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CRITICAL SUCCESS FACTORS FOR PRIVATE PUBLIC PARTNERSHIP (PPP) IMPLEMENTATION IN LATVIA

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List of Abbreviations

BOO - Build-Own-Operate

BOT - Build-Operate-Transfer

BTO - Build-Transfer-Operate

CAPEX – Capital Expenditure

DBFO - Design-Build-Finance-Operate

IRR – Internal Rate of Return

MEUR – Millions Euro

NGO – Non-Governmental Organisation

NPV – Net Present Value

PFI – Public Finance initiative

PPP – Public Private Partnership

SJSC – State Joint-Stock Company

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Abstract

This paper identifies the key critical success factors for private public partnership project planning and implementation process, in order to assist all stakeholders in the process. It also analyses the potential application models of private public partnership, to further complement the obtained data on critical success factors. This paper is based on results from a comparative analysis of seven cases from three different countries, identifying potentially critical success factors, as well as semi-structured interviews with industry experts in Latvia, localizing the factors, according to local social economic context. As a result, several factors have been identified as critical, classified as general factors and project specific factors, namely, presence of enabling policy for private public partnership implementation, competence and experience on all levels, during planning, assessment and execution, appropriate risk allocation between parties and stable macro-economic environment, in order to reach project success, achieve both public sector goals and a reasonable level of cost and benefit. This can be explained by the lack of previous experience in project implementation that also underlines the necessity of successful pilot projects to attain competence. Research on optimal implementation model was narrowed down to payment methods in public private partnership models, where the indirect payment model was perceived as the most appropriate for the current state of private public partnership concept development level in Latvia.

1. Introduction

In modern society, a certain level of expectation exists for provision of basic services by public authorities, regardless of the geographical location and the economic situation in the said country – traditionally, such as basic welfare, emergency medical care, law enforcement and public service infrastructure development and maintenance. In turn, the level of the services provided is directly connected to the economic capabilities of the public sector, and the public policy priorities for the use of the economic potential the public sector possesses. The tools used by the public sector to manage such requirements and expectations may vary, ranging from international aid programs, mutual assistance fund co-financing, grants and also public-private partnership. The purpose of this paper is to focus on the usage of one of these tools, namely public-private partnership (PPP), in order to predict the optimal path for potential implementation strategy, by observing the historical performance and track record for using this tool, and applying it to the social economic context of Latvia, and to achieve project implementation success.

The modern PPP finds its roots in the state-owned service industry privatization in the Thatcher-era United Kingdom, which may be considered the early adopter of this public sector financing management tool, as a mean of ensuring a more speedy delivery of services and service facilities which the general public required at the time, from a position of restricted government spending policy and the lack of full scale funding to implement such projects on behalf of the public sector. Basically, the idea of PPP is simple – the public sector, who holds the rights to provide services to the general public, contracts a private entity to ensure the delivery of facilities and also hands down the rights to provide these services, usually associated with the public sector, i.e. building and management of roads, bridges, hospitals or prisons, and in return contractually promises to compensate all the implementation and running costs, as well as financing costs, sometime in the future, according to a strict schedule, or allows the private entity to receive a part or all the proceeds from the provision of the services. Therefore, the private partner has a guiding framework of what is expected by the public sector as part of this PPP, but the means of execution of the said services and the delivery of the said service facilities are up for the private entity to decide, which may include the design, construction, maintenance and financing of the whole process of delivering the facilities and services the public sector requires.

In the context of Latvia, it may be discussed whether the implementation of large scale PPP projects is the best option for the public sector in Latvia, but it is apparent that the public sector does not have the financial capacity to serve all needs for infrastructure development, as in the case of transport infrastructure - focusing more on maintenance of the existing infrastructure – a case that also has lacked funds in the past. Currently, it coincides with a Latvian governmental initiative of reintroduction of the PPP mechanism as one of the tools to manage the requirements for a speedier public sector service development within the framework of the fiscal discipline measures of the European Union. The National Development Plan for the period from 2014 until 2020 currently contains the provision of accepting PPP as an alternative mean of developing infrastructure (Interagency coordination centre, 2014), thus opening a way for various branches of the public sector to once again try to engage in PPP-related activities, with an ultimate goal of creating the first successful large scale pilot project of PPP implementation in Latvia.

