despite its unique advantages, PPP have not been a widely used approach to procuring public infrastructure. Many government organizations, as well as private companies, prefer to use more conservative and simple contractual forms of business relationships. The lack of prior research studies on PPP as a relationship mechanism in Russia and worldwide results in low awareness about the full potential of this form of collaboration.

This study attempts to contribute to the development of theoretical and practical approaches for the proper application of PPP in Russia and to reveal problems that stop successful implementation of this mechanism in current realities.

### **Research problem and questions**

Aims of this work include following ones: to give readers the understanding and economical essence of Public-Private Partnership, to show the diversity of its forms, types, principles, characteristics and usage scenarios; to cover advantages and disadvantages of PPP; to make an overview of transportation infrastructure conditions in Russian Federation; to reveal pitfalls that stop successful implementation of PPP in Russia and give recommendations about the changes that should be done to shift the situation to a more positive direction.

Based on the aims, author created list of research questions, answers to which readers will be able to see in the end of this thesis work. They include following ones:

#### **Research questions:**

- 1) What are the economical essence, forms and main principles of Public-Private Partnership?
- 2) What are the benefits and problems arising in implementation of Public-Private Partnership in road projects in Russia?
- 3) What should be changed, in order to improve the efficiency of cooperation between government and businesses in terms of realization of road projects with the use of Public-Private Partnership?

Based on the research questions and aims, which were carefully established, author of the work created so-called thesis plan, which included scheduling,

making literature review, choosing a methodology and types of gathering data (Jones and Wahba, 2007, 25).

First of all, the literature review was conducted to collect valuable data from the specialists working in this sphere and to give readers a deep understanding of the topic. Based on the secondary data that was collected through this stage, author established hypotheses that were further tested by the empirical study. This study included a survey among the specialists working in the Committee of Development of Transportation Sphere in St. Petersburg, Russia; and face-to-face interview with the leading specialist in this organization. Data that was collected through interview and survey allowed author to find the answers to the research questions and to test hypotheses, which were created on the basis of literature review. On the last stage of the research, the conclusions and recommendations were presented to give the overview of the results of this thesis work and to create suggestions for improvements that should be done for increasing the popularity and efficiency of Public-Private Partnership in realization of road projects in Russian Federation.

### **Relevance of the Research**

Topicality of this research is caused by the interest of the government of Russian Federation in close collaboration with the business sector for the realization of significant and high-cost projects in the sphere of transportation. Nowadays, it is becoming more and more obvious that Public-Private Partnership can be a crucial thing for achieving targets in different spheres for both sides: private and public. Strategies and programs that are aiming only on use of governmental budget cannot lead to realization of large scale and strategically important projects that require millions of investment.

According to the forecast, situation with the deficit of business investments will not change in the positive way in the near future, due to the fact that many foreign companies decided to leave Russian market in this difficult economic situation. In this case, Russian government is willing to focus all their efforts into close collaboration with private sector, in order to combine financial resources of both parties and put them into modernization and development of transportation infrastructure, and realization of road projects.



According to this statement, the topic of this thesis work, aiming on identification of benefits and problems arising in realization of road projects in Russia, as well as revealing targets for improving the efficiency of Public-Private Partnership in realization of these projects in Russia is relevant and up-to-date. Author was aiming on providing valuable and useful information for both - private sector and government authorities of Russian Federation for improving the current situation of efficiency of Public-Private Partnership in road investments projects.

## **2 Theoretical Framework**

Due to the fact this thesis work is related to rather broad topic, author of the work paid special attention to the theoretical part of the work that would support readers throughout whole research study. Theoretical framework can be generally divided into two parts.

First one deals with description of transport infrastructure, definitions, types and forms of transport, and gives the quick overview of characteristics and conditions of transportation infrastructure and road network in Russia through combination of both quantitative and qualitative data. These characteristics should ensure the reader, if modernization and development of road network in Russia is needed or not.

Second one deals specifically with term of Public-Private Partnership and gives definition, meaning, and characteristics of this term along with the forms applicable for realization of road projects. Furthermore, this part of theoretical framework also reveals the benefits and pitfalls of Public-Private Partnership in realization of road projects in Russia, which enables the author to create hypothesis that would be future tested through empirical study.

### **2.1 Transport**

As author mentioned in introduction, transport has a great influence on the whole economy of the country, which explains the concern of the government for its proper development.

First of all, author suggests starting with definition of transport and transportation infrastructure for a better understanding of a topic of the research.

The most commonly used definition of this term states that *transport refers to movement of goods and people from one point to another* (Young, 2004). According to Young, R. (2004) transport has sets of characteristics that differentiate it from other processes:

- The demand for transport is a derived demand (it means that it exists, due to demand for the other good, e.g. movement of goods)
- Transport as a service cannot be stored
- It has time and distance dimensions
- Transport is considered to be an intermediate output (this means that it only represents one stage in the process of creating final good)
- Transport represents a big sector of economy of any country

Transportation infrastructure is the second term that should be explained to the reader. Young, R. (2004) states that *transportation infrastructure facilitates the process of movement of goods and people, and can be identified and explained as combination of transport network (roads, railways, canals, pipes, etc.) and various types of terminals (hubs, airports, automobile and railway stations, etc.)*.

Cascetta, E. (2009) gives another definition of transportation infrastructure:

*“Transportation infrastructure is usually used to refer to combination between elements that produce both the demand to travel within a certain territory and provision of transportation services to satisfy this demand.”*

The main objective of such system is to coordinate the process of movement of people and goods, in order to make it faster and safer. Creation of developed transportation system, where all the facilities and services are in harmony with each other, is the objective of every government, as it has a direct impact on growth of the economy and investment affinity of the country; reduces time of travel for goods and people across the country and increases safety of this travel.

Transport is usually compared to the blood system of the human – without constant movement of goods, tangible assets and people; the economy of the country cannot exist, same as the human without the blood system. That's why it is impossible to overestimate the importance of transport for the economy of the country.

### **2.1.1 Transport Sector in Russian Federation**

Transport sector is considered by Russian authorities to be one of the most important sectors of economy of the country. Transportation system of Russian Federation creates the territorial integrity of the country, by connecting all the regions with each other, and creates opportunities for development of external economic links, by connecting Russia with its international partners (Maximov, 2010). Movement of goods, people, services within the country and international trade would be impossible without vital functions of this sphere.

According to the statistical figures, provided by Russian Annual Statistical Book, for the 2014 total number of goods transferred with the use of the transport was specified as 8 006 million tons. All these goods were delivered with the use of various methods or so-called modes. Voortman (2004, 41) defines transport modes as the availability of options for individuals or firms for travelling or delivering their goods from one point to another. Generally there are 5 commonly used modes of transport nowadays, including following ones:

#### **1) *Automobile transport***

Active usage of automobiles in logistics operations can be explained by their mobility, flexibility and relatively cheap and fast service delivery. Moreover, the capacity of a truck is quite large that makes it possible to transfer large-scale goods. This type of transport involves using road and highways for delivering goods. Ryan and Turton (2007, 24-26) consider this type of transport to be most rapidly growing in terms of travel demand.

## **2) Air Transport**

Air transport represents delivering goods from one point to another by usage of air transport, such as planes, helicopters, etc. They are considered to be the fastest option, but very expensive at the same time. However, there are still some applications, where this mode of transport has set of competitive advantages. First one, when the situation is urgent or there is a precious cargo for delivery. Second implication is when it is impossible to use any other type of transport, due to geographical and relief features (mountains or any other remote locations).

## **3) Railway transport**

Railway transport represents transfer of goods or people by usage of trains and railways. This type of transport is very commonly used, when a huge amount of goods (cooper, forest, etc.) should be delivered from one point to another. It is considered to be a cheap way of transferring big number of goods on a long-distance. Limitation of this transport is that it is quite slow.

## **4) Water transport**

Water transport represents delivering goods through water. Usually it is divided into two categories: deep water (ocean) delivery and internal (river) delivery. Deep-water delivery is mainly used for export and import of goods from one country to another, while internal one is used for delivery of good from one point to another within the country. This type of transport is mainly used in situation when the route is going through some water barrier (ocean, sea, lake, river, etc.) and for transferring huge goods from one country to another. The limitation of this type is that it is quite slow and causes potential expenses for delivery of goods on board by usage other types of transport.

## **5) Pipeline transport**

This type of transport is used for pumping of different natural resources, such as gas, oil and different chemical substances. It is considered to be unique, because it is working 24 hours, 7 days in a week with only short stops for technical maintenance and change of substance. The limitation of pipeline transport is that can only transfer liquid, gaseous and soluble substances.

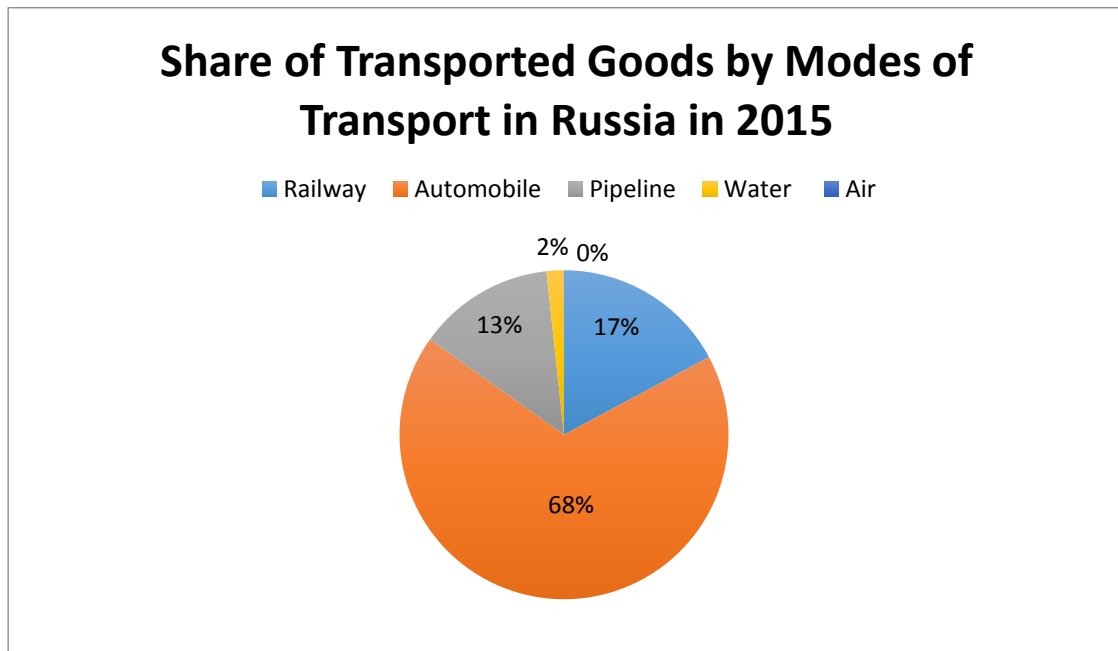


Figure 1. Share of Transported Goods by Modes of Transport in Russia in 2015 (adapted from Russian Annual Statistical Book {Transport Statistics} Moscow, 2015, 447-452)

As we can see from the graph there are 3 major modes of transport that are used for goods delivery across Russia: railway, automobile and pipeline. Automobile transport is considered to be most commonly used mode of transport for delivery of goods with total 68 % and 5417 million tons of goods being transported. Railway and pipeline modes share is quite equal with total 17% and 13% from the total share, and 1375 and 1078 million tons been delivered from one point of the country to another. Next type of transport – water transport - has relatively small total percent share of 2% with 135 million tons of goods been transferred. As to the air transport, it is the least popular transport for goods delivery within the country with only 1, 3 million tons of goods been transferred, which is extremely low figure comparing to the others.

All these modes of transport are used in various types of situations, depending on different factors, including type of goods to be delivered, time and budget, and infrastructure available.

Due to the fact that topic of the research is connected to development of transportation infrastructure of roads using the mechanism of PPP, author

suggests focusing more closely on the road system in Russian Federation and identifying the problems that this sphere is facing now.

### **2.1.2 Road Network**

House of Commons (2010) defines road network as “network of motorways, trunk roads and principal roads of the country that serve country’s strategic needs.” Generally this term is used to describe combination of all roads in the country that create a system or network.

According to Russian Annual Statistical Book (2014), Russian total road network has the length of 1395,7 thousands of km, where 50,9 thousands km – are the roads of federal significance; 502,6 thousands km – are the roads of regional significance, and 842,2 thousands km – are the roads of municipal significance. Relying on the official statement of Ministry of Transport of Russian Federation (2012), more than 61% of federal roads are considered to be unacceptable for exploitation.

Moreover, statistical figures that are presented in Russian Annual Statistics Book (2014) can give the reader evolutionary numbers of density of routes of communication, intensity of goods transportation and intensity of passengers transportation on automobile roads from 1990 to the end of 2014.

Based on this graph, readers will be able to see the dynamics of increase or decrease of total number of automobile roads in Russia and their involvement into transportation of goods and people (Russian annual statistics book [Transport statistics] Moscow, 2014, 447-452).

	1990	1995	2000	2005	2010	2014
<b>Density of routes of communication</b> (By the end of the year, km of route on 1000 km <sup>2</sup> of territory)						
Total number of automobile roads with solid surface, including:	38,4	43,9	44,1	42,3	46	66,1
<i>Common Use</i>	23,4	28,3	31,2	31	38,9	59,7
<i>Uncommon Use</i>	15	15,6	12,9	11,3	7,1	6,4
<b>Intensity of goods transportation on automobile roads</b> (Million tons - km on 1 km length of route)						
Automobile roads of common and uncommon use	0,3	0,2	0,2	0,2	0,2	0,2
<b>Intensity of passengers transportation on automobile roads</b> (Million tons – km on 1 km length of route)						
Automobile roads of common and uncommon use with solid surface	530	339	231	196	179	112

Table 1. Density of routes of communication & Intensity of goods and passengers transportation on automobile roads during the period from 1990 to 2014 (adapted from Russian annual statistics book [Transport statistics] 2014, 447-452]

The information that is given in the table helps to identify set of important parameters related to roads in Russia during the period from 1990 to 2014.

Based on them the author was able to make following conclusions:

- Density of routes of communication on the automobile roads with solid surface totally increased by 1.7 times from 1990, while automobile roads of common use by 2.5 times. At the same time density of routes of communication on roads of common use decreased by 2.3 times
- Intensity of goods' transportation on automobile roads remained the same from 1995
- Intensity of passengers' transportation on automobile roads of common and uncommon use decreased by 4.7 times

In terms of total length of road network of Russia, author suggests comparing the statistical numbers of Russian Federation with its international partners and competitors. According to Road-traffic technology {The worlds' biggest road networks} 2014) by the end of 2012 the situation was like it stated in the graph below.

### 1) Total length of the road network, millions km.

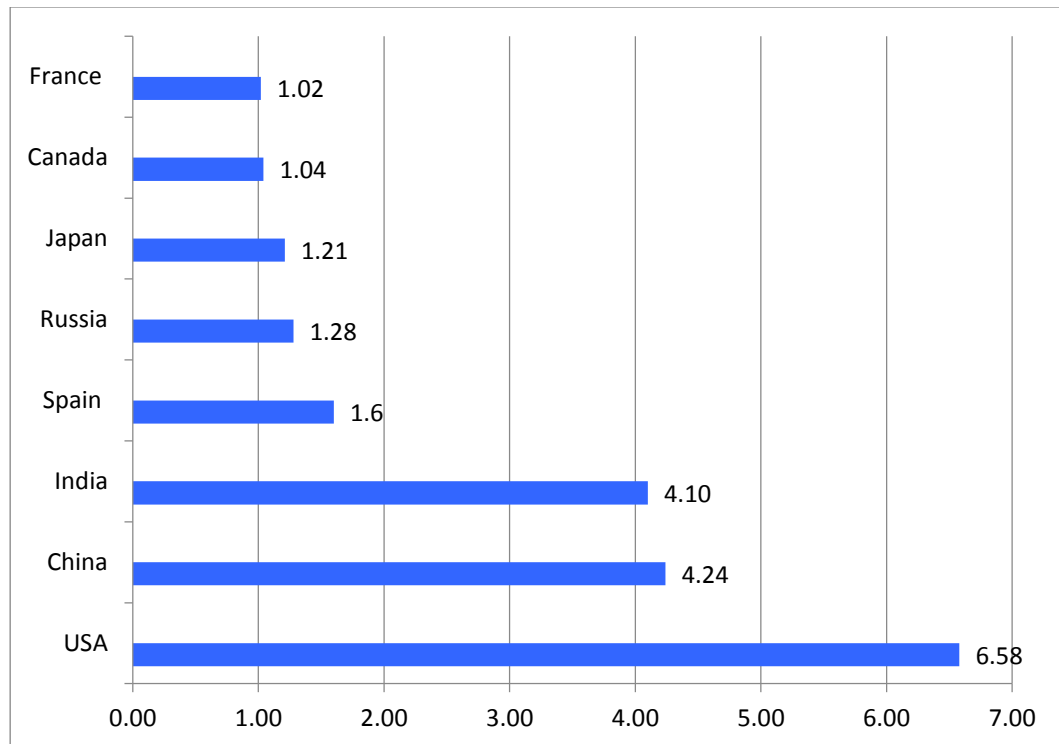


Figure 2. Total length of the road network, millions km (adapted from Road-traffic technology [The worlds' biggest road networks] 2014)

Russian Federation at the end of 2012 was the 5<sup>th</sup> country, in terms of longest road network with 1.28 million kilometers. This number is more than 5 times less than statistical figure of USA, the country with longest and biggest road network in the world. At the same time it is 3.3 and 3.2 times less than length of road systems of China and India accordingly. Furthermore, it is even less than length of Spain road network, which territory is far less than the territory of Russia.



Of course there is no direct relationship between the total territory of the country and length of its road system. However, at the same time such low figure for the length of road network system is a signal for government of the country that there are set of problems in this sphere and that more roads should be constructed in the near future for convenient life and movement of citizens and goods throughout the country. This hypothesis can be proved by the statistical figures of provisions of roads per 10 000 of local citizens in km.