The track record for PPP project implementation stretches back to 2006, but lacks proven track record on a larger scale, required for transport infrastructure development projects, using the PPP method. Therefore, the currently renewed initiative to pursue PPP projects in infrastructure development, namely E67/A7 Rīga – Bauska – Lithuanian border (Grenctāle), section Ķekava bypass (Ministry of Transportation, 2014) construction, can be perceived as a ground-breaking development in this area, and therefore a high degree of preparation is required on behalf of the public sector to successfully execute the said procurement procedure, and to draw on previous mistakes and experience of other countries, rather than risk unsuccessful implementation. The lack of comprehensive experience in implementation of large-scale PPP projects poses a threat of establishing a negative track record due to unsuccessful implementation of such pilot projects, thus hindering the chances of the concept as such to find a lasting position within the financing tools of the public sector in Latvia. Use of past experience of previous projects and other countries in the implementation process would allow the public sector not only to reach the designated policy goals, but also to do it by creating more value for the general public with less consumption of public resources that would be perceived as success by all stakeholders. Recent experience from the implementation of large-scale PPP projects also shows the importance of various factors in the planning and decision-making procedure about the actual implementation mechanism, as well as

the intended benefits of implementation of large-scale projects, due to the future impact any of such projects have. Therefore, we have come to the following research questions:

- (1) What are the critical success factors of PPP in Latvia, which enable the public partner to reach the intended benefits for all PPP stakeholders?
- (2) What would be the most appropriate PPP model to use in the Latvian social and economic environment, if any?

Answering the stated research questions allows summarizing the key criteria a potential PPP development should confirm with, in order to reach the optimal success rate, and avoid the pitfalls of previously unsuccessful projects both locally and internationally, and provide potential policy makers with a road map for a long term sustainable use of the beneficial effects of PPP implementation, by allowing a choice of the most appropriate solutions that suit the local needs, and win hearts and minds of the public. Furthermore, this potential road map could also be used in order to explore potential PPP implementation in other public service sectors, probably, after the first successful experience, gained from the pilot projects of large scale PPP implementation. A successful PPP project encompasses both the benefits of the public sector from project implementation, but also allows the private sector to receive the intended benefits from the project implementation, as well as serve the needs and requirements of all stakeholders.

A comparative analysis of seven cases from three different countries, identifying potentially critical success factors, as well as semi-structured interviews with industry experts in Latvia, localizing the factors, according to local social economic context, was used in order to seek answers to the established research questions of this paper.

Main finding of this paper feature a list of factors that are perceived as critical to PPP project success in general, by researchers, and a localized list of critical success factors in the local Latvian social and economic environment, from the perspective of various shareholders, which include both public sector, private sector, financial markets and various other stakeholders. The list of critical success factors identify the necessity of an enabling policy and need for competence across the board of all involved parties, as well as stable macro-economic environment, but also includes additional project-specific factors. Also, as a result of the research, optimal implementation model has been identified, in regards to the financing of a PPP project in Latvia.

The structure of this research paper contains the following sections – section two reflects on the theoretical research of the PPP concept as such, which briefly explains both the mechanism of action and the basic models available for the public sector to use, and also on the research and statistics done on the success of past PPP projects outside Latvia, section three describes the methodology used for both case selection and identification of structured interview respondents, as well as information interpretation guidelines, sections four and five contain information of research findings, interpretation of research results and conclusions, based on research results.

2. Literature review

Due to the fact that Public Private Partnership as a research topic is described in numerous books and academic papers using different definitions, according to features of regional legal norms, in this work we used the definition described in “Public-Private Partnerships” by Yescombe. According to this source, PPPs have the following key elements:

- a long-term contract (a “PPP Contract”) between a public-sector party and a private-sector party;
- for the design, construction, financing, and operation of public infrastructure (the “Facility”) by the private-sector party;
- with payments over the life of the PPP Contract to the private-sector party for the use of the Facility, made either by the public-sector party or by the generic public as users of the Facility; and
- with the Facility remaining in the public-sector ownership, or reverting to public-sector ownership at the end of the PPP Contract (2007).