## 2) Provision of roads per 10 000 of local citizens, km

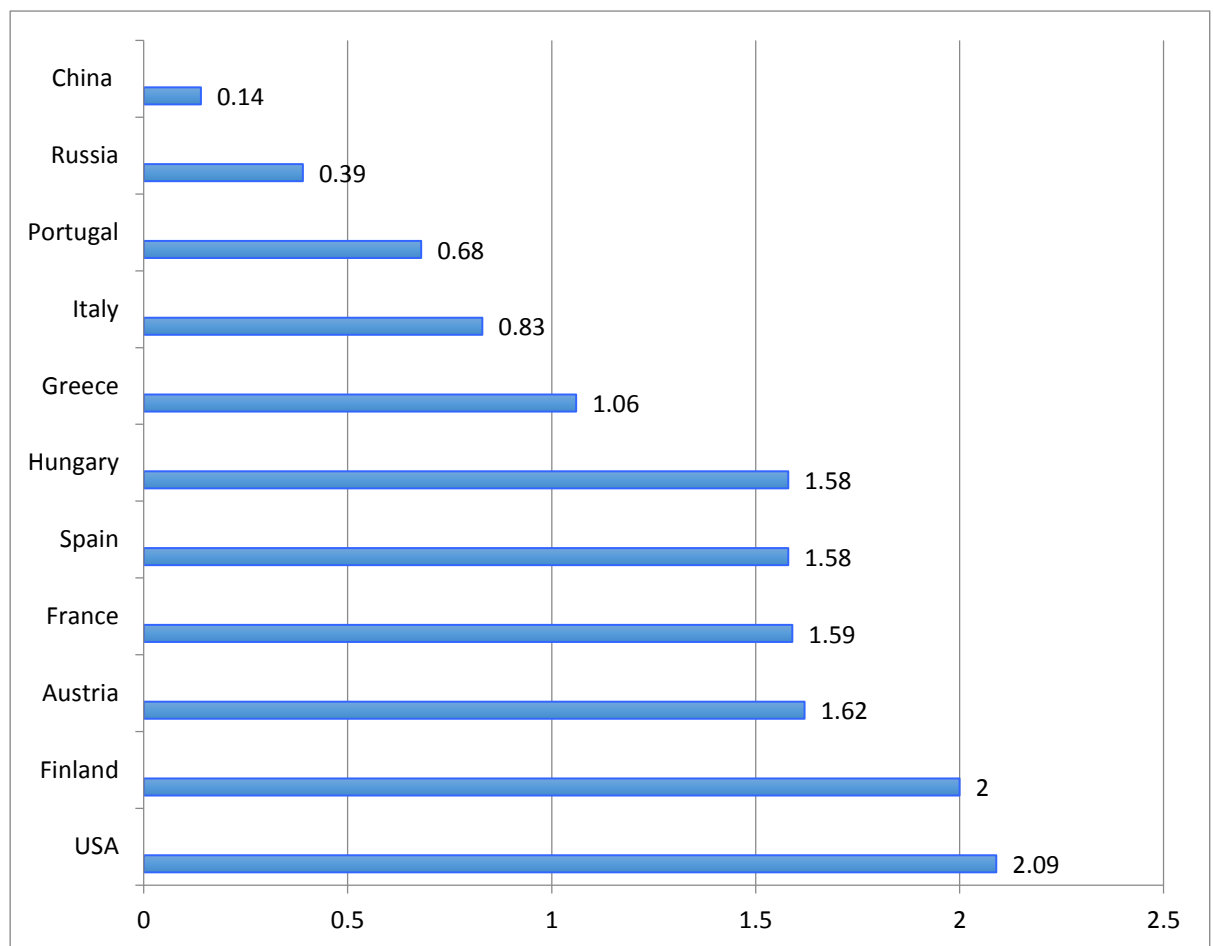


Figure 3. Comparative characteristics of roads in Russia and the most developed countries of the world (adapted from World in Numbers 2009, 272)

Russia's backwardness in provision of high-quality automobile roads is primarily exists, due to lack of technologies development, as well as lack of financial investments into transportation sphere and unified development programs.

According to Maximov (2010), a specialist, who is working in this sphere, this results in following statements:

- 1) The annual cost of poorly developed transport infrastructure results in more than 1, 3 trillion rubles loss
- 2) More than 35 % of current roads in Russia in need of renovation
- 3) The average speed of travel of goods across the country is around 200-300 km per day, while in other highly - developed countries, the figure is around 1000 km per day. This factor has a significant impact on the final price of transported goods
- 4) More than 60% roads in Russia do not meet generally accepted international standards
- 5) Poor road condition leads to an increase in the number of automobile accidents every year

All these data reveals the need for further reforms in the field of transportation infrastructure and creation of complex programs for its future development. However, nowadays, in the times of global and local financial crises, fast and effective solution of these problems seems to be problematic, due to the limited funding opportunities in the government budget. According to statement of Gazprom Bank (2012), one of the leading Russian banks, the estimated amount of investment required for the proper modernization of roads is about 21, 6 trillion rubles.

Distinctive feature of development of transportation system is that it needs a high number of infrastructural objects that require not only big constructional investments, but also significant expenses on its future exploitation and maintenance (Shevelkina, 2014). Moreover, these kinds of investments are accompanied by great number risks, due to the fact that it is quite difficult to make an accurate forecast about the demand of the people towards using the services of a new constructed object, due to alternatives of this object. The uncertainty about the demand sets a big question mark for the government: "Are we able to get enough revenue from this object comparing to expenses? And do we have enough financial power to invest into it?"

Both these features give government an understanding that constructing and investing into transportation infrastructure alone is too heavy in most cases. The priority of development of transportation infrastructure, realization of road projects and close collaboration with private sector for successful structural reformation of economy of the country was stated in the message of President of the Russia, Vladimir Putin, to the Federal Assembly in 2004.

However, only in 2012 Russian authorities created and presented the official Transport Sector Development Plan in the document named “The transport strategy for the period 2013-2020”. According to this plan there are three alternative modes of transport sector development: inertial, energy and raw materials, and innovative.

### **1. *Inertial***

According to this strategy, the main objective is modernization of transportation infrastructure, which will stimulate transit potential of economy of the country; development and creation of export directions and routes for cargo delivering, and renewing vehicles, which are used for goods delivery.

However, this strategy is characterized with slow paces of development of transportation infrastructure.

### **2. *Energy and Raw Materials***

According to this strategy, the main objective is the development of transportation infrastructure, which provides realization of transit potential of the economy of the country, including collaboration with other countries in exploring various kinds of natural resources.

### **3. *Innovative***

According to this strategy, the main objective is the development of transportation infrastructure with the use of new technologies, which can contribute to fast and effective modernization of this sphere. This strategy involves additional investment into development of new technologies and their future adaptation.

All these strategies are aimed on engaging both private and public sides in realization of significant transportation and road projects. One of the mecha-

nisms that promote cooperation between public and private side is considered to be Public-Private Partnership (PPP).

## 2.2 Public-Private Partnership

Definition of Public-Private Partnership is so broad that it can vary depending not only on country, but also on sphere, where it is used.

Varnavskiy, V. (2013) defined term of PPP in two ways: a) “System of relationships between government and business, which is widely used as an instrument of national, international, regional and economic development. b) “As a concrete projects, which are realized by government services together with the private companies. Combining both these definitions term PPP can be defined as:

*“PPP – is considered to be legally confirmed form of cooperation between government and private sector in relationship to governmental and municipal property, executed and provided by governmental and municipal services and different organizations and companies with the aim of realization of socially-significant projects.”*

Another definition of PPP is provided by Delmon, J. (2011). According to him:

*PPP is used to mean any contractual or legal relationship between public and private entities aimed at improving or expanding infrastructure services, but excluding public work contracts.*

Combining both these definitions, author defines Public-Private Partnership as:

*“Mutually-beneficial relationship between government and businesses for realization of socially, culturaly and economically significant projects in close cooperation with each other.”*

Simpliest visual description of cooperation between government and businesses is shown below:

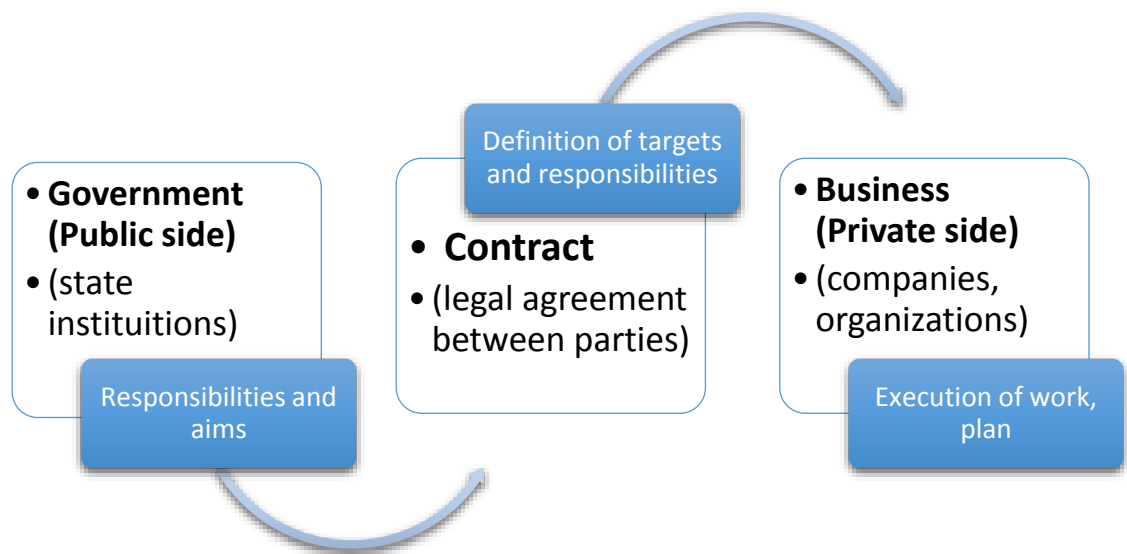


Figure 4. Contractual form of relationship between public and private sides

According to graph, readers are able to see two parties: private and public sides, which provide services to each other. According to Delmon (2011) partners of PPP, in close collaboration with each other, exchange the resources that they own: government, from its side, gives the access to the object to business, in order to increase flow of investments into realization of a specific project. As a result, government receives growth of innovative-affinity of territory, new channels of fundings, decrease of maintenance and development expenses, and flexible control under the object (as government is not losing the control under the object). Business from its side is seeking to get the access to the strategically-important branches of the economy and seeing Public-Private Partnership as an efficient tool for receiving government support in terms of legal regulations and organizational guarantees, stable income from the investments and opportunities of increasing image of the company (in case all the works were conducted on a high-level). Effectiveness of Public-Private Partnership is maintained by allocation of roles, risks and responsibilities between partners (from contract types of relationships for maintaining any services and works, where government is not losing the control under the object, to total or partly privatization of the object by the

private company). Every PPP contract is unique and in this case contract plays a very important role in defining responsibilities, targets, aims and period of time, during which service or project works should be completed.

According to Blum (2007, 2) *contract can be defined as an exchange relationship, which is created by written or oral agreement, between two or more parties.*

It is important to state here that even though the basis of PPP is defined as partnership between private company and government, it does not exactly mean that only one private company and government itself are involved into realization of the specific project. Buxbaum & Ortiz (2009) define following types of participants:

- Public Sector (government authorities)
- Project sponsor (public or private one)
- Equity Participants (such as integrated transportation and construction companies)
- Lenders (commercial banks)
- Design companies
- Operating Companies

### **2.2.1 Characteristics, Aims and Principles of Public-Private Partnership**

According to Varnavskiy (2011, 9-11) and Deryabina (2008, 61-66) , PPP has set of main characteristics:

- 1) *PPP is aimed on satisfying the needs and aims of both parties – private and public* (relationship between government and businesses is collectively beneficial for achievement of goals and aims of both parties. Otherwise, it would not exist)
- 2) *PPP is a long-term oriented relationship between both parties* (relationship between government and businesses is usually estimated for a long period of time – approx. 20 years and above. This kind of relationship includes different phases, such as design, construction and

operation. Most of the projects are assigned for a long-term perspective and require a lot of time to be constructed or renovated. Moreover, these kinds of projects also require big sums of investments, which makes it difficult to get ROI (return on investments) in short-term perspective)

- 3) *Risks are allocated to the party, which is able to handle them* (PPP is closely related to allocation of risks between public party (government) from one side and private party (businesses) from other side. Both sides are taking risks on themselves and have sets of responsibilities in relationship to its partner. According to this, different risks that are associated with the contract between public and private sectors should be allocated to the party that has control over situation and that is able to manage with the risks successfully. Taking into consideration the fact that Public-Private Partnership projects applies to the process of transferring the rights for a long-term usage of the object from government side to private one, so do most of the risks. Traditionally, risks associated with infrastructure and service operations together with project and construction belong to private side. At the same time, private side has no influence on political and economical risks, which remain to be under the guidance of government. Adequate and proper risks allocation is a very important factor for the effectiveness of any PPP project)
- 4) *PPP project almost always involves total or partial financing* (In most cases, every project needs investments for proper development and execution. In this case, private party should deposit its tangible assets into the project to ensure the effective fulfillment of responsibilities, written in the contract. In some cases, government supports business and shares the expenses and investments into the project, but nearly in all cases private side invests total or partly its own capital into the project. This can be explained that more investments might result in more profit generated by successful implementation of the project)
- 5) *PPP are output oriented rather than input* (PPP projects are remunerated and measured according to the results, which were

reached, and the performance, which was obtained. This system of measuring the results makes the remuneration process to be clear and less-time consuming : if private party fully covered the aims and objectives set by the government – it will receive full amount of money and bonuses, if not – fees can be applied)

- 6) *PPP projects are socially-significant* (PPP is aimed on realization of socially significant projects, which have a strategic importance for development of economy of the country and need for investments)
- 7) *PPP promotes introduction of new technologies* (New technologies are established, in order to increase the quality of services provided to the final customer)
- 8) *PPP is aimed on improving quality of services* (Improving quality of services that are provided to the customers is considered to be the core target of any PPP project)

Identification of main aims and principles of PPP is closely connected to the reasons of concernment of both parties towards realization of important projects in different spheres. In this case, author will disclose the reasons of common interest of public and private sides towards Public-Private Partnership.

According to Varnavskiy (2011), there are various numbers of reasons for the interest of private and public side towards Public-Private Partnership. These reasons are stated bellow.

*Government has the interest towards PPP, due to the following reasons:*

- 1) Public-Private Partnership creates important social and economic benefits by lowering the costs of the project and increasing the quality of services provided to the final customers with the use of experience, technology and competencies of the private sector
- 2) Government considers private sector as an investor, which allows reducing the load on the government budget in realization of important projects



- 3) Interest of private organizations in minimizing the costs and introduction of effective solutions in realization the project, reduce the risk of inefficient use of the state property and budgetary resources in the production of final goods
- 4) PPP allows government to transfer some of the risks to the private side, in the case, if government identifies that private side is able to handle them

*Private Companies have the interest towards PPP, due to following reasons:*

- 1) Private entity receives a long-term ownership or use of state assets/object that creates opportunities for receiving stable and constant revenues from it and for reducing risks in a long-term perspective
- 2) Private companies usually obtain guarantees on a certain level profitability

## **Aims**

All these reasons have a direct impact on the aims of PPP in realization of strategically important projects.

Rozhkova (2008,57) and Varnavskiy (2011, 39-43) specified following aims of PPP development:

- 1) Improving the efficiency and quality of services in the social sector, as well as acceleration of implementation infrastructural projects
- 2) Introduction of innovative technologies and management mechanisms the public sector of the economy and the sphere of public services
- 3) Attraction of extra-budgetary sources of financing into development of main spheres of the economy, which are traditionally under the guidance of public party, as well load balancing on the budgets of different levels
- 4) Stimulation of economy development by involvement of private sector in realization of strategically-important projects

## Principles

Varnavskiy (2011, 41) has also stated that PPP has set of principles, which include following ones:

- 1) The principle of equality and freedom of PPP members (including from one side equal and non-discriminatory relationship to private company, when choosing the partner for PPP project, and from the other side giving non-discriminatory access to the services that were provided as the result of PPP projects)
- 2) The principle of the stability and flexibility of the agreement (it includes the need for ensuring the immutability of the basic conditions of the agreement, but at the same time possibility of making changes in it. This can be explained by the fact that it is quite difficult to foresee all the conditions of PPP projects in advance)
- 3) The principle of responsibility of the parties for the execution of the contract conditions (private sector is responsible for provision of high quality services, while government is responsible for fulfillment of obligations and guarantees, including compensation for the set of unpredictable expenses for the project, which happened due to changes in legislative regulation)
- 4) The principle of competitiveness and transparency (requires a competitive principle of selecting the private partner and creates the need for procedures, which will be transparent for the contestants)
- 5) The principle of non-interference of government into the sphere of responsibilities of the private partner (after signing the contract with the private company, government is not entitled to interfere in the economic activity of the partner that is considered to be a consequence of risks and responsibilities allocation)
- 6) The principle of incentives and guarantees (indicates the presence of contingent liabilities in successful implementation of PPP projects and motivation of partners for improving their performance within the framework of PPP projects)

7) The principle of retribution (indicates responsibility of the government to compensate expenses to the private company, based on the agreed in a contract remuneration system)

The broad overview of benefits, aims and obligations of public and private sides are defined by Shevelkina (2014, 38) in the chart below.

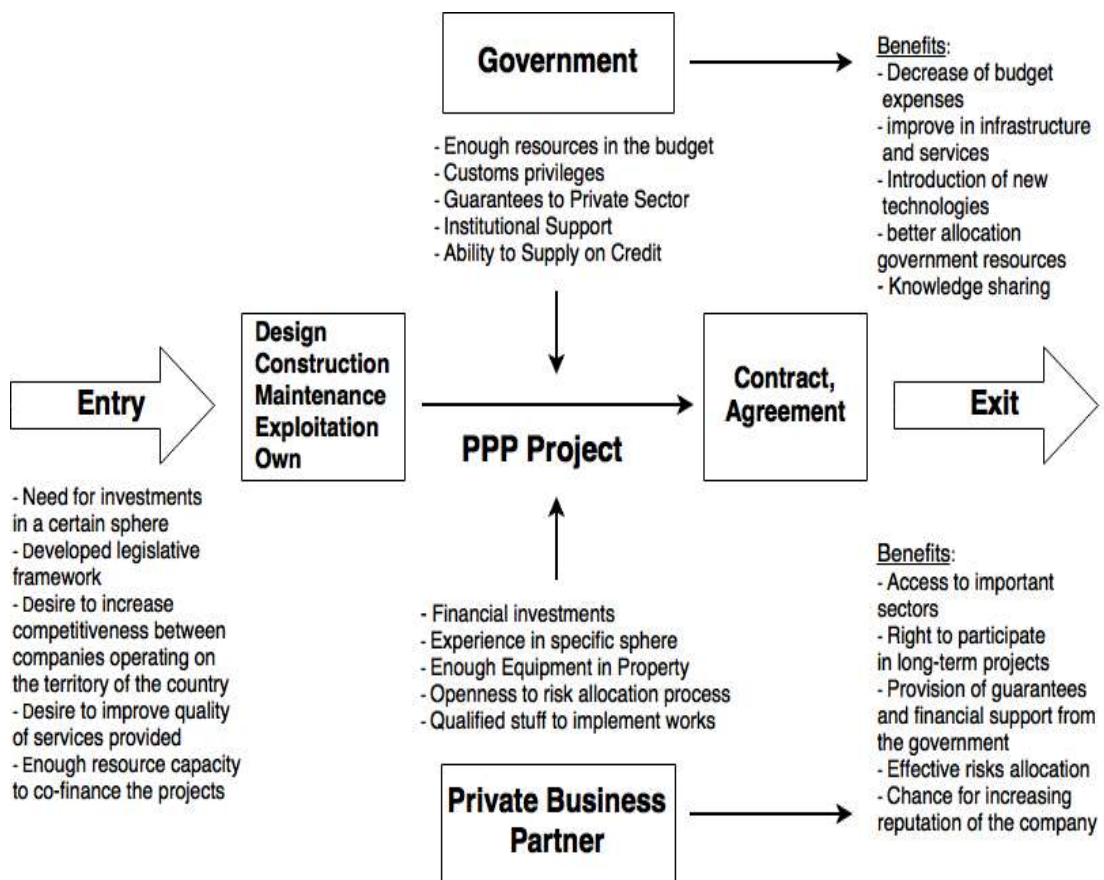


Table 2. Public-Private Partnership Schematic Chart (adapted from Shevelkina, 2014, 38)

### 2.2.2 Applications

As the author mentioned in the beginning of this thesis work, Public-Private Partnership is mainly used for realization of projects in economically, strategically and socially important areas and spheres. Due to the fact, that the objects of these important spheres can not be privatized by the private

party, government sees PPP as an important instrument for enabling usage and maintenance of these objects with the help of its partner, without losing the control under the objects.