It is important to distinguish between PPP and Public-Sector Procurement, where typically the public sector defines its requirements for the infrastructure or purchase object, and usually designs it as well, and also procures the supply or the construction of the infrastructure object, as well as provides the financing, undertaking financial liabilities to pay to a private-sector contractor for the delivered services (Yescombe, 2007). Cost of construction is fully funded by the public sector, it is also responsible for operation and maintenance of the infrastructure, and the private-party is not responsible for long-term condition of the infrastructure after the expiration of the construction warranty period. In the case of PPP, the project design, finance, construction and operations of the infrastructure are managed by the private sector.

Private sector normally organizes a specialized entity, called a “special-purpose company” (Yescombe, 2007), also known as special purpose vehicle, in order to undertake the long-term liabilities of a PPP contract. The public sector “specifies its requirements in terms of ‘outputs’” (Yescombe, 2007), which basically sets the base line description of the required services the said infrastructure must provide to the general public, and the private sector is given a certain freedom to decide on the means of providing said services and maintaining an acceptable level of service quality, allowing

to freely choose both the design and operating principles, as well as financing of the whole operation. According to Yescombe,

The Project Company receives payments (‘Service Fees’) over the life of the PPP Contract (perhaps 25 years on average) on a pre-agreed basis, which is intended to repay the financing costs and give a return to investors. The Service Fees are subject to deductions for failure to meet output specifications, and there are no generally extra allowances for cost overruns, which occur during construction or operation of the Facility (2007).

As a result, substantial amount of risks are transferred from the public sector to the private sector, namely:

- “costs of design and construction of the Facility, and
- market demand for the Facility (usage), or
- service provided by the Facility (including its availability for use), and
- the Facility’s operation and maintenance costs (Yescombe, 2007)

This type of PPP is known as concession: that is, a ‘user pays’ model in which a private-sector party is authorized to charge end users direct fees for using the infrastructure, built by the private partner, for example a toll payment for using a section of a road, highway or tunnel. The toll revenues allow the private partner to compensate for construction, operation and financing costs, and the infrastructure is handed over to the public partner at the end of the concession contract (Yescombe, 2007). Tolls calculation mechanism provides several options for the public partner to choose from, in order to incorporate in the requirements:

- Fixed toll payment, with an indexing option under special circumstances, like inflation.
- Flexible toll payment, depending on payment level infrastructure users may accept.
- Set by public partner, and dependant on wider policy goals (Yescombe, 2007).

Another type of PPP, which is reviewed in this work, is the Private Finance Initiative (PFI). “Payments from the Public Authority are still based on usage by drivers, through so-called ‘Shadow Tolls’, i.e. a fixed schedule of payments by the Public Authority per driver/kilometre” (Yescombe, 2007). In this model the public sector is the

main purchaser of the services provided by the private partner (European PPP Expertise Centre, 2014). In some countries PPP model is called by PFI, thus identifying its difference from a Concession. However, for the purpose of this paper, PPP was used for the general concepts covering both models.

Depending on the level of public-sector involvement in the Facility, there are several major types of PPP distinguished. These types mostly are differed by the moment of Facility's ownership transfer between parties:

- Design-Build-Finance-Operate (DBFO);
- Build-Transfer-Operate (BTO);
- Build-Operate-Transfer (BOT);
- Build-Own-Operate (BOO) (Yescombe, 2007).

These types are reflected in the table A.1 of Appendix A. In case of DBFO, the public sector keeps ownership of the Facility all the time and the private sector does not have ownership rights. In case of BOT, the private sector owns the Facility during the construction period, but after that ownership transfers to the public sector. In case of BOT, ownership of the Facility belongs to the private sector during the Contract, but transfers to the public sector only after Contract's termination. And BOO means that Facility does not transfer to the Public partner at the end of the Contract in BOO type of partnership. Ownership may be realized in the form of a joint venture between parties (Yescombe, 2007).

Sometimes the factual cash flow, generated by the Concession object doesn't meet the projected level, and then the Public Authority may support the project in different ways, such as:

- capex contributions, e.g. grants or equity investments;
- revenue guarantees, by a fixed subsidy towards operating costs;
- subsidies; or
- debt guarantees.

From other hand, Public partner may have a possibility to limit the revenues generated by the Facility. There are number of variants how this possibility may be realized, like capping revenues (Shadow Tolls), sharing surplus revenues, using some additional fees etc. (Yescombe, 2007).

A number of various research papers about PPP concept implementations and its success have been developed in different geographical environments and during different stages of PPP concept adoption and project life cycle. Research in development countries like Uganda has shown “a competitive procurement process, a well-organized private sector, availability of competent personnel to participate in PPP project implementation, and good governance” (Alinaitwe & Ayesiga, 2013) as critical factors in such social economic environment. While we agree that these findings are also relevant for Latvia, some obvious conceptual differences between the countries, such as territorial location, climatic factor, level of country and financial sector development and others are apparent and were considered during our research.

A more relevant research has been conducted by the Finnish Transport Agency in 2013 on PPP usage in Finland, and researchers P. Papaioannou and M. Peleka in 2006 on PPP usage in Greece. Geographical, social and economic considerations, as membership in the European Union, were taken into consideration, when choosing these countries as a referencing point for current Latvian PPP experience in transport infrastructure. Finnish PPP experience shows that the model has been used on four infrastructure projects in Finland, while in the case of Greece, the focus points are three large-scale traffic infrastructure projects. The authors of these reports focus their analysis on the stages of project implementation and identifications the successful and failed decisions of all parties involved during various phases of PPP project implementation.

The initial adoption of the PPP financing model was based on the assumption of the private sector superior efficiency and the know-how of the private sector (Hare, 2013), under the circumstances of limited budgetary fund availability for infrastructure and public sector service facility development, as in the United Kingdom during the early emergence stage of PPP concept in the 1980s. In 2014, retrospectively, it is possible to assess both the impact of the use of this public infrastructure development method and the lessons that can be learned from the practical examples. Minding the long-term nature of a traditional PPP project, where a typical PPP contract is valid for around 25 years, currently it is possible to observe the historical performance of such projects and benchmark the performance of the private sector in their new quasi-public duties. The researchers argue that some of the initial prerogatives of the PPP concept have not been met in full in at least some part of the whole project pipeline, since comparison of PPP contract and traditional procurement contract implementation costs are highly different - up to 24% higher for PPP projects (Blanc-Brude & Goldsmith & Valila, 2009), and not

all PPP projects have been successful due to poor performance of the private sector in their public-sector duties due to an array of different causes. Nevertheless, it has also been identified that the increased price level is the market premium for the risk mitigation the public sector obtains by contracting the private sector to supply some of the traditionally public services, mainly through on-time and on-budget delivery, which has been identified as a weak point in public sector traditional procurements, or in some cases – a catalyst for development of public sector performance and efficiency improvements in order to match those of the private sector (Hare, 2013). Therefore, some of the countries have benefitted not only directly from the implementation of the PPP models, but also from a collateral impact of increased organizational efficiency.

Another important aspect of the use of PPP models in infrastructure development is the consideration of off-balance liabilities for the public sector, which, as with the United Kingdom in the 1980s, is still a valid argument for developing European countries like Latvia. Paired with harsh fiscal discipline liabilities, use of the PPP model allows the public sector to compensate the lack of public funding (Akitoby, Hemming, Schwartz, 2007) for some of the key public service areas without compromising the undertakings towards international partners, for example European Union, or during the economic downturn – International Monetary Fund. Even further, international experience has shown that the private sector has employed innovative project financing options (Hare, 2013), thus allowing exhibition of the anticipated private sector superior efficiency. Local examples of cost overruns in public sector procurement contracts have notoriously damaged the reputation of the private sector's ability to manage and execute risk mitigation on a large scale, therefore PPP currently be seen as a favourable option, if properly communicated to all stakeholders (Murray, 2007), and also beneficial from the public sector balance perspective, due to the accounting position of such projects.