World Bank Group database (WB, 2015) defines spheres that present special interest for Public-Private partnership projects for government and private sector.

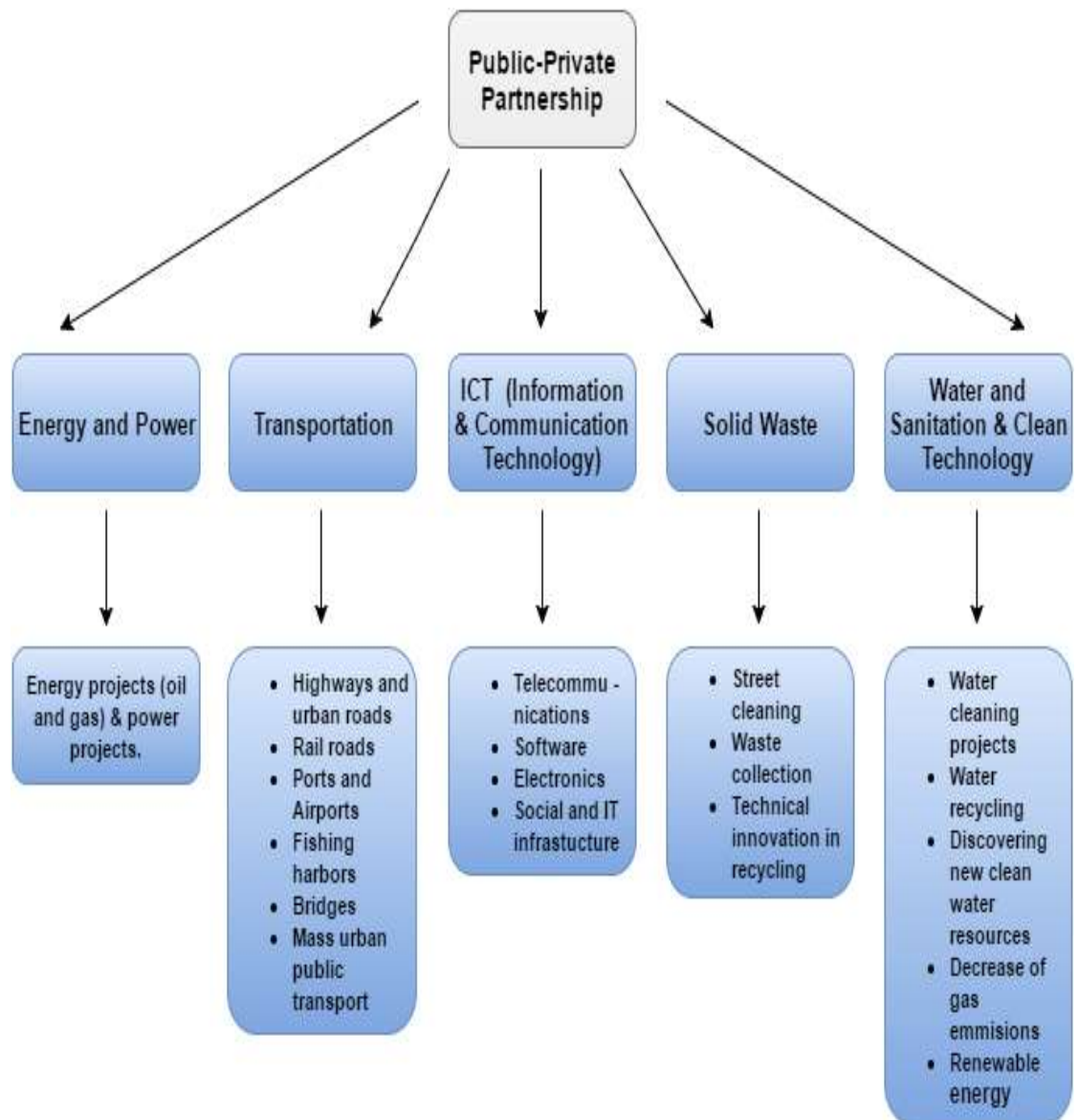


Table 3. Public-Private Partnership main spheres (adapted from World Bank Group Database, 2015)

Based on the information provided by World Bank Group database (2015), author creates the list of most important sectors, where PPP is commonly used.

### **1. Energy and Power**

Energy is strategically important sector that represents two industries: the oil and gas, and the power industries. WB (2015) defines this sector, as category of stocks, which are closely related to production and supplement of energy using various methods. Moreover, it also includes exploration of natural resources, such as oil and gas. This sector is one of the most important out of all, because a lot of countries are highly dependent on export of oil and gas, considering it to be the main way of fulfilling national treasury. Due to the fact, that this sphere needs big number of investments, which government usually cannot fully cover, PPP is considered to play a very important role in funding and successful implementation of projects in this sector.

### **2. Transportation**

Transportation is another sphere that is strategically important for development of economy of the country. This sector includes construction and maintenance of highways and roads, railways, ports and airports, fishing harbors, bridges, mass urban public transport and services. Renovation of current transport infrastructure facilities and creation of new ones have a positive effect on operations of both public and private sides – increase speed of logistics operations, security of citizens and safety of goods; as well as makes investment climate of the country more favourable for local and foreign investors. That is why PPP is considered to be mutually beneficial instrument for solving current transportation problems and future development of transportation infrastructure.

### **3. ICT (Information & Communication Technology)**

Innovations in ICT sphere and increase in market demand forced the government of the countries to spend more money and efforts on development of this sector. ICT represents IT services, software, telecommunications and electronics infrastructure. Constant development

of this sector is believed to increase trade and globalization with more competition for the business of the country. In this case, government together with businesses offer its' support for development of this sphere, as a part of PPP relationships.

#### **4. Solid Waste**

Generally government is the one, who is responsible for solid waste services. Tasks of the government in this sphere historically included street cleaning, waste collection and creation of programmes that would allow to make the environment around the society cleaner. However, nowadays more and more governments in developing countries understood that private sector can play a significant role in improving environmental situation and actively engage into waste collection process. Right now government and business are working actively together on set of projects related to street cleaning, waste collection, technological innovation in recycling and financing of volunteers to take part in this activity.

#### **5. Water and Sanitation & Clean Technology**

Nowadays, when the climate on the earth is changing dramatically, it is becoming more and more obvious that humanity should find the ways to save the planet and prevent it from becoming over-polluted. Lack of clean water for drinking and day-to-day operations, increasing number of gas emissions, pollution of streets of the cities and disappearing of unique species of animals worldwide – are only some of the problems that world community is facing today. In this case, government in close cooperation with public sector is trying to find a solution for all these problems. Projects as a part of PPP programs, forums, drafts, voluntary activities and investment in development of new technology and innovations became the core elements of PPP between government and businesses in the field of Water and Sanitation, and Clean Technology.

Based on World Bank database (2009), author disclosed the fact that during the period from 1990 to 2007 in 147 countries of the world (including Russia) totally more than 4100 Private-Public Partnership projects were realized in

these spheres. According to this information, the main spheres that were involved in realization of PPP projects are presented below.

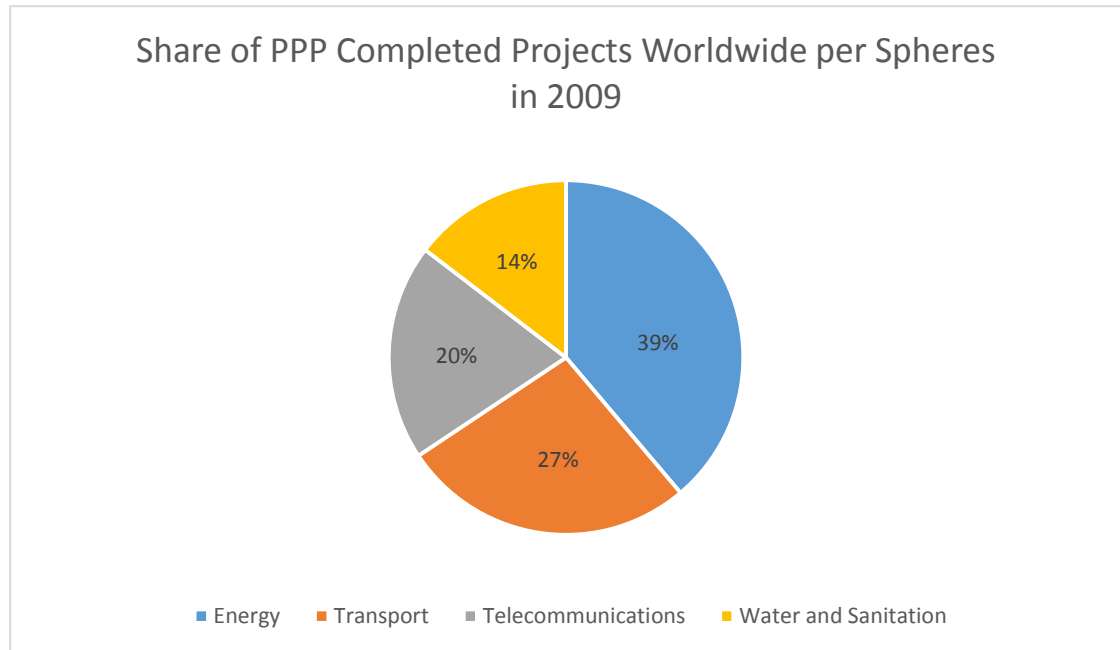


Figure 5. Share of PPP Completed Projects Worldwide per Spheres in 2009 (adapted from World Bank Group Database, 2009)

From the graph, readers are able to see that energy, with 39%, is the most popular sphere, in terms of PPP usage in realization of social projects. Telecommunications (20%) and Water & Sanitation (14%) total share is less than share of energy sphere, but still PPP is considered to be a popular mechanism in realization of projects in these spheres. Second position is occupied by transport sphere (27%) – the sector that has strategic importance for the research. High total share of projects that were realized in this sphere with the use of PPP creates an evidence of a broad spread of PPP worldwide.

Transport sphere represents huge amount of different investment projects. According to World Bank database (2009), PPP was used in realization of following types of transport projects:

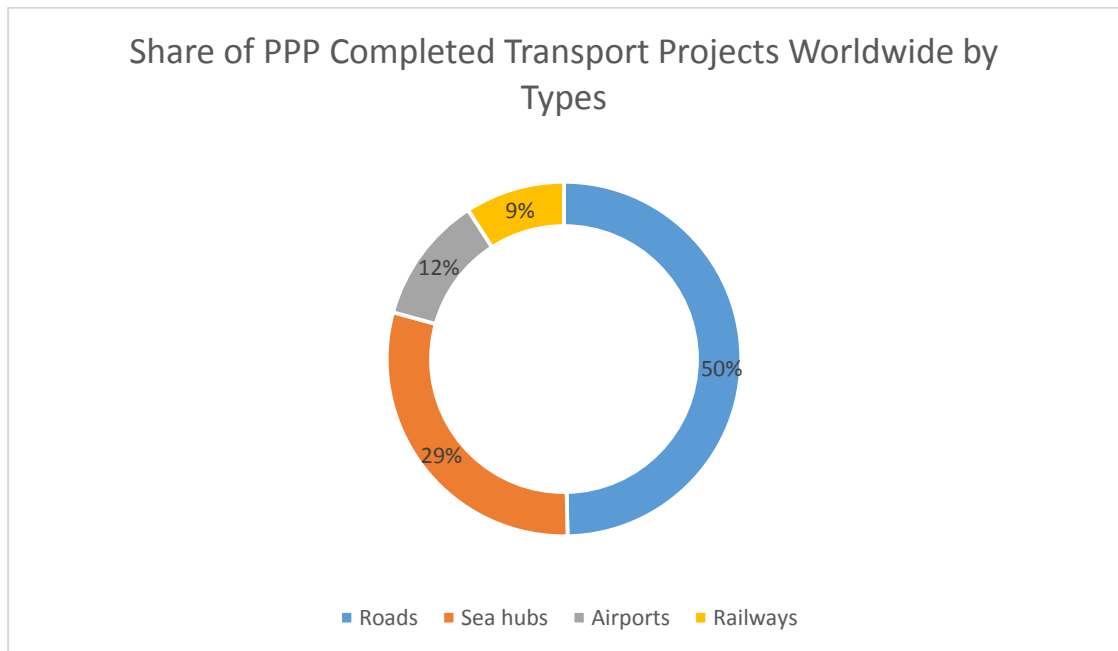


Figure 6. Share of PPP completed transport projects by types (adapted from World Bank Group Database, 2009)

According to graph, road projects are considered to be most popular types of projects realized in transportation sphere with the use of PPP worldwide. In fact, every second project in transportation sphere is represented by road infrastructure (50%). Share of sea hubs, airports and railway is relatively small with 29%, 12% and 9% accordingly.

Next graph shows number of investments in following types of transportation infrastructure on the basis of PPP usage. The information that was gained through World Bank database (2009) is presented below.



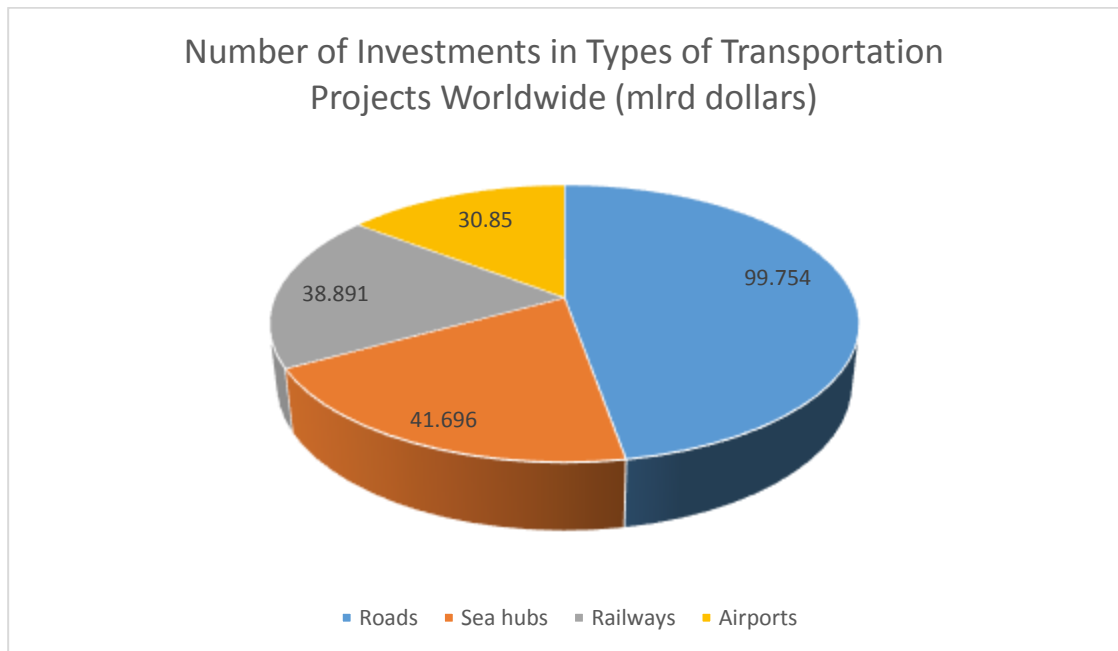


Figure 7. Number of Investment in Types of Transportation Projects Worldwide (adapted from World Bank Group Database, 2009)

Following graph reveals the fact that road projects required highest number of investments (99,754 mlrd. dollars) in transport sphere comparing to other types of projects for the year 2009. This information provides evidence that road infrastructure is the target area for development for the government authorities around the world, as it requires large number of investments. In this case, PPP is used to attract private investors in co-financing the projects in this sphere and to improve quality of services.

### 2.3 Public-Private Partnership in Russian Federation

Generally, Russia is found to be on the first stage of Private-Public Partnership development. This first stage, according to Maximov (2010, 31), is characterized by following aspects:

- 1) Formation of basis of PPP policy
- 2) Verification of the legal viability
- 3) Identification of priority projects
- 4) Development of basic concepts of PPP usage

- 5) Usage of experience of interaction with other sectors of the economy
- 6) Beginning of construction services market of PPP

First steps of increasing the efficiency of PPP in realization of infrastructure projects, were made by the government of Russia relatively recently - 8 years ago. Maximov (2010, 24) states that public authorities put the efforts in development of two main strategically important directions: *the formation of source of budgetary funds*, which was caused by the growth of the Russian economy and *the purposeful activity of the legislative branches of the government* for the same period of time, which resulted in creation of conceptual document on December 5, 2001 named "Federal target program of modernization the transport system of Russia (2002-2010)". These efforts had a positive effect on increasing total number of projects realized with the help of PPP, and by the end of 2009 Russia entered top 5 countries in terms of total number of completed PPP projects (Worldbank Inc., 2009).

Country	Number of Projects
China	805
Brazil	328
Russia	310
India	306
Argentina	193

Table 4. Total Number of Completed Projects per Countries (adapted from World Bank Group database, 2009)

Maximov (2010, 26) states that in Russia the main source of financing the investment projects in transportation sphere on the basis of PPP is represented by the Russian Investment Fund, as 83.5% of its total budget is allocated to the realization of PPP projects (this principle is presented in the "Federal target program of modernization the transport system of Russia (2002-2010)."

According to this program, for realization of investment projects in 2009 Investment Fund provided the total number of 267.9 mlrd. rubles, including:

- 117, 4 billion rubles for roads development
- 49, 3 billion rubles for railways development
- other remaining funds on realization of complex projects

Thus, readers are able to see that government fundings to highest extend are provided to realization of PPP road projects among other types of transportation infrastructure projects. For this reason, the road sector represents the most relevant topic of the research, due to the fact that the effective allocation and usage of these funds are considered to be an important parts of the development of the whole transportation sphere of Russian Federation.

In order to improve the competitiveness of international transport directions on the territory of Russia, government authorities in “Federal target program of modernization the transport system of Russia (2002-2010)” created following important projects:

- a) *Construction of a highway from Moscow to St. Petersburg* with the further exploitation on a fee basis. The objectives of this project were stated as: increase of quality of services provided to the road users, travelling from Moscow to St.Petersburg, and creation of modern infrastructure facilities with the use of high modern technologies. Financing of this project is planning to be made through usage of federal budget and resources of the private companies on the basis of Public-Private Partnership.
- b) *Development of the Moscow transport hub*, including construction of a highway connecting south and north of the city. The objectives of the project are stated as: improving the quality of services provided to the citizens and decreasing the load from main road directions. Financing of this project is planning to be made through usage of federal budget, Moscow regional budget and resources of the private companies on the basis of Public-Private Partnership.

- c) *Development of St. Petersburg transport hub*, including construction of a highway across the city. Objectives of the project are stated as increasing the speed of logistics operations and quality of services provided to the citizens. Financing of this project is planning to be made through usage of federal budget, St. Petersburg regional budget and resources of the private companies on the basis of Public-Private Partnership.

For the investment projects that are planned to be implemented in Russia, government uses open tenders among the private companies for the right to conclude agreements for financing, construction and operation on a fee basis. Therefore, the author sees the need for looking at the different kinds of PPP models, which can be used for successful realization of PPP projects in different spheres. Firstly, author will present the general classification of PPP models that can be applied to realization of various types of projects and then overviews the most recommendable models for realization of road projects in Russian Federation.

### **2.3.1 PPP Models**

During the process of realization of Public-Private Partnership Projects a lot of different instruments and tools are used to ensure the efficiency of this cooperation. Traditionally, they are classified based on the rights and responsibilities of private and public parties, and the risks that they are taking on themselves. Moreover, when defining and adopting a specific model, Maximov (2010, 40) states that government and businesses should take into consideration other factors, such as current level of infrastructure, the budget, economic and political situation, sphere of activity and number of companies participating in tender (form of contract bidding). Great number of different models, forms and types of PPP enable sides to choose the most suitable model and form for a specific project and create flexibility in switching to another one, if some changes in conditions occur.

In the modern world, there are many different classifications of PPP models and every author states his own view on models divisions. The simplest and

most general classification of PPP models is shown below (United Nations ESCAP [Module 2: Public-Private Partnership Models] 2016).

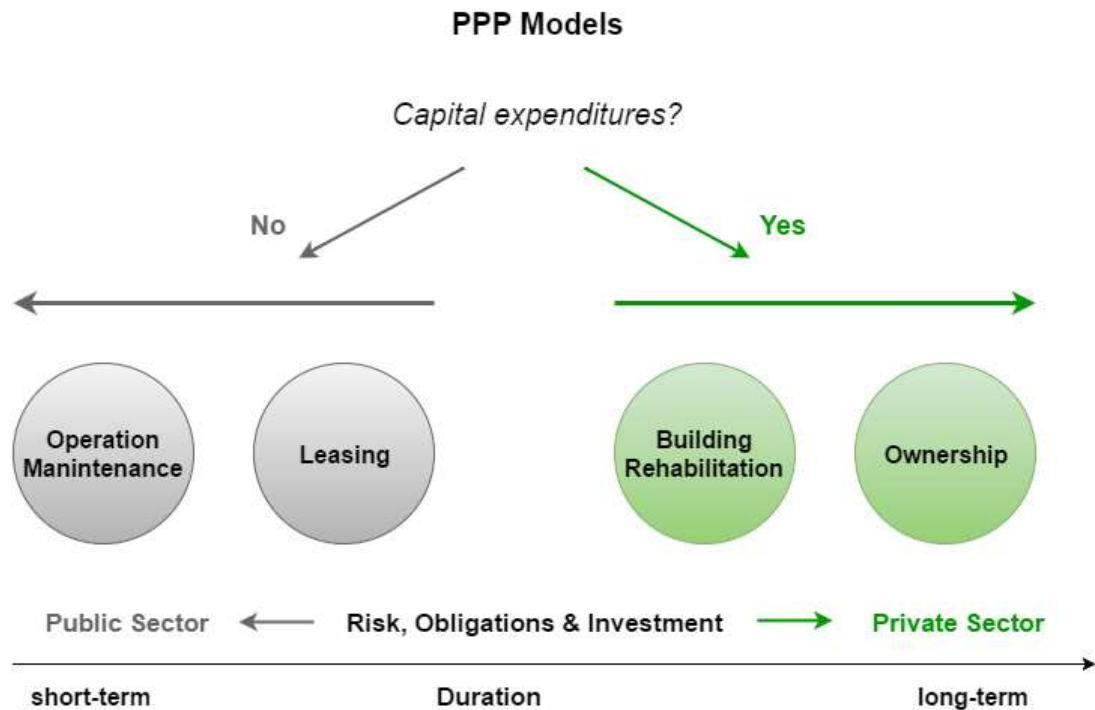


Table 5. Public-Private Partnership Models (adapted from United Nations ESCAP [Module 2: Public-Private Partnership Models] 2016)

From the graph, readers are able to see 4 wide models of PPP: Operation Maintenance, Leasing, Building Rehabilitation and Ownership.

This figure demonstrates that if there are no any capital expenditures, then government and private side are choosing between Operation Maintenance and Leasing models. In this case, most of risks, obligations and investments stay with the public sector. These kinds of models promote relatively short-term PPP comparing to Building Rehabilitation and Ownership.

In case, if some significant or small investments are needed, then Building Rehabilitation and Ownership are more suitable for the needs and objectives of the partners. Both of these models are characterized by transferring rights and risks from public side to private one and long-term period of contractual relationships.

Among diversity of classifications of PPP models, there is one, which is commonly acceptable worldwide – classification that is given by World Bank. This classification provides not only the basic models of Public-Private Partnership, but also sub-models, which increase variety of choices for public and private sides.

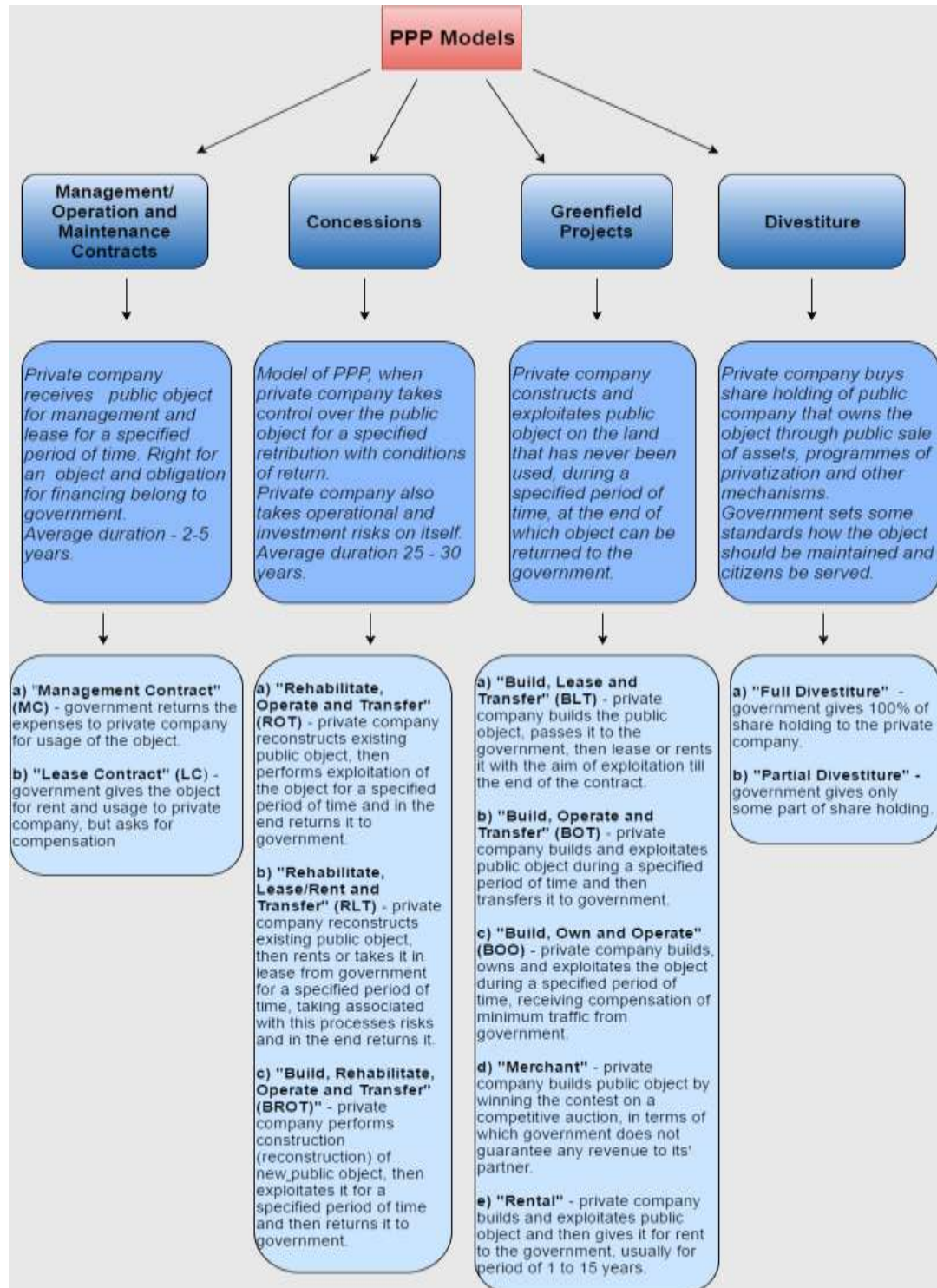


Table 6. Public-Private Partnership Models (adapted from World Bank Group Database, 2015)

According to this table, generally there are 4 big categories of PPP models: Management/Operation and Maintenance contracts, Concessions, Greenfield Projects and Divestiture. Each model has its own advantages and disadvantages, and set of characteristics stated on the graph.

### **Management/Operation and Maintenance Contracts**

World Bank Group (WB, 2015) defines Management Management/Operation and Maintenance Contracts as *PPP model, where private company takes on itself guidance and management of a public object on the fixed period of time. At the same time, right for the ownership and responsibility for financing stays with the government.*

#### Key features:

- Usually short-term (from 2 to 5 years)
- More commonly used in Energy and Water & Sanitation sectors
- Private company usually pays fixed fee for staff and general expenses
- Government takes major risks in the management and maintenance contracts on itself
- Public side awards private operator for achievement of objectives and for meeting agreed standards
- Nowadays these kinds of contracts are becoming more performance-based that extends risks and liabilities for private company

This type of model has two sub-models: Management Contract (OM) and Lease Contract (LM).

### **Concessions**

World Bank Group (WB, 2015) defines Concessions, as a *model of PPP, where government gives the public object for the long-term usage to a private company with the right to use all utility assets, including the responsibility to invest money into maintenance of the object and responsibility for day-to-day operations. At the same time assets ownership stays under the control of government authority.*

Key features:

- This type of model gives the private company not only the right for management and maintenance of the object, but also for managing and financing the investments
- The duration of concessions is agreed to cover the investments over the time and is usually approximately 25-30 years
- Concessions are more output than input oriented (e.g. increase production of goods on the object by 25% rather than suggest variants and opportunities of increasing production of goods by 25%)
- Customers are the main sources of revenue for the private company
- Private company takes significant investments risks on itself

There are different types of concessions nowadays. However, the most commonly used ones are Rehabilitate, Operate and Transfer (ROT); Rehabilitate, Lease and Transfer (RLT) and Build, Rehabilitate, Operate and Transfer (BROT). These sub-models will be further described and defined in this thesis work.

**Greenfield Projects**

World Bank Group (WB, 2015) defines Greenfield Projects *as a PPP model, where private company builds and exploits the public object on the territory that was not occupied by some other objects during a fixed period of time that is stated in the contract, in the end of which this object should be transferred to the government.*

Key features:

- Related to several industries, such as construction, software development and investments, energy objects
- Construction of new objects rather than renovation of old ones
- This project includes high control of all business, construction and investment operations
- These projects in most cases need more investments, because they are related to construction of new object from zero level



- Private company takes high number of construction, operational and investment risks associated with the project

”Greenfield projects” as a broad model can be divided into different sub-models, including following ones: Build, Lease and Transfer (BLT); Build, Operate and Transfer (BOL); Build, Own and Operate (BOO); Merchant and Rental.

### **Divestitures**

World Bank Group (WB, 2015) defines Divestitures as a PPP model, where private company buys shareholdings of authority organization that owns a concrete public object through public sale of assets and different privatization instruments.

If private company buys 100% of shareholding, then this process is described as full privatization; if less – then it is partial divestiture.

This model is described by extended risks and obligations for a private party. However, even though government is able to set some standards for services and goods production.

According to World Bank Group (WB, 2015), infrastructural project is considered to be a project of PPP, if only private company takes on itself associated with this process operation, investment and construction risks together with certain responsibilities. This hypothesis does not depend on whether private company operates and manages the object individually or together with authority organization.

Generally, all the infrastructural projects, which are characterized by transferring risks and obligations from public side to private one, can be applied to any model listed by World Bank Group (WB).

All these models are applicable in different situations, spheres and types of relationships, depending on objectives and aims that partners are willing to reach. Some of these models have similar features with each other and due to the fact that borders between these models are not clearly outlined, sometimes it is very difficult to understand to which model the project is belonging. In these controversial situations, it was negotiated that project should belong

to the model, where risks of private party are better and closer defined than in others (Varnavskiy 2011, 41).

Right understanding of own opportunities and potential by both partners of PPP is a crucial thing in effective realization of projects. Partners should understand what are the potential risks, obligations, opportunities, sphere, budget, economic and political situation, and legislative framework. Moreover, cultural aspect is also playing an important role in choosing and implementing a certain type of models (Varnavskiy 2011, 45). That's why there is no commonly used model for all types of projects in all countries in the world. Those models, which are successfully "working" in one country in realization of projects with the use of PPP, can show low result in the other. Due to this factor, government together with the private partner should consider all the factors in choosing the model that will fit to their conditions and agreements.

As it was mentioned before, not every model suits to every sector. Taking into consideration the fact that topic of this work is closely related to development of transportation infrastructure and realization of road projects with the use of PPP in, author suggests mentioning and discussing the most suitable models for this objective. Maximov (2010, 65-71), who is member of Board of Ministry of Transportation Sphere of Russian Federation and member of national program of development of PPP in transport sector in Russia, defines most commonly used models that are involved in realization of road projects in Russian Federation.

## **Models Applicable to Road Projects**

### **Design, Bid and Build**

Design, Bid and Build (DBB) is a PPP model that is already commonly used in Russian Federation for realization of road projects. World Bank Group (WB) defines DBB as a model, where government concludes separate contracts with private companies, responsible for design, construction and exploitation of roads, taking on itself all financing liabilities and concerning with this process risks.

This kind of model enables government to have a control over the situation on the stage of designing the project, but also brings some risks associated with construction of the project. Due to the fact that government takes almost all risks on itself, all the expenses associated with building the object, planned and unplanned, will be covered by government. Funding of the project is performed directly from the national treasury without support of any private investor. The scheme of this model is presented below (Maximov 2010, 67).

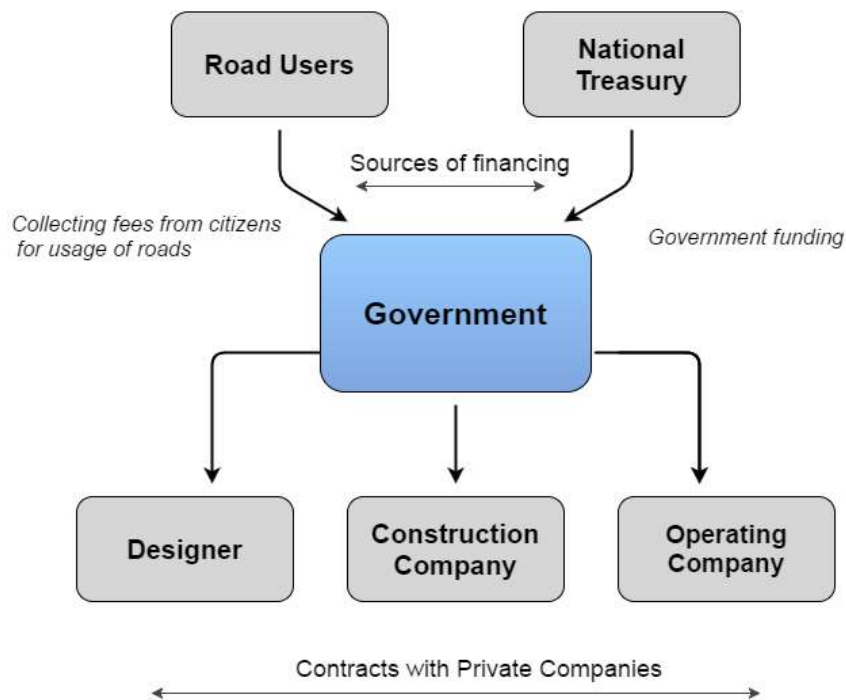


Figure 8. Design, Bid and Build Mode (DBB) (adapted from Maximov, 2010, 69)

This model has set of advantages and disadvantages (Levy 2006, 7).

Advantages:

- 1) Building is completely defined
- 2) Competitive bidding decrease the cost of an object
- 3) Easy access for small contracts companies
- 4) Easy quality control

Disadvantages:

- 1) Builder is not involved into the design stage of the project
- 2) It is relatively slow
- 3) Price for the object is flexible and can vary from the one, which was stated in the contract
- 4) Disputes can arise

### **Design, Bid and Operate**

Design, Build and Operate (DBO) represents a second commonly used model in realization of road projects, where government concludes a united contract with the private sector on design, construction and operation of the public transportation object, which stimulates candidates of the bid to minimize total expenses for the projects in their project plans (Maximov 2010, 67).