For a large scale pilot project, in order to establish a track record for PPP projects, which will enable the public sector to obtain more favourable financing options in future projects due to successful precedents, as lenders review the overall risk of the target country (Interagency Country Exposure Review Committee, 1998), the public sector must utilize all the available resources in order to reach the maximum beneficial effect, by creating common understanding for all stakeholders in critical areas (De Clerck, Demeulemeester, Herroelen, 2012), such as economic viability, appropriate risk allocation, sufficient private sector expertise (Zhang, 2005). This leads to the necessity to identify the success factors of a potential PPP project in Latvia, to both ensure the best

performance on behalf of the public sector in the preparation process for a path finding project that most probably will impact all future large scale projects, and avoid the pitfalls of the previous attempts to implement large scale PPP projects. Identified as the “few areas of activity in which favourable results are absolutely necessary in order to reach goals” (Rockart, 1982), the study of this paper focuses on the country-specific factors, drawn from the previous experience with large scale local PPP project attempts, and successful and unsuccessful projects of comparable size in other countries, where both positive and negative effects of the PPP model have already been observed (Leviäkangas & Ojala, 2011).

3. Methodology

In this section research methods and the scope of the research is described, in order to establish boundaries of this paper.

In order to achieve the goals of this paper, it is critical to also define the scope and boundaries of success, as perceived by the authors, and project success. In general, success is defined as a favourable or desired outcome (Merriam-Webster, 2015), but in more specific project terms, success can be defined as a favourable result, if the actual performance of the project is compared to “its targeted performance regarding the classical criteria of budget, time and functionality” (Gemunden, 2015), and by also adding additional dimensions of measures and actually measuring the performance regarding additional aspects of stakeholders, by reviewing the sustainability and stakeholder perception, exploitation, by reviewing the actual exploitation of project outputs, and strategy, by reviewing the value contribution of projects to strategic goals (Gemunden, 2015). Development of such understanding of project success leads to a more clear definition, which states that project success, an important measure to reach the goals, defined in this paper, is “meeting wider business and enterprise goals as defined by key stakeholders” (Serrador, Turner, 2015). Critical success factors can be then described as “events, circumstances, conditions or activities that require special attention because of their significance” (Dickinson, Ferguson, Sircar, 1984) to the process or the party involved in the implementation of a certain project, attributing to the overall success of the project, as defined earlier, or variable that impacts the process and should be observed both before and during the implementation process (Gomes, Angwin, Weber, Yedidia Tarba, 2013).

In this paper, we described the theory of successful combination of factors, which would lead to a desirable outcome. As an approach for holding of this research we used the Deductive theory (Bryman & Bell, 2011).

Choosing a research design we considered limited availability of information about typical cases, which would provide adequate information regarding the research topic narrowed by the research questions. In these conditions we chose multiple-case approach, also known as the “Comparative design” (Bryman & Bell, 2011). Each typical case fact and findings was defined and compared by qualitative methods, with the level of analysis focused on organizations and societies.

Since the worldwide history of PPP practice is comparatively long, it contains a quite significant amount of publicly available case materials about projects, which are

related to various industries, regions, models, implementation status, degree of success etc. Therefore, considering the research topic, we narrowed case study research to infrastructure industry, preferably, traffic infrastructure projects. Motivation of choosing this particular industry is connected to the current Latvian government intention to launch road construction project E67/A7 Rīga – Bauska – Lithuanian border (Grenctāle) using PPP model (Ministry of Transportation, 2013; Ministry of Transportation 2014). Currently this project is not announced for bidding, and public authorities have engaged in discussions about the most appropriate model and partnership conditions. Sufficient amount of information, presence of similar conditions in this industry among different countries, such as: climate impermanent conditions, end-user direct concerns, financing availability, significance for economic development of the State, availability of international experience and specialized public executors, made choice for analysis of this particular industry logical.

Regions for case studies were chosen according to our intent to analyse cases implemented in countries with similar climate conditions, level of economic and legal development, availability of implemented projects, not significant cultural differences, therefore cases from European Union countries were chosen for analysis. We also found it necessary to research not only fully implemented and successful cases, but also to analyse cases of different implementation status and level of success; consequently, negative experience has also been analysed in order to be more objective and critical in testing and formulating of the conclusions.

Taking into consideration the above-mentioned case selection parameters, the following cases were selected for analysis in this paper:

- Highway 4 Järvenpää-Lahti (Finland);
- Highway E18 Muurla-Lohja (Finland);
- Police speed cameras (Latvia);
- Highway E77 Rīga-Sēnīte (Latvia);
- Attiki Odos Tollway (Greece);
- Rion - Antirion Bridge (Greece);
- Thessaloniki Submerged Arterial (Greece).

Along with Latvia, Finland and Greece were chosen as countries for the case selection according to the already mentioned stated regional criteria. “Highway 4” and

“Highway E18” cases were selected because they represent two of Finland’s recent projects with successful outcome. Besides, “Highway 4” represents a project where the PPP contract has expired in 2012, and project of “Highway E18” is on its operational stage, which will expire in 2029. “Police speed cameras” case represents a project with a negative outcome, which was terminated during its operation period; and the other Latvia’s case – “Highway E77” represents a project, which was suspended in its tender stage. There are also three cases from Greece analysed with different outcomes and execution periods.

As another qualitative method in this work, we used semi-structured interviews with specific Latvian experts, whose experience or current duties are directly related to the PPP topic in Latvia. These experts represent different stakeholders’ perspectives, taking into consideration their current occupation and experience and participation in PPP project implementation in Latvia. In accordance with these requirements we selected 12 experts in total. The list of interviewed experts is shown in Appendix C. Five of them represented or had previous experience in the public sector: the Ministry of Transport, VAS “Latvijas Valsts ceļi” (SJSC “Latvian State Roads”), the Ministry of Economics, Riga City Municipality, Latvian parliament (Saeima), and the rest represented the private sector – construction industry, consultants and financial sector, as well as various NGOs including PPP Association of Latvia and biedrība “Latvijas Ceļu būvētājs” (Association “Latvian Road Builder”).

The interview guide with number of specific questions was developed and used during the interviews, which were previously prepared for each interviewed expert, but some questions were added during the interviews in order to explain research topic or to specify additional related to the topic information, making the interviewing process flexible. The main questions, which we prepared to guide us through the interview process with every interviewee, are shown in Appendix D. All interviews were conducted in person, during March and April 2015, in Riga, Latvia.

Since one of the goals of the paper was to explore the concept of successful PPP project implementation for all stakeholders, the choice of experts was based on the basic division of the parties in the project implementation process. Basically, the first distinction made was based on the definition of the PPP concept, which involves both a public sector and a private sector representative, therefore experts of both public and private sector affairs were chosen. The main decision taking organizations as the Ministry of Transport and Latvian State Roads were included on the policy maker’s side,

also using the experience of the former Ministry of Economics specialist, to assess the public aspect of implementation, and on the private side, both interested parties, such as representative from the construction industry, financiers, such as representatives from the equity investor and banking sector, were included to assess the implications, important for these parties. Also, to assess the stakeholder effect, the authors utilized help from various NGOs, and experts with experience in working for social partners, including municipalities, which in the context of this paper play a dual role of public person and stakeholder. All experts that were interviewed for the purposes of this paper have significant experience in their respective field, and are well respected in the respective professional communities, also confirmed by the credentials, listed in Appendix C. The sample size has been chosen with the aim to reach an arbitrary data saturation (Mason, 2010) and therefore identify developed trends of the level of success factor evaluation, and underlying justification for such choices.

In order to collect data for analysing different international practices and approaches, we used also the desk research method, reviewed various working papers, books and academic researches, legal documents.

To have a systematic approach applying the above-mentioned methods we used a qualitative research process developed by Prasad (Bryman & Bell, 2011) (Figure 3.1).

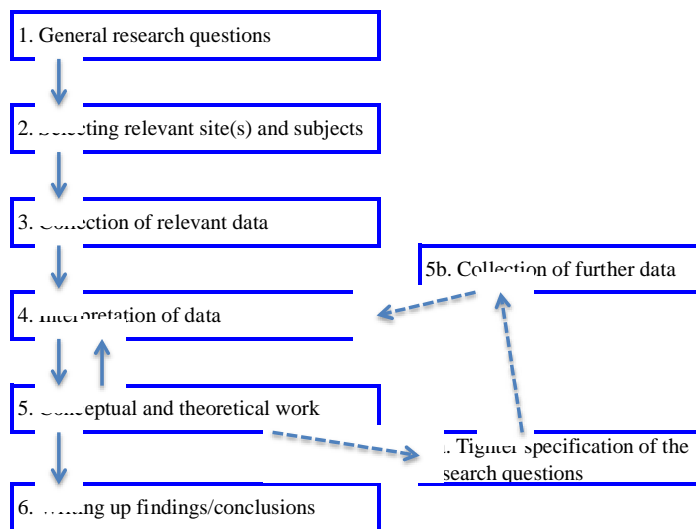


Figure 3.1 An outline of the main steps in qualitative research

Source: Bryman & Bell (2011).