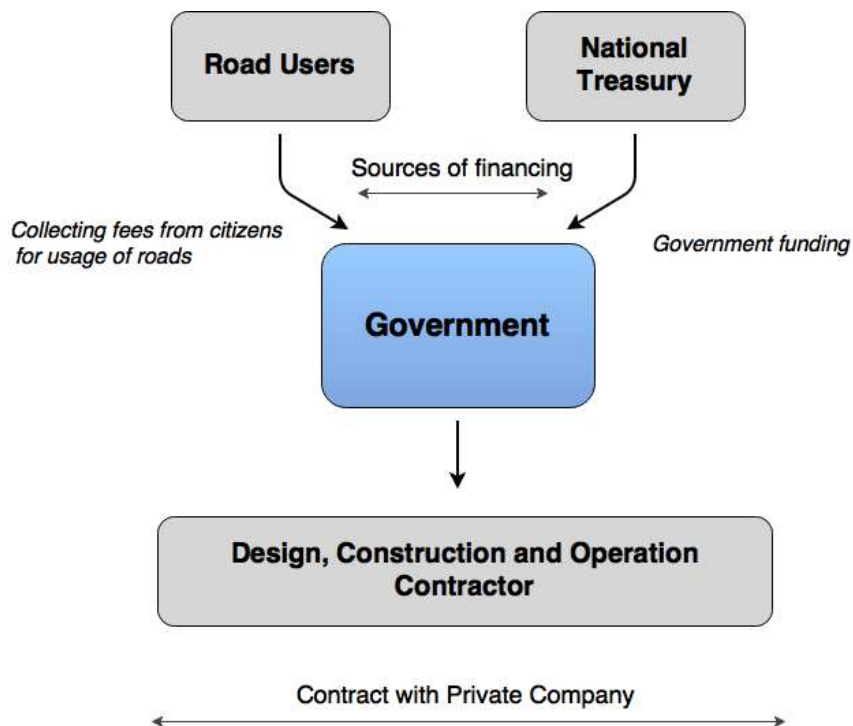


Figure 9. Design Build and Operate Model (adapted from Maximov, 2010, 70)

In this case government chooses contractor, which will not only design and construct the object, but will also take under his guidance and responsibility for future exploitation and maintenance of this project. The sources of financing in this model are the same as in previous ones – fees from users of roads and investments from national treasury.

Advantages of these models include: lower costs (private companies are motivated to create an integrated project with less expenses), faster schedule (communication with one entity responsible for design, construction and operation takes less time than with different ones) and lower risks, as private company acting as a single contractor makes it easier to identify and manage risks (Maximov 2010, 70).

### **Design, Build, Finance and Operate**

Maximov (2010, 69-71) considers that number of financial private investments is closely connected to the mechanisms of concession agreement and risks of demand for the services provided by the operator of constructed object. Generally, this model can be divided into 3 different situations, according to the demand risks allocation

a) If these kinds of risks are fully transferred to the private party, then amount of private funding will be in direct relationship with estimated revenue and will not exceed this figure. Moreover, in this situation there will be no additional government investments.

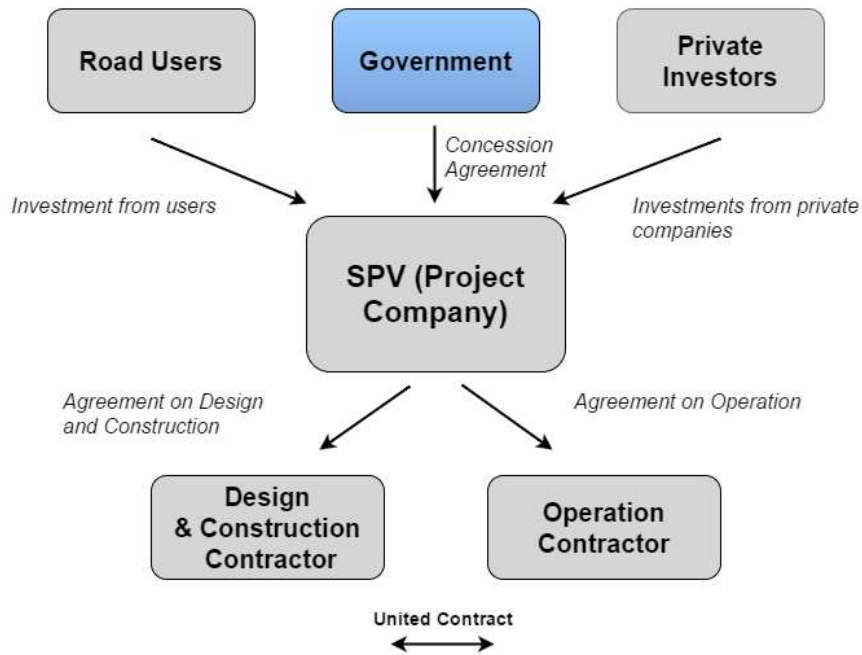


Figure 10. Design, Build, Finance and Operate. All risks of demand are taken by private sector (adapted from Maximov, 2010, 71)

b) If risks of demand belong to government, then the amount of private investments will depend on amount of funding made by the government.

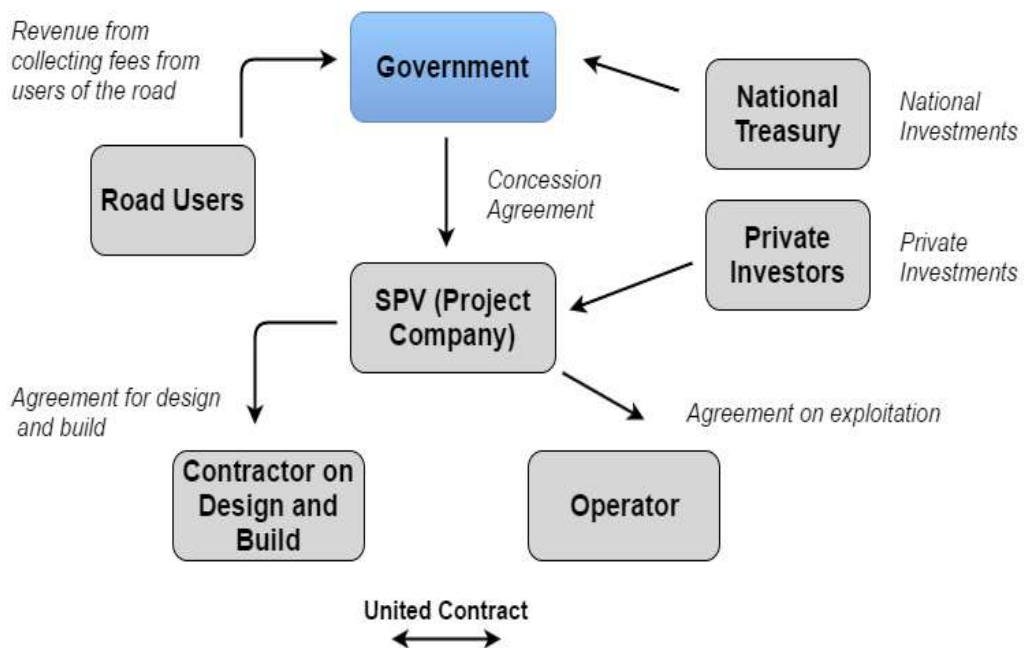


Figure 11. Design, Build, Finance and Operate. Risks are allocated to private party (adapted from Maximov, 2010, 71)

c) In case, if all the risks are divided between both private and public parties, then refinancing of the project will be guaranteed with revenue from fees for using the road and compensation payments.

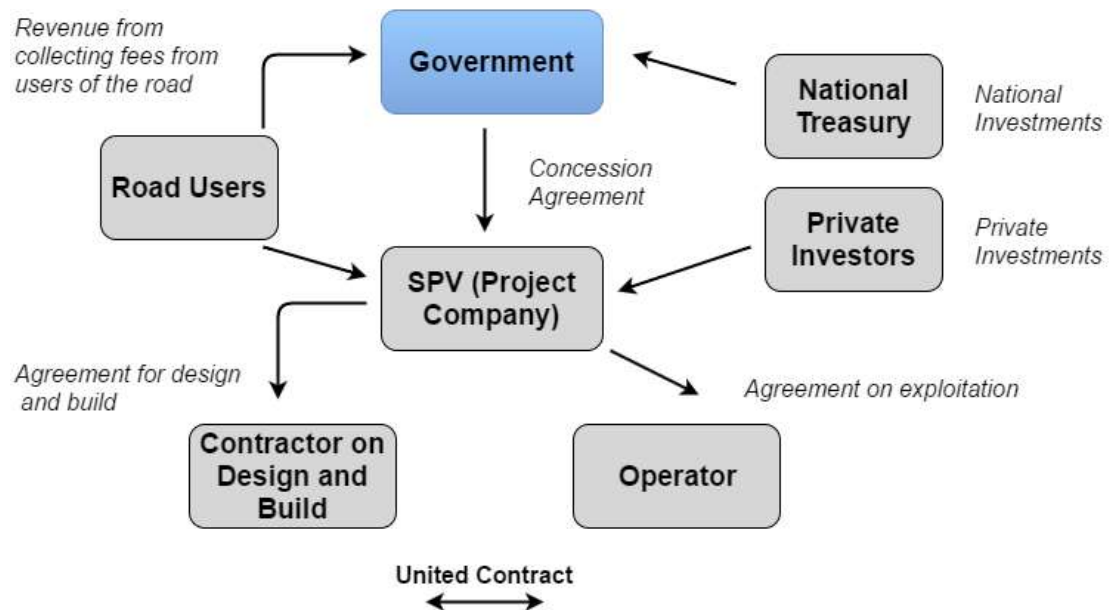


Figure 12. Design, Build, Finance and Operate. Risks are divided between government and private sector (adapted from Maximov, 2010, 72)

Summing up, for successful usage of this kind of model, government and private party should make an accurate forecast about risk allocation and estimated revenues from the object, in order to determine right number of investments on every stage of this model.

Generally this kind of model originated from BOT (Build Operate & Transfer), where private company builds and exploits the object for a fixed period of time, in the end of which contractor transfers the object to the government, or BTO (Build Transfer & Operate), where private sector transfers the object immediately after the construction. Moreover, this model combines characteristics of BOOST Model (Build, Own, Operate, Subsidies and Transfer), in which government is supposed to make any investments in different forms. Due to

these factors, this model is considered by many experts to be one of the most effective models for successful realization of road projects worldwide.

In the end of this chapter, author states that he did not have an objective to mention and describe all the existing models, due to their uncountable variety. Moreover, author also did not pretend to give the full overview of the models that are listed above. Aim of the author was to give the brief overview of most popular models nowadays and the sphere of their applications, and, what is more important, to disclose the most popular and efficiently used models in the sphere of road construction. One of such model is DBFO (Design, Build, Finance and Operate), which is considered to be the most commonly used model for road projects in the world in general and in Russia in particular.

### **2.3.2 Problems**

PPP, which is commonly used in realization of road projects, has set of problems arising in Russian realities. Varnavskiy (2011, 52-54) & Litvyakov (2014, 67) defined following problems that stop the efficient realization of road projects with the use of PPP in Russia.

#### ***1) Weak legislative framework***

Legislative framework in Russian Federation is generally very weak. By word weak author means lack of laws for regulation, definition and sufficient implementation of PPP projects in the sphere of roads. Moreover, there are also not enough legal institutions for supervising the efficient usage of this mechanism in transportation sphere.

#### ***2) Wrong view of private sector and government authorities about usage and meaning of PPP***

Society, government and business do not have a complete understanding of the essence of PPP and its applications. Due to this, in many cases both sides prefer to use just a contractual forms of relationships, which they are better aware of.

#### ***3) Lack of integrated approach***

Government does not use systematic and integrated approach in creation of favorable conditions for PPP usage. In current situation, public state tries to



focus mainly on different legal issues, but does not pay enough attention towards economic and social problems.

#### **4) Absence of united body for PPP regulation**

Russian governmental structure is represented by large number of authorities, government organizations, ministries and committees that do not have a common conceptual and institutional framework for PPP. All these organizations have their own vision towards PPP applications and act asynchronously in implementation of PPP projects. As a result, this fact creates misunderstanding between public and private sides.

#### **5) Lack of specialists**

Total number of specialists that have enough theoretical and practical bases for PPP usage is very low. Russian educational institutions do not have appropriate programs and courses for education of people, who want to study in this sphere. Moreover, there are no clear instructions for preparation of PPP contracts for government authorities.

#### **6) Corruption**

Corruption is considered to be one of the biggest problems in Russian Federation for last years (Cheloukhine & Haberfield 2011, 7). It does not only have a negative impact on the development of economy of the country, but also on efficiency of realization of road projects with the use of PPP in Russia. Insufficient money allocation and inability to identify how much of invested money was used in realization of the project are considered to be negative characteristics of PPP in Russian realities.

#### **7) Bureaucracy**

Bureaucracy is another factor that stops proper implementation of PPP projects in Russia. A lot of specialists working in this sphere state that tenders in Russia federation are not clear, which means that government signs the contract not with the company with the best project plan, but with the company, which representatives are in good contact with the government authorities. As the result, the efficiency of realization of this project becomes vague.

### 2.3.3 Targets

According to data that was revealed by the author of this work and which is based on the experts' opinion in this field, author was able to create a list of specific targets that should be implemented for a successful adaptation of PPP in Russia in the sphere of roads.

**1) *Development of concept and strategies of PPP, which should include***

- Main goals, objectives and principles of PPP
- Creation of organizational structure and management system of PPP
- Creation of set of legislative acts on the federal level that will guide and support the usage of PPP
- Creation of common federal government authority, which will be responsible for the preparation and introduction of these legislative acts

**2) *Creation of institutional legal, economic and organizational environment favourable for PPP development***

Creation of complete, but simple legislative framework is considered to be an important factor for PPP development (Delmon 2011, 2). Besides that government should develop other elements of institutional environment, such as financial and economic institutions, independent supporting organization (funds), management and operating companies, etc.

**3) *Creation of special common federal agency responsible for PPP***

This federal agency should implement the policy of PPP and be responsible to the president and society for the whole range of issues of PPP. The aim of this agency would be studying and examination of the entire spectrum of PPP issues – legal, organizational, financial and economic, and creation of development programs for PPP.

**4) *Training of specialists in this sphere and creation of favourable public opinion to this mechanism***

Training of professional specialist should be a core target for all educational universities operating on the territory of the country. Both theoretical and practical implementation of PPP should be carefully presented to people, who are aiming on working in this sphere. Moreover, government should

work actively on creation of positive reaction of society towards PPP usage.

**5) *Establishing anti-corruption programs and laws, and increasing the transparency of tenders***

Anti-corruption programs should be established, in order to increase efficiency of money allocation. Moreover, set of laws should be created that will guide fairness of selection of private companies for design, operation and maintenance of the projects. This will also promote high level of competitiveness among private investors, which will result in increase of quality of services offered to the people, living in Russia.

## **3 Methodology**

### **3.1 Research Approach**

The main objective of this thesis work were identification of economical essence of Public-Private Partnership, evaluation of its advantages in terms of development of road system in Russian Federation, discovering current problems that stop effective implementation and realization of road projects with the use of PPP in Russian realities and revealing targets that should be achieved for improving current situation with PPP projects.

Based on those objectives literature framework was presented to the readers, in order to give deep understanding of the topic and support them throughout this thesis work. This data was carefully accessed and verified by the author, and presented in the logical and clear way. According to data that was collected through various types of resources, author was able to make hypotheses that were further tested by set of research methods, including survey and interview.

According to this chronology of actions followed by the author of the work, such an approach is called deductive, which is defined by Sneider & Lerner (2009), as the research approach that starts with the theory and creation of hypothesis based on it, and continues with observation and future rejection or confirmation of this hypothesis. Beiske (2007) also states that this kind of re-

search explores an already existing theory and tests if this theory is valid and applicable in the certain conditions.

Schematic Sketch of stages of conducting deductive research approach is given by Kothari, C. (2004):

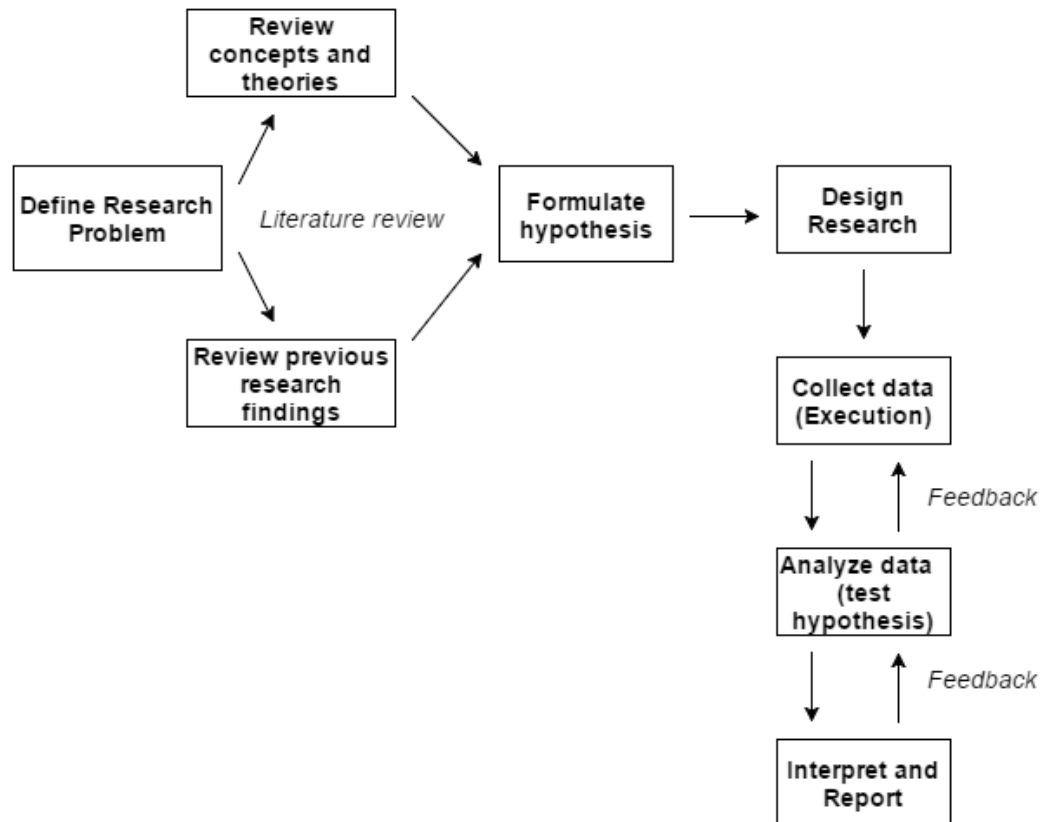


Figure 13. Deductive Approach Research Process in Flow Chart (adapted from Kothari, 2004)

It is important to state here, that author of this work carefully implemented these steps in the concrete order. Based on the following chronology author was able to reach the desired result and find answers to the research questions that were set in the beginning of this thesis work.

## 3.2 Research Methods

Generally there are two commonly used methods of conducting a research – so-called quantitative and qualitative.

Quantitative research – is research that concerns the quantity or measurement of some phenomenon and evaluates the amounts (Langdridge & Hagger-Johnson 2009, 13). It includes usage of different statistical figures and numbers.

According to Bryman & Bell (2015, 392) qualitative research refers to research strategy that usually emphasizes words rather than quantification of data. It is also viewed as a relationship between theory and research, whereby the former is generated out of letter.

Usage of any research methods only depends of the authors' choice and core targets that he is aiming research. In this case, author of this work decided to combine these methods and use mix-method approach. Creswell & Plano-Clark (2011, 68) define this approach as type of research, where researcher combines elements of both quantitative and qualitative approaches, in order to create a deep understanding of the topic. In the opinion of the author the usage of mixed-method was necessary and important in such broad topic as Public-Private Partnership in Russian Federation.

In order to provide reader with high-quality and reliable literature review, author was using various types of data. These types of data can be generally divided into 2 broad categories: primary and secondary data (Hox & Boeijs, 2009).

### **Secondary data**

Patzer (1995, 5) defines secondary data as data that was previously collected by someone else and then used by the author for his specific purpose. This kind of data includes different sources, such as websites, newspapers, statistical figures provided by Government organizations, etc. Author of this work was using various types of data, including Russian government statistics, various types of electronic resources and research works of experts working in this sphere, which provided definitions of many terms presented in this work.

Special effort of the author was made in ensuring that data that was used is valid and reliable.

Author of this work states that it was important to use not only materials of foreign experts, but also works of Russian specialists, as they have a huge amount of theoretical and practical base about this specific subject, and what is more important are aware of current situation in Russian road projects and problems arising in PPP in Russia.

### **Primary data**

Ghuri & Gronhaug (2010) state that primary data refers to data that was collected by the author without usage of any works, statistical figures or reports of other people through the empirical proof. Based on the objectives, author decided that usage of primary data is a necessary thing in discovering benefits, problems and targets associated with realization of PPP projects in road industry in Russia. Gathering primary data gave author the opportunity to test hypotheses, which were created with the help of secondary data. Moreover, it allowed him to make a conclusion based on the findings.

Primary data was collected through different research tools, such as questionnaire and interview. Author of the work states that combination of these tools allowed him to fully cover the research topic and objectives that were set in the beginning of this thesis work.

## **3.3 Data Acquisition Process**

Firstly, the survey, which is considered to be a commonly used tool for a research, was used at the beginning of data collection process. Survey allowed the author to collect the responses from large quantity of people and to ensure that collected data is objective, valid and reliable.

Creation of survey was a process that took a lot of time and involved different stages. First of all, author of the work identified the specific objectives for this survey. Main aims of this survey were specified as identifying the advantages and problems in realization of road projects with the use of PPP and setting targets for improving current situation in Russia. Moreover, author of the work

decided to collect an additional information related to the topic, such as level of development of transportation infrastructure and road conditions in Russia.

Secondly, author identified, what will be the main audience for participation in this survey. Due to the fact that this topic is quite specific, author was carefully choosing the respondents for this survey. Public-Private Partnership generally involves two types of organizations – public, represented by government authorities, and private, represented by businesses and commercial organizations. In this case, author aimed on participation of both parties into this survey, but faced some difficulties in its realization. At the same time, author took into consideration different alternatives, according to which he could contact organization, which is considered to be an intermediary state between public and private sides. This organization is called Direction of Development of Transportation Sphere in St. Petersburg and Leningrad Region. This kind of organization does not officially belong to the government, but works in close cooperation with both public and private sides on realization of different kind of projects. Author decided to contact employees, who are working in this organization, in order to get their opinion about Public-Private Partnership and its application in Russian realities. Almost all these workers had an unique experience of engaging in Public-Private Partnership and a deep knowledge about sphere of transport.

Based on the objectives and target participants, author was able to create set of questions and develop the plan of holding the survey,

Author was distributing questions through the e-mail of the organization.

Usage of email distribution was implemented, in order to provide enough time and space for the interviewers to fill in a survey.

Generally, survey consisted of different parts. First one provided background information about the participant of the survey, such as age, gender, experience of working in a company (measured in time, in order to limit risk of trainees without proper experience filling in the survey) and experience of participation in PPP projects. Information about nationality was not included, because employees, who are working in this organization, are Russians (this fact was disclosed before the research). These questions were followed up by the main part of the survey, which included questions about advantages and

problems of Public-Private Partnership in the realization of road projects, opportunities of successful realization of PPP projects without government support and identification of core targets that should be set by the government to increase the efficiency of PPP projects.

The author provided answers to all the questions in the form of single or multiple form questions. Moreover, in order to ensure that the result of the survey would be reliable and valid, author included space “no opinion”. This action prevented the situations when respondent is facing to choose at least one option, even if he does not know the answer to the question or want to miss it, due to any ethical rule.

Important to mention, that this survey was private, so nobody can see the name of the respondent after filling this survey. The author did it based on privacy and ethical rules of this organization. Answers to the questions were based on the hypotheses that were created in the end of the second chapter of this research work.

## **4 Research Results**

### **4.1 Data analysis of the interview**

In this subchapter, author of this work will present and discuss findings that were collected through the interview with the leading specialist of the Committee of Development of Transportation Sphere in St. Petersburg and Leningrad Region, Russia and candidate of economic sciences.

The main objective of this interview was getting the understanding about the current situation in transportation sphere, including the level of development of transportation infrastructure, problems and benefits of Public-Private Partnership in realization of road projects in Russia.

First question of the interview was related to current level of development of transportation infrastructure in Russian Federation. Respondent highly rated the potential for the development of this infrastructure, but emphasized that current increasing demand does not match with the supply of infrastructural objects and quality of services provided by the government organizations. Ac-



According to his opinion, the main criticism of population of the country is related to the quality of roads, especially regional ones, which in his opinion is one of the biggest problems in transportation sphere nowadays. Interviewer stated that **level of development of transportation sphere in general and roads condition, in particular, is low**. Therefore, complex approach should be developed, in order to improve current situation

Second question was related to measuring the investment climate in Russia in the current situation and identifying main problems that stop successful implementation of road projects with the use of PPP. Respondent stated that at this stage the investment climate in Russia is far from favorable, largely due to economic and geopolitical reasons. The main problems that stop the successful adaptation of PPP in realization of road projects in transport sector, in the opinion of the specialist, are the **high interest rates** that make many investment projects highly unattractive; **weak legislative framework** that frightens off the potential investors and generally **decreasing economic situation** in the country that does not contribute to creation of new investment projects. At the same time, interviewer stated that nowadays currently both Federal and Regional level organizations are actively working on improving the existing legislation in the sphere of PPP, on developing legislative initiatives aimed at reducing administrative barriers and on simplifying bureaucratic procedures, and on improving mechanisms of Private-Public Partnership.

Third question was aimed on identifying benefits of PPP usage in terms of development transportation sphere in Russian Federation. Respondent states that Public-Private Partnership is considered to be an effective tool for the realization of road projects in Russia, as it promotes **the introduction of innovative technologies** and use of latest equipment, **attracts highly qualified specialists and increases financial power**. Moreover, interviewer stated that in his opinion the main advantage of PPP is **creation and construction of high-quality objects of transportation infrastructure**, as concessioner (or the construction company) is not interested in frequent maintenance works of the object, due to the fact that they cause additional expenses for the company. At the same time, it is important to mention here that specialist cannot confidently say that Public-Private Partnership is the only correct option for development and modernization of transport infrastructure in Russian Federa-

tion. The alternative to PPP is a government contract, which sometimes allows constructing the object at a lower price (no need to pay consultants and banks). Respondent concludes that the decision about the methods of realization the project should be based on the basis of analysis of the functional purpose of the object, budget and adequate relationship between value and price for construction of a specific object.

The last question was aimed on identifying the main risks that arise in realization of road projects with the use of PPP in Russia. Respondent states that there are various types of risks, including **design, construction, financing and social acceptance risks**. All these risks are highly dependent on organizational and legal model of project realization, and therefore should be identified and carried out before the project evaluation. The author made a special emphasis on the **demand risk**, which in his opinion is considered to be one of the most important risks. If the fees for usage of transport object (road in this case) are set to be high, then the demand of people towards usage of such services can be very low. This happened with M11 route Moscow – St. Petersburg (Moscow – Vladivostok), where concessionaire was forced to decrease fee for usage of a road to ensure at least the minimal demand.

## 4.2 Data analysis of the survey

First question of the survey was related to identification of the age of the respondents. In the opinion of the author, it could give useful information about age and maturity of the specialists working in this sphere.

### 1) Identification of age of respondents

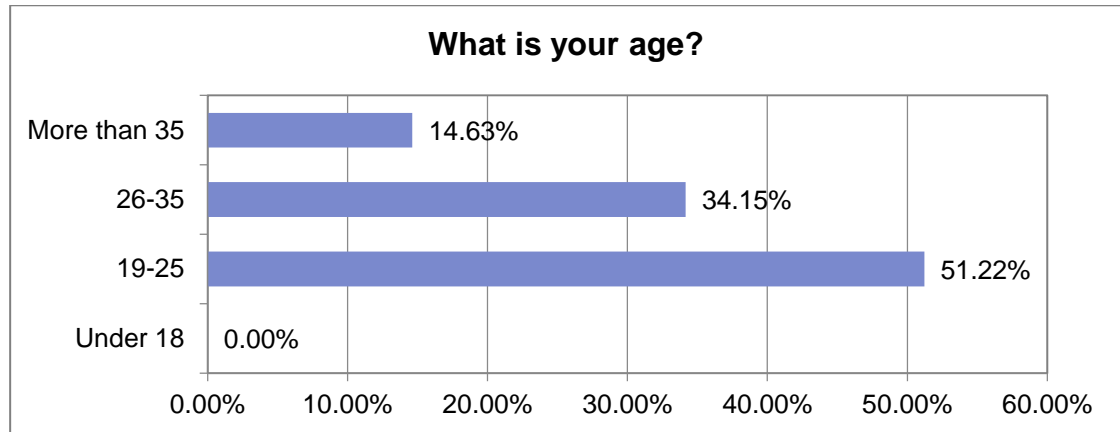


Figure 14. Age of respondents

According to the answers, we can see that main group of respondents is divided into two big age categories. 51,22% of respondents belong to interval of 19-25 years, while 34,15% are 26-35 years old. This numbers can show that specialists, who are working in Committee of Development of Transportation Sphere in St.Petersburg and Leningrad Region are quite young. At the same time there is only 14, 63% of respondents, which age is more than 35, and there is nobody who is younger than 18.

### 2) Identification of gender of respondents

Along with the age, author identified the gender of the respondents, in order to understand, who are the main people working in this sphere – male or female.

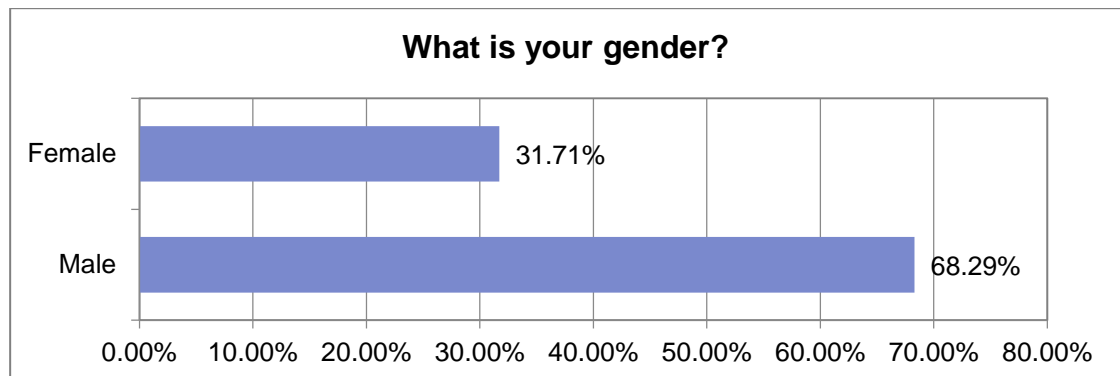


Figure 15. Gender of respondents

According to the answers to this question, we can see that most of respondents are males with total percentage of 68,29%. Females are responsible for 31,71%. Information provided by this two graphs shows that main specialists, who are working in this organization, are predominantly males.

### 3) *Identifying the experiencing of respondents working in organization*

Next step was aimed on identification of the experience of respondents working in organization, measured in years. This gave the author the idea how long these people are working in organization and if there are any trainees among respondents or not.

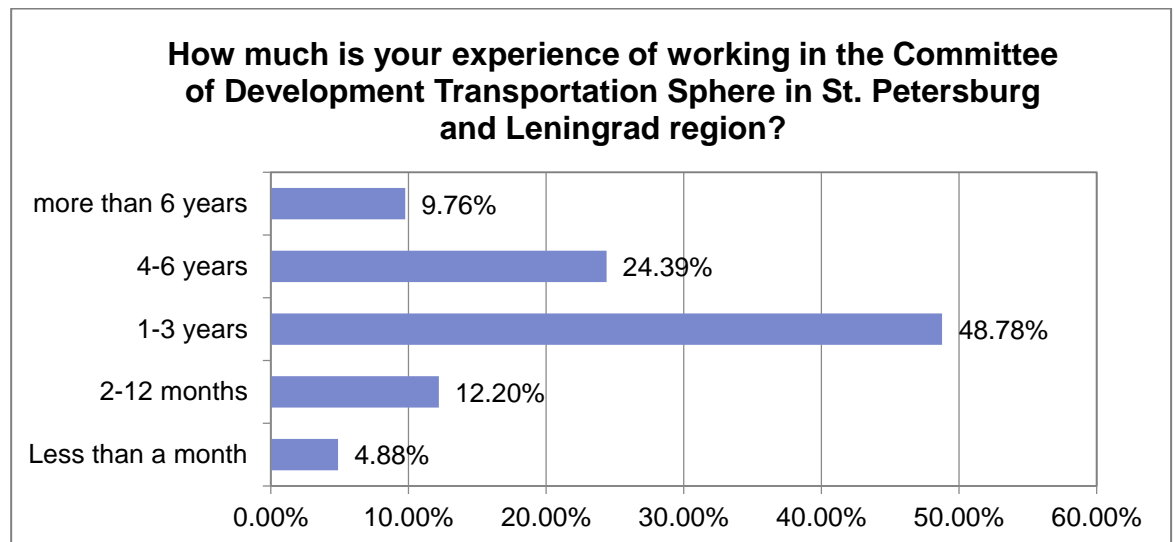


Figure 16. Measurement of experience of respondents

According to graph, we can see that 48,78 % of respondents are working in organization for 1-3 years, which is considered to be relatively short period of time in this sphere. Moreover, there are also some number of people, who are working in the Committee less than a month (4,88%) and for 2-12 months (12,20%), but their percentage is quite low. On the other hand, participants with quite high experience (4-6 years and more than 6 years) of working in organization, participated in the survey (with 24,39% and 9,76% accordingly). Generally, participants represent quite good mix of “young blood” and “experienced workers”.

4) *Identifying the level of development of transportation infrastructure in Russian Federation*

Due to the fact that respondents are working in Committee of Development of Transportation Sphere, they are deeply aware about current situation in transport sector and the level of development of transportation infrastructure. In this case, author states that it was important to identify the level of development of transportation infrastructure in Russia right now.

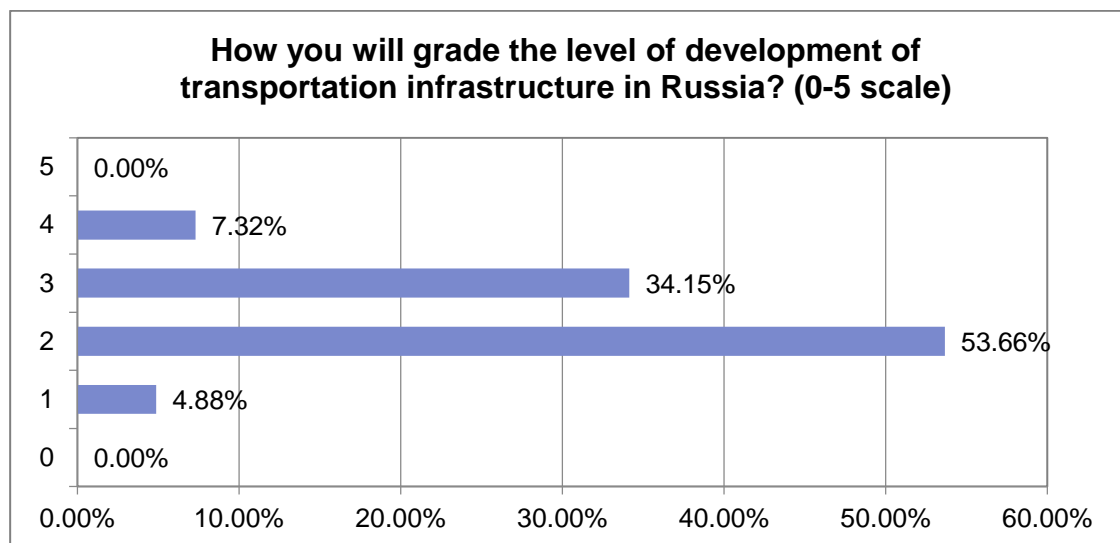


Figure 17. Measurement of level of development of transportation infrastructure in Russia

According to the opinion of the respondents, the level of development of transportation infrastructure is quite low, as “3” and “2” were the most popular grades out of all with 34,15% and 53,66% accordingly. At the same time, there were only few responses with “4” an “1” grades. This shows that generally the level of development of transportation infrastructure is measured by the respondents as quite low, which creates the need for further development and investment in this sector.

5) *Identifying the level of development of road infrastructure in Russia*

Due to the fact that topic of this research is closely connected to development of the road network in Russian Federation with the use of PPP, author states that identification of opinion of the respondents towards level of development of road infrastructure was necessary and important for this work.