Following Prasad’s qualitative research process we developed methods and outcomes process to execute this research (Figure 3.2).

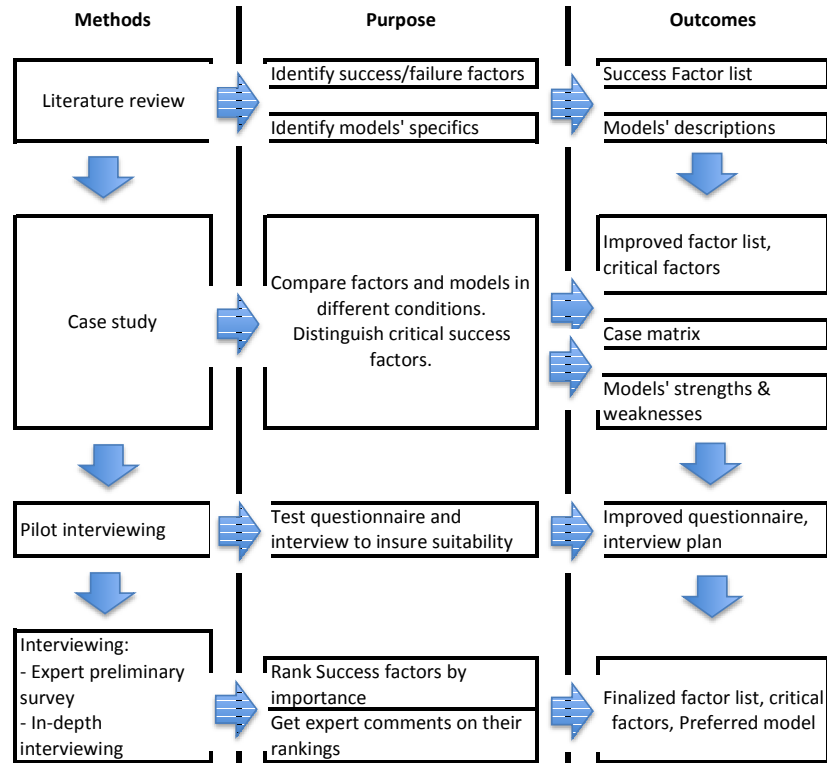


Figure 3.2. Methodology and Outcomes

Source: Developed by this paper's authors.

As Figure 3.2 shows, our research was started with a literature review, when preliminary success factor list, as well as model descriptions, were identified. The case study phase resulted in an improved factor list, identified critical factors and model strengths and weaknesses. Then we organized a pilot interview to ensure that our interviewing phase would be most effective, during this phase we improved the questionnaire and interview plan. Then the interviewing phase followed. Every interview we started by ranking a PPP success factor list using the prepared questionnaire with every interviewee. After filling the questionnaire, semi-structured in-depth interview were executed to discuss and understand experts' opinions. During every phase the collected data was analysed and structured to provide defined outcomes. By the main outcome we came to finalized critical factors and preferred payment model.

4. Analysis and discussions of results

In this section the authors introduce both the preliminary findings of theoretical analyses and literature review, and also information on case analyses, as well as finally adjusted results of the research, interpreted by authors after expert interviews.

4.1. Preliminary findings

According to the methodology, chosen for this research, which is described in the previous section, first outcomes, concluded from literature review, were:

- distinguished 23 success factors for PPP projects, formed in a list, supplemented by descriptions and sources; and
- defined payment models, based on the fundamental difference of observed theoretical PPP application models, and basic PPP contract types, based on facility ownership, facility transfer and other differences, as described in the literature review section.

This preliminary success factor list is presented in table 4.1.