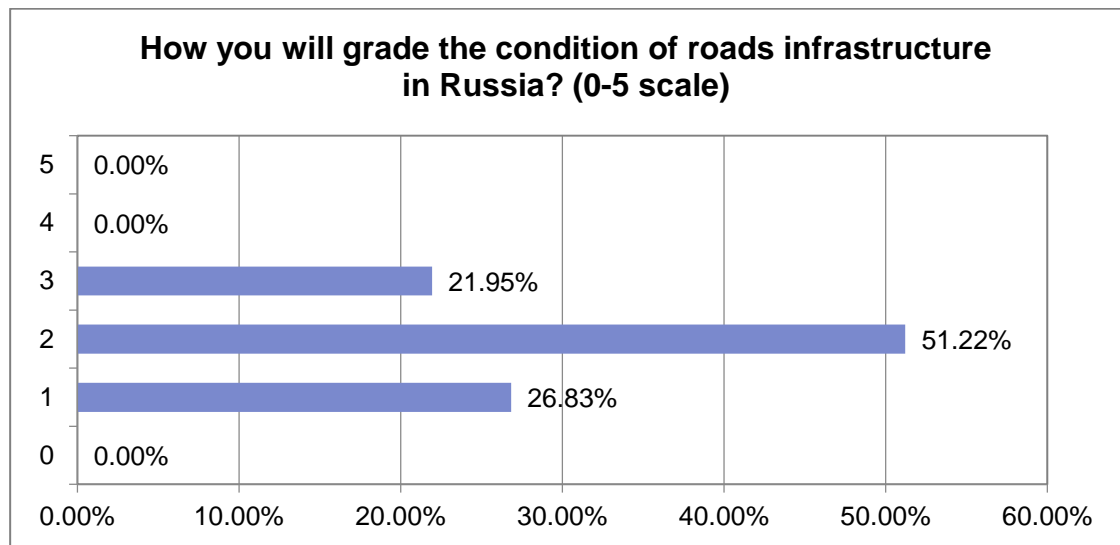


Figure 18. Measurement of conditions of road infrastructure in Russia

The results of the survey showed that most of respondents grade the condition of road infrastructure quite low, which can be proved by the fact that there is no “4” and “5” grades in this graph. More than half (51,22%) of respondents voted for “2” as a grade, which is quite a low figure. At the same time, in comparison with the previous graph, author was able to identify the increasing number of respondents, who voted for “1” as a grade (26,83% VS 4,88). This means that some respondents believe that level of development of roads in Russia is lower than condition of transportation infrastructure generally. At the same time there were also respondents, who voted for “3” as a grade as a measurement of road infrastructure conditions. With the total 21,95% this answer was placed on the 3-rd position.

*6) Identifying participation of respondents in realization of roads projects with the use of PPP*

As it was found before the research through communication with the interviewer, specialists of this organization are actively working on design, planning and realization of various types of projects in transportation sphere, including road projects. However, it does not exactly mean that all of them were participating in realization of these road projects with the use of PPP. In this case, author of the work decided to identify in how many Public-Private Partnership road projects the respondents were involved. The question was

set as following : Have you ever participated in realization of roads projects with the use of PPP? (If yes, specify number of projects)

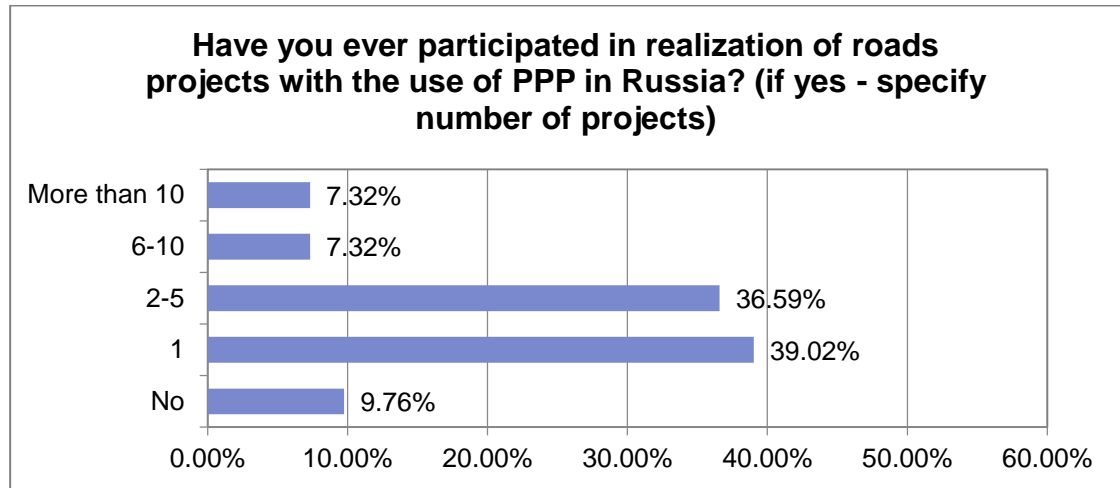


Figure 19. Measurement the participation of respondents in realization of roads projects with the use of PPP

Answers collected from the survey showed that most of the respondents had the experience of participation in these projects, but the number of those projects are relatively small. Almost equal amount of respondents (39,02% and 36, 59%) participated in 1 project and in 2-5 projects. At the same time, number of respondents, participated in 6-10 and more than 10 projects is very low, which can be proved by the fact that both these answers' options have only occupied 7,32% each from total share. Important to mention here, that there are also 9,76% of the respondents, who have never taken part in realization of road projects with the use of PPP.

*7) Identifying the level of attractiveness of investment climate in Russia in the sphere of realization road PPP projects*

Investment attractiveness is a very important factor for development of any sphere. This statement is also related to road projects with the use of Public-Private Partnership, as these projects require large number of investments. In this case, respondents were asked to measure the level of attractiveness of investment climate based on their own opinion.

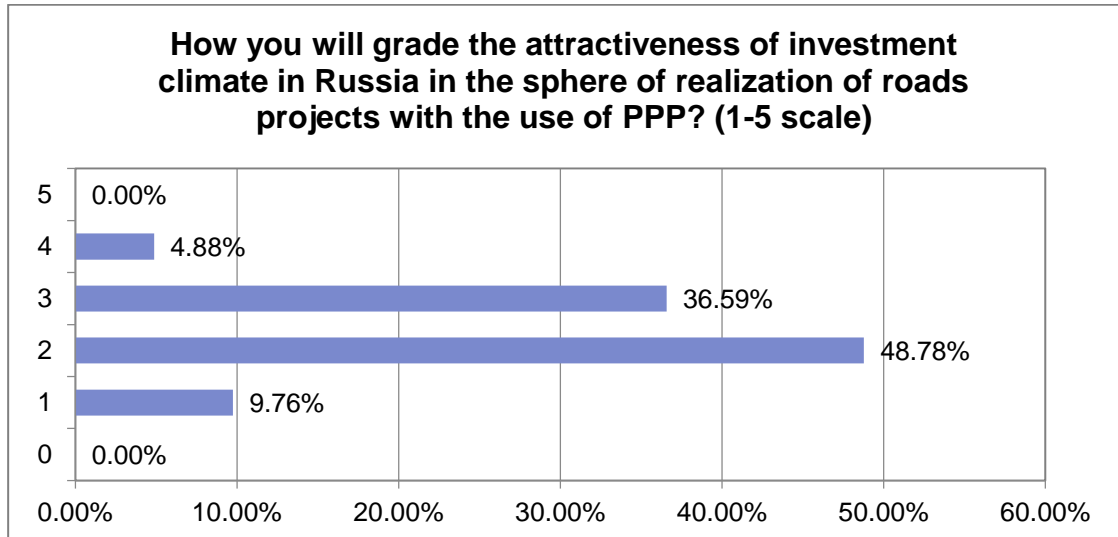


Figure 20. Measurement of attractiveness of investment climate in the sphere of realization of roads projects with the use of PPP

Based on the respondents opinion the attractiveness of investment climate in Russia is quite low, as “2” was the most popular answer with 48,78%. Second most popular answer was “3” with total percentage of 36,59%. Relatively low attractiveness of investment climate might be caused by economical and geopolitical situation in Russia right now. At the same time, author was able to collect few responses from the respondents, who have chosen “4” and “1” as a grade, but their shares are relatively small comparing to previous ones - 4,88% and 9,76%.

*8) Identifying possibility of realization of road projects with the use of PPP without governmental support*

Author of this work decided to collect respondents’ opinion towards possibility of effective realization of road projects with the use of PPP without governmental support.



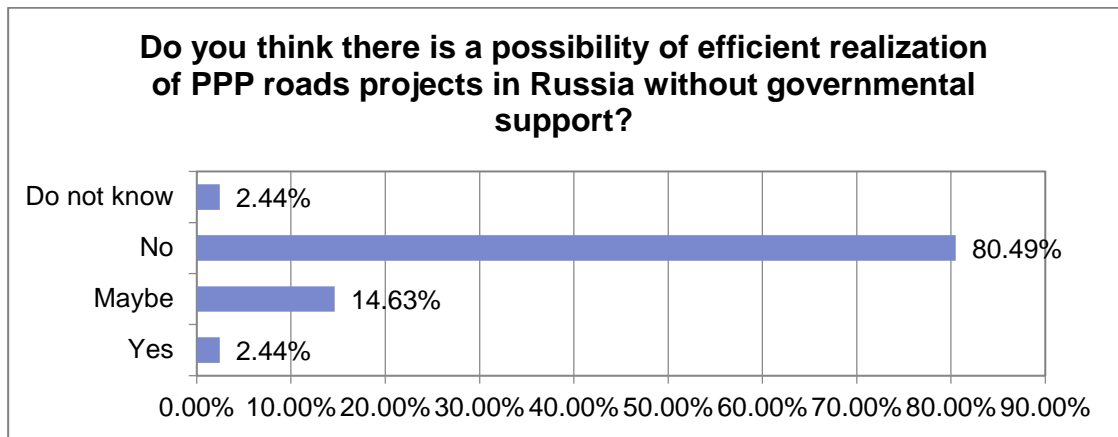


Figure 21. Measurement possibility of efficient realization of PPP roads projects without government support

According to graph majority of respondents believe that realization of road project with the use of PPP is impossible without government support (80,49%). This fact proves that government support is essential part for realization of any road project with the use of mechanism called Public-Private Partnership. The share of other answer options is relatively small, as only few of respondents chose “Yes” and “Do not know” (2,44 % for each), and “Maybe” (14,63%) answers.

9) *Identifying main benefits of PPP usage in realization of road projects in Russia*

In this question respondents were asked to choose 1-3 main benefits of PPP usage in realization of road projects in Russia from the list of benefits provided by the author.

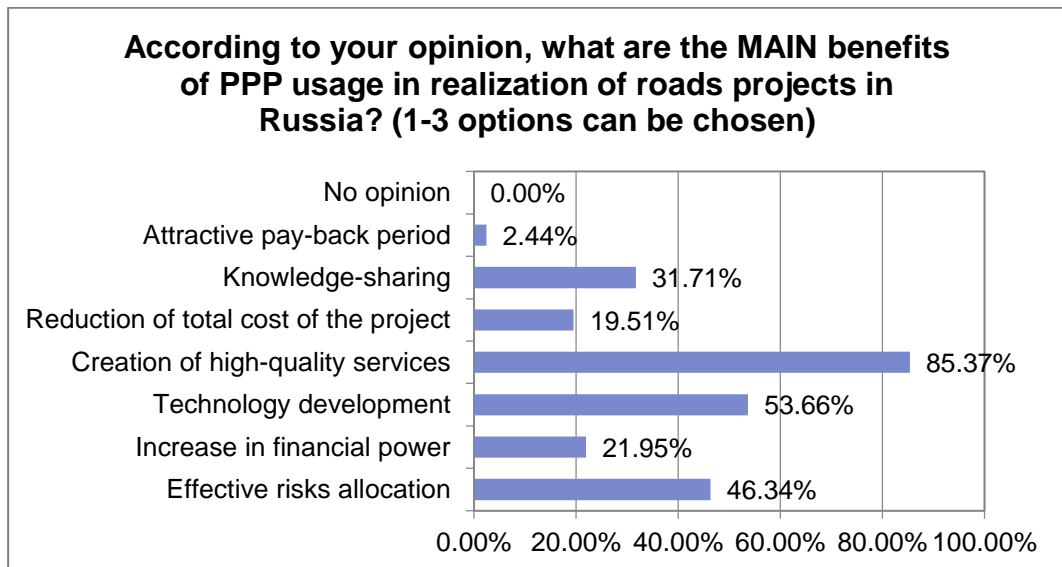


Figure 22. Identification of main benefits of PPP usage in roads projects in Russia

According to responses, vast majority of respondents highlighted that creation of high-quality services is considered to be the most important benefit of PPP usage in realization of road projects in Russia (85,37%). Few more important benefits were stated as technology development and effective risk allocation , which occupied second and third position accordingly with 53,66% and 46,34%. However, it is also important to mention some other important benefits that received support from respondents, such as knowledg-sharing (31,71%), increase in financial power (21,95%) and reduction of total cost of the project (19,51%). As to the attractive-pay back period, it became obvious that participants of the survey do not consider it to be the main benefit of PPP usage in realization of road projects in Russia (it received only 2,44% from the total number).

*10) Identifying the main problems that arise in realization of PPP roads projects in Russia*

In this question respondents were asked to identify main problems that arise in realization of road projects in Russia with the use of PPP. Structure of this question was similar – participants were asked to choose 1-3 main benefits from the list of options provided by the author.

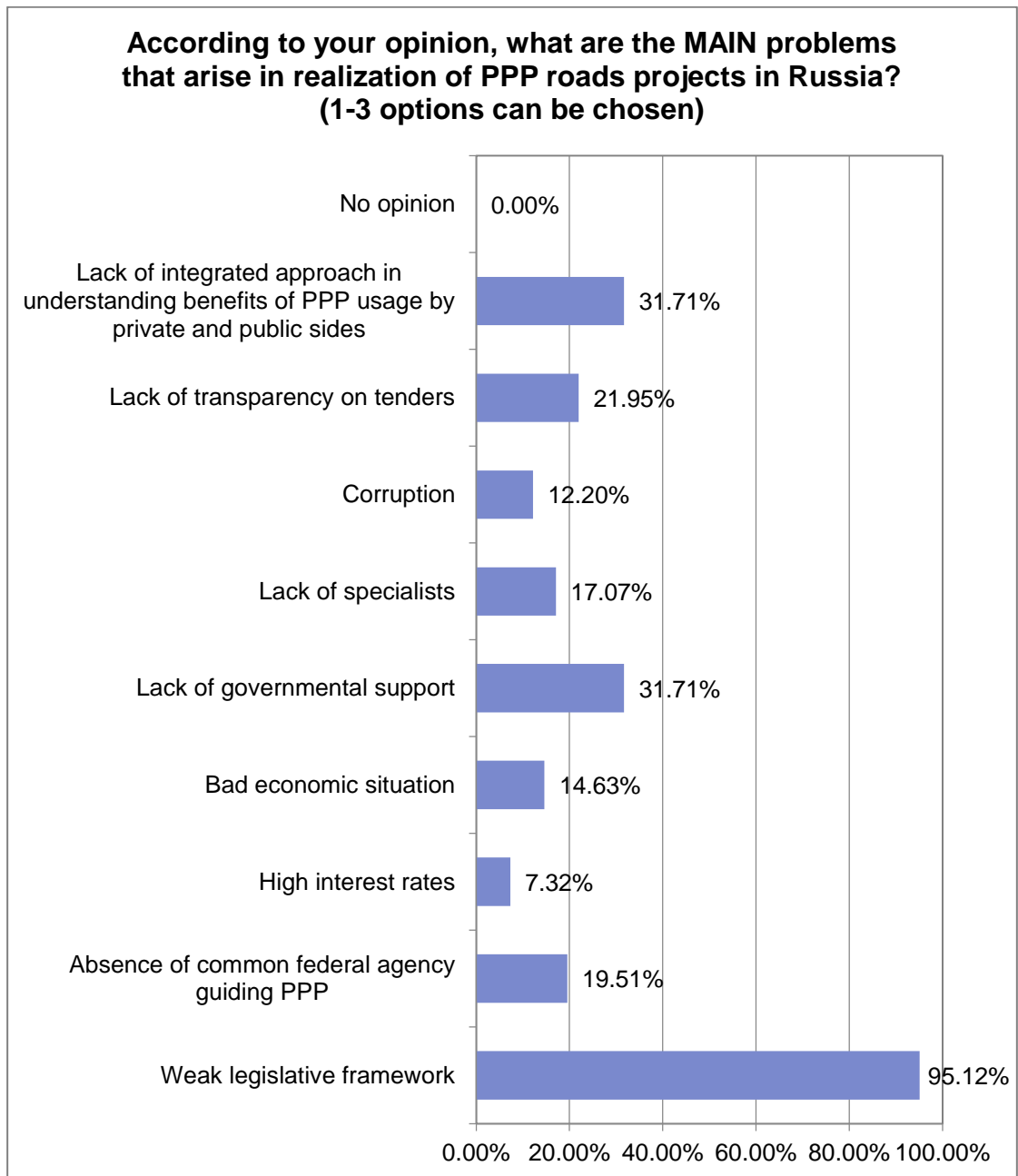


Figure 23. Identification of the main problems of realization of PPP roads projects in Russia

From the graph we can see the tendency that almost every respondent, who participated in this survey, considers weak legislative framework to be the main problem in realization of road projects with the use of PPP in Russia (95,12%). What is more important that experts in these fields, interviewer and all the respondents have the same opinion on this question. Two more main problems that were identified through this survey are lack of integrated approach in understanding benefits of PPP usage by both and public sides

(that results in usage more of contractual forms or relationships) and lack of government support (both financial and legislative). Both these problems have equal amount of percent shares – 31,71%. According to graph, author was able to identify few more problems that are less popular among the respondents, but still should be mentioned. They include following ones: lack of transparency on tenders (21,95%), absence common federal agency guiding PPP (19,51%), lack of specialists (17,07%), bad economic situation (14,63%), corruption (12,20%) and high interest rates for private sector (7,32%).

*11) Identifying the main targets for improving the situation with PPP development*

The main aim of this question was collecting opinions of respondents about the improvements that should be done by the government, in order to improve efficiency of realization of PPP projects in Russia. Participants were asked to choose 1-3 options of main targets that should be implemented out of the list of choices provided by the author.

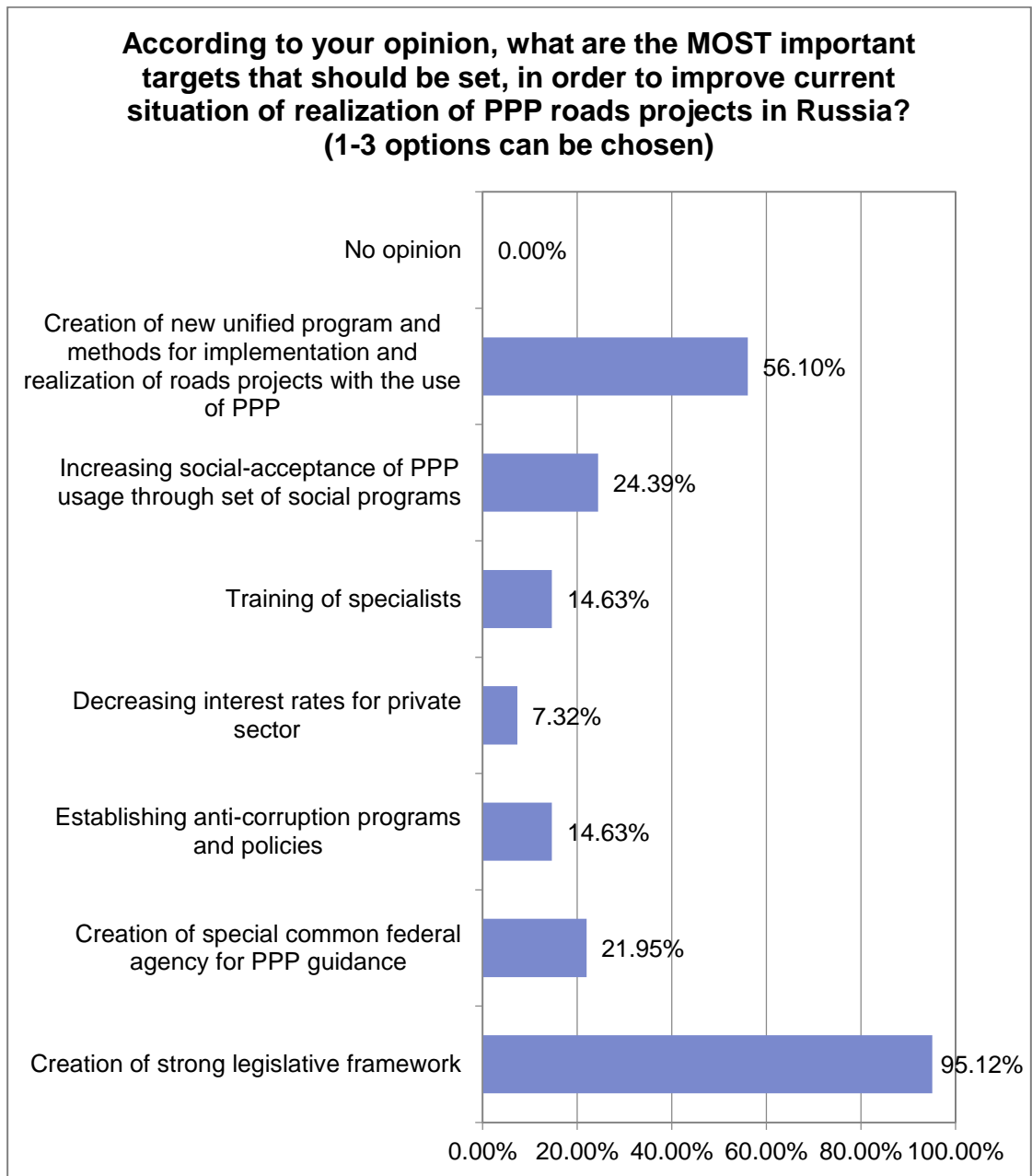


Figure 24. Identification of most important targets for improving the efficiency of realization roads projects in Russia with the use of PPP

From the graph, readers are able to see that creation of strong legislative framework is considered to be a priority target for the government in the opinion of the respondents (95,12%). Second popular option among participants of this survey was the creation of new unified program and methods for implementation and realization of road projects with the use of PPP in Russia (56,10%). Third position is occupied by the target named “increasing social-acceptance of PPP usage through set of social programs”,

which is accountable for 24,39%. Other targets less popular among the participants, but still deserve mentioning: creation of special common federal agency for PPP guidance (21,95%), establishing anti-corruption programs and policies (14,63%), training of specialists (14,63%) and decreasing interest rates for private investors (7,32%).

## **5 Conclusion**

This chapter describes all the findings that were gathered in this thesis work and answers on the research questions that were presented in the beginning of this work. Moreover, this chapter also provides information about validity and reliability of the research study and recommendations for improvements.

### **5.1 Answers to Research Questions**

Aim of every thesis work is to find the answers to the specific research questions that were set in the first chapter of this thesis work. The author suggests to mention all these questions and to evaluate how this research helped him to find the answers to them.

#### **What is economical essence of Public-Private Partnership?**

As it was found out, there is not commonly acceptable definition of Public-Private Partnership, as it varies not only depending on authors vision and geographical location, but also on the sphere of its implementation. However, the author of this work stated that most commonly this term is used to describe a mutually-beneficial relationship between government and businesses for realization of socially, culturaly and economically significant projects in close cooperation between each other.

Important to mention here that efficiency of this relationship in realization of different types of projects is dependent on set of external and internal factors, which will be further mentioned.

## **What are the main benefits of PPP usage in realization of road projects in Russia?**

This work was aimed on identifying the main benefits of PPP usage in realization of road projects in Russia. Based on it, relevant data was analyzed, and the research was made. Accordingly, the author was able to identify the benefits of Public-Private Partnership individually for Public side (government) and Private side (private companies, businesses), and reveal general benefits associated with the usage of Public-Private Partnership in realization of road projects in Russia.

*As for the public side* the main benefits of PPP usage in realization of road projects are following: **increase in quality of final services in the end of the project** (as private company would be not interested in maintenance works, if project is realized on low level) , **new sources of investments** (private companies are actively engaged into investment process for successful realization of the project), **technology development and innovation** (private companies are motivated in usage and creation of new technologies for performing works on a high level), **confidence for result** (due to the fact that government knows that private side is motivated in successful realization of the project) and **risk allocation** (government transfers some risks to the private side, e.g. constructional and maintenance risks)

*As for the private side*, the main benefits of PPP usage in realization of road projects are following: **getting access to strategically important transportation sphere of economy** (this access creates opportunities for increasing the revenues of the company and potential for its growth), **receiving object for a long-term usage** (long-term usage is more favourable than short-term, as private company has enough time for creation of a long-term oriented plan for its development and realization of the project), **receiving a set of guarantees from the government** (government gives financial and legislative guarantees, in order to attract private company to participate in realization of projects) and **risk allocation** (government takes some risks on itself, e.g. financial risk).

At the same time primary data that was collected through survey and interview with the specialists working in the Committee of Development of

Transportation Sphere, helped the author to identify general and main benefits of PPP usage in realization of road projects in Russia, which include following ones: ***creation of high-quality services, effective risk allocation between parties, technology development and knowledge sharing.***

### **What are the main problems arising in realization of road projects with the use of PPP in Russia?**

Besides of identifying benefits of Public-Private Partnership in realization of road projects, author gave an effort of revealing the problems that stop successful realization of these projects In Russian Federation. Based on the primary data that was collected through interview and survey, author discovered set of different problems, including main one – ***weak legislative framework*** that frightens of the potential investors. This problem creates risks for private sector and makes investments in this sphere and projects unattractive. At the same time, it is not the only problem that arises in realization of road projects with the use of PPP in Russia. In addition to it, there are few other problems, including following ones: ***lack of integrated approach in understanding the benefits of PPP usage by private and public sides*** (PPP is relatively new and unknown term for private and public sides, and lack of integrated approach in understanding the benefits of PPP pushes government away from using this mechanism towards simple contractual forms of relationships) and ***lack of governmental support*** (private sector does not receive enough guarantees and support from the government that results in additional risks and doubts concerning participation in PPP road projects).

### **What are the core targets for improving the efficiency of realization of road projects with the use of PPP in Russia?**

Identifying the core targets for improving the efficiency of realization of road projects with the use of PPP in Russia was another research objective that author of the work was trying to reach. With the help of both secondary data (educational materials on this topic) and primary data (survey and interview results) author was able to create list of main targets that should be set, in order to solve current problems in realization of PPP road projects. According



to the information that was gathered by author, the main target for solving current problems in realization of PPP road project was stated as **creation of strong legislative framework**, which will support rights of both private and public sides and create attractive investment climate in the sphere of road construction. Creation of a strong legislative framework is also an important target in terms of motivating private companies to actively offer and provide their services to government and creation of fair, competitive climate.

Besides creation of strong legislative framework, few more important targets were discovered by the author of this work, including following ones: **creation of new unified program and methods for implementation and realization of road projects with the use of PPP** (unified program and methods should establish an integrated approach of transferring theoretical knowledge about PPP applications into practical solutions and be a guide for the government for successful realization of road projects with the use of PPP), **increasing social-acceptance of PPP usage through set of social programs** (government should establish various types of programs that will show to society the benefits of PPP usage and differences from privatization, which is highly criticized among citizens of the country) and **creation of special common federal agency for PPP guidance** (this agency is aimed to analyze the efficiency of PPP implementation, appearance of new problems and searching for a solutions regarding these problems).

## 5.2 Validity and Reliability

Validity and reliability are important factors to take into consideration that should be carefully checked in the end of the thesis work.

First term, reliability, refers to the measurement of consistency of information that author presented in his work (Bailey, 2008).

Second term, validity, refers to the appropriateness and usefulness of specific conclusion from test scores (Walner & Braun, 2013).

As it was highlighted before, in order to answer the research questions that were set in the beginning of this research, author used various types of data, including secondary and primary data. Secondary data was collected from

different kind of resources, such as methodical textbooks of experts with unique expertise in the sphere of transport, statistical data provided by the government authorities of Russian Federation and online e-resources. All these types of data were analyzed and reviewed, in order to ensure that they match the objectives and topic of the research.

As to the primary data, it was collected through interview with the leading specialist of Committee of Development of Transportation Sphere in St.Petersburg and Leningrad region, and the survey, where participants were the specialists of the same Committee. The process of selection of target organization and respondents was carried out carefully. Author tried to collect the opinions of people, who have not only theoretical, but also practical knowledge about realization of PPP road projects in Russia. In this case specialists in Committee of Development of Transportation Sphere were the best option out of all. Through the contact with the interviewer before the beginning of research study, author was able to discover that specialists of this organization are actively working on creation and designing of new road projects in Leningrad region (including designing a concept of a highway in St. Petersburg that will cross the whole city from south to north). Moreover, these specialists are highly aware of current situation and problems in realization of road projects with the use of PPP in Russia, which is a very valuable information for this specific topic. In this case, author states that information that was collected through interview and survey is reliable and valid.

As to the survey structure, author was trying to replace difficult terms with more simple ones, in order to prevent situations, when respondent can wrongly understand the question or the suggested answers. In the case, if respondents did not know, which answer they should choose, they could click on "no opinion" option. Author expressly added this alternative answer to ensure that there won't be a situation, when respondents were forced to choose any of option, even if they do not know the answer to this question.

Total number of respondents, participated in the survey 42, that is considered to be a good result in the opinion of the author.

Generally, according to all the criterias that were mentioned above, this research study should be defined as valid and reliable.

### **5.3 Suggestions for Future Research**

This research has set of limitations that should be mentioned in this subchapter. According to the main objectives, the topic of this research is closely connected to realization of road projects with the use of Public-Private Partnership. That means that information covered in this thesis work might be not applicable to all the types of transportation infrastructure projects, e.g. railway objects. Moreover, author did not set the aim to identify all the approaches and models of Public-Private Partnership, due to their uncountable number. In this case, author provided information that was valuable in terms of modernization of road network with the use of Public-Private Partnership in Russian Federation. Moreover, the results and data that was collected through the empirical study can not be applicable to other geographical regions and countries, except Russian Federation.

As for improvements, author states that Public-Private Partnership is a very broad topic that should be further studied and analyzed. Invitation of both private and public sides into participation in the survey would be a valuable thing. However, it is quite difficult to find companies, which have an experience of participation in road projects with the use of PPP in Russia and are open to share their knowledge and experience.

### **5.4 Discussion**

The main aims of this research were identification of economical essence of Public-Private Partnership, discovering main benefits and problems associated with usage of this mechanism in realization of road projects in Russian Federation and creating list of targets that should be set by the government, in order to improve the efficiency of its usage.

Based on the objectives, the research methodology was presented in the beginning of this work. First of all, the author made the overview of transportation sphere and the road conditions in Russian Federation. Further, the meaning, applications, models and various types of characteristics of Public-Private Partnership were presented to the readers. According to the secondary data that was gathered through the literature analysis, author was able to identify main benefits and problems that are associated with usage of Public-Private

Partnership in realization of road projects in Russian Federation. Moreover, the core targets and hypotheses were established in the first part of this thesis work.

In order to test hypotheses and to validate data, author created an interview and launched a survey with the specialists of the Committee of Development of Transportation Sphere in St. Petersburg, Russia. The primary data that was collected through these research tools helped author to make final conclusions on the set of objectives, including benefits, problems and core targets of Public-Private Partnership development in Russia. Moreover, the additional useful findings were disclosed with the help of empirical study. According to this data, author was able to state that generally the level of development of transportation infrastructure and road conditions are quite low in Russia, which creates the need for modernization and future investment into transport sector. Public-Private Partnership, in this case, could be the instrument that creates opportunities for modernization and attracts private investments into this sphere. At the same time, Public-Private Partnership had also set of limitations in adaptation and proper usage in realization of road projects in Russian Federation. These pitfalls were carefully identified and verified in this research. Relying on the problems, the core targets were established, in order to improve the efficiency of PPP road infrastructure projects.

Final part of the thesis work contains the answers to the research questions that were identified and verified through the hypotheses testing. By testing the hypotheses, author was able to present only most relevant and important findings out of information that was discovered in the first part of the research.

As for result of this thesis work, author was able to present valuable and reliable information about meaning of Public-Private Partnership and its main benefits and pitfalls in realization of road projects in Russian Federation. Furthermore, author created a list of targets that should be followed by the government of the country for improving current situation.

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## Appendices

Appendix 1. Survey

### Business

Realization of roads projects with the use of Public-Private Partnership in Russia

1. What is your age?

- Under 18
- 19-25
- 26-35
- More than 35

2. What is your gender?

- Male
- Female

3. How much is your experience of working in the Committee of Development Transportation Infrastructure in St. Petersburg and Leningrad region?

- Less than a month
- 2-12 months
- 1-3 years



- 4-6 years
- more than 6 years

**4.** How you will grade the level of development of transportation infrastructure in Russia? (0-5 scale) \*

- 0
- 1
- 2
- 3
- 4
- 5

**5.** How you will grade the condition of road infrastructure in Russia? (0-5 scale)

\*

- 0
- 1
- 2
- 3
- 4
- 5

**6.** Have you ever participated in realization of road projects with the use of PPP in Russia? (if yes - specify number of projects)

- No
- 1

- 2-5
- 6-10
- More than 10

**7.** How you will grade the attractiveness of investment climate in Russia in the sphere of realization of roads projects with the use of PPP? (0-5 scale) \*

- 0
- 1
- 2
- 3
- 4
- 5

**8.** Do you think there is a possibility of efficient realization of PPP roads projects in Russia without governmental support? \*

- Yes
- Maybe
- No
- Do not know

**9.** According to your opinion, what are the MAIN benefits of PPP usage in realization of roads projects in Russia? (1-3 options can be chosen) \*

- Effective risks allocation
- Increase in financial power
- Technology development
- Creation of high-quality services
- Reduction of total cost of the project
- Knowledge-sharing

- Attractive pay-back period
- No opinion

**10.** According to your opinion, what are the MAIN problems that arise in realization of PPP roads projects in Russia? (1-3 options can be chosen) \*

- Weak legislative framework
- Absence of common federal agency guiding PPP
- High interest rates
- Bad economic situation
- Lack of governmental support
- Lack of specialists
- Corruption
- Lack of transparency on tenders
- Lack of integrated approach in understanding benefits of PPP usage by private and public sides
- No opinion

## Appendix 2. Interview

**Do you think the investment climate in Russia is favourable for the implementation of roads infrastructure projects using Public-Private Partnership? If not, please state the reasons/problems?**

Unfortunately, at this stage the investment climate in Russia is far from favourable, largely due to economic and geopolitical reasons. The main problems that hinder the development of PPP roads projects in transport sector, in my opinion, are the high interest rates, which make many investment projects clearly unattractive; the ambiguity of the normative legal acts regulating the PPP projects; the gaps in the legislation, as well as a general decline of economic conditions in the country. All these factors stop effective usage of Private-Public Partnership in realization of roads projects.

However, at the present time, both federal and regional levels are actively working on improving the existing legislation in the field of Public-Private Partnerships, developing legislative initiatives aimed at reducing administrative barriers and simplification of bureaucratic procedures.

**How do you assess the development of transport infrastructure in Russia in general and in particular road?**

In our country there is a huge potential for the development of transport infrastructure in general, and roads particularly. The level of motorization among population is rapidly rising (about 2% per year); with the imposition of sanctions by Western countries, an unprecedented rate of growth can be seen in domestic tourism (30% growth at the end of 2015). At the moment, the main complaints of the population are closely connected with the quality of roads - especially in regions. There is a urgent problem, that should be solved in close collaboration with regional road funds, but in everything, as we know, we need a comprehensive approach.

**What are the main challenges and risks exist in realization of roads projects with the use of Public-Private Partnership?**

The risks depend primarily on the legal model of the project, and must be included in it (considered before implementation). There are many risks in the implementation of transport projects such as design risk, risks associated with the construction, operational risks, financial, and even the risk associated with the adoption of the project by public. In addition, the tariffs for use of the transport object may be too large. This happened with the track road M11 Moscow - St. Petersburg (section Moscow - Solnechnogorsk), the fare for which the concessionaire had to reduce to ensure a minimum demand.

**What are the main benefits of using Public-Private Partnership as a mechanism for realization roads projects and modernization of transport infrastructure in Russian Federation?**

I cannot say that the PPP - it is the only correct way of development and modernization of transport infrastructure. Public-Private Partnership alternative is a government contract, and I must say that sometimes government contract is more profitable, as it allows you to put the object in a short period of time,

usually at a lower cost (no need to pay consultants and bankers). However, participation of private investors in Public-Private Partnership roads projects, in turn, facilitates the introduction of innovative technologies, the use of advanced equipment and attraction of highly qualified professionals. The decision about choosing the form of the project depends on the analysis of value-for-money approach. Moreover, functional purpose of the object, sphere and time period for the project should be also taken into consideration. The most significant advantage of PPP road projects is the commissioning of high-quality facilities, which happens due to the fact that the concessionaire is not interested in frequent repair works and, as a rule, tends to use the most advanced and efficient technologies in construction of the object.