#	Factors and factor descriptions.	Sources
1	Project technical feasibility. Technical requirements for procurement object aligned with public partner main goals for implementation of the project, without unclear or too complex definitions or unnecessary objectives.	Qiao, Wang, Tiong, Chan, 2001. Hardcastle, Edwards, Akintoye, Li, 2006. Alinaitwe & Ayesiga, 2013.
2	Project financial feasibility. Requirements or financial conditions aligned with relevant financial market capabilities, or private partner capabilities to produce a mutually acceptable financial offer, without unnecessary requirements that increase risk provisions.	Qiao, Wang, Tiong, Chan, 2001. Žabko, Zepa, Šūpule, Vaivode, 2010.
3	Financial capacity / ability of the parties. All parties must possess ability to not only undertake liabilities of PPP projects, but also be able to serve such liabilities on long-term basis, including	Jefferies, Gameson, Rowlinson, 2002. European PPP Expertise Centre, 2013.

	potential cash flow and refinancing challenges.	
4	Sustainable economic policy. Long term planning and setting of long-term priorities in public sector development policy, without a sharp change in priorities in mid-term.	Investment and Development Agency of Latvia, n.d. Hardcastle, Edwards, Akintoye, Li, 2006.
5	Stable macro-economic environment. Presence and quantity of geo-political risks, which could affect the project in short and long term.	Hardcastle, Edwards, Akintoye, Li, 2006.
6	Level of bureaucracy in public sector. Good governance, efficiency of public functions in various stages of the project – planning, procurement, execution, service.	Hardcastle, Edwards, Akintoye, Li, 2006.
7	Private sector development level. Availability of certain level of national business services, to avoid importing most services, e.g. banking products, construction services, raw material production.	Alinaitwe & Ayesiga, 2013.
8	Strong private consortia. Participation of experienced private partners with proven track record, in order to achieve most favourable results in all stages of the project, with specific PPP and large-scale construction experience.	Jefferies, Gameson, Rowlinson, 2002. Hardcastle, Edwards, Akintoye, Li, 2006.
9	Availability of competent personnel to participate in PPP project implementation. Availability of local know-how during all stages of the project, including policy-making, planning and execution of the project.	Investment and Development Agency of Latvia, n.d.
10	Stakeholders' acceptance. General acceptance of the project by society and all stakeholder groups affected by the project, with well communicated positive gains and use of proper communication	Linder, 1999. Qiao, Wang, Tiong, Chan, 2001. Hardcastle, Edwards,

	channels in order to raise stakeholder acceptance. Adequate transparency during all project stages, in order to meet stakeholder expectations both during and after the project implementation.	Akintoye, Li, 2006.
11	Presence of an enabling PPP policy. Favourable legal framework and relevant public sector priorities, e.g. PPP as a part of national development plans.	Grimsey, Lewis, 2002. Hardcastle, Edwards, Akintoye, Li, 2006. European PPP Expertise Centre, 2013.
12	Favourable policies with respect to lending for PPP construction projects. Government involvement by providing additional guarantees, grants, tax exemptions.	Grimsey, Lewis, 2002. Hardcastle, Edwards, Akintoye, Li, 2006. European PPP Expertise Centre, 2013.
13	A favourable environment for local private construction companies to compete favourably and expand compared to internationals and multinationals. A possibility to develop local construction industry and retain the bulk of economic turnover in the national economy, achieving a multiplier effect.	Alinaitwe & Ayesiga, 2013.
14	Risk allocation and risk sharing between public and private partners. <ul style="list-style-type: none"> • Technical risk, due to engineering, project assignment and design failures; • Construction risk because of faulty construction techniques and cost escalation and delays in construction; • Operating risk, as a result of higher operating costs and maintenance costs; • Revenue risk, e.g. because of traffic shortfall 	Qiao, Wang, Tiong, Chan, 2001. Grimsey, Lewis, 2002. Hardcastle, Edwards, Akintoye, Li, 2006. De Clerck, Demeulemeester, Herroelen, 2012.

	<p>or failure to extract resources, the volatility of prices and demand for products and services sold (e.g. minerals, office space, etc.), leading to revenue deficiency;</p> <ul style="list-style-type: none"> • Financial risks arising from inadequate hedging of revenue flow and financing costs; • Force majeure risk, involving war and other calamities and acts of God; • Regulatory/political risks, resulting from planning changes, legal changes and unsupportive government policies; • Environmental risks because of adverse environmental impacts and hazards; • Project default due to failure of the project from a combination of any of the above. 	
15	<p>Transparency in the procurement process. Corruption factor. Timely and openly announced bidding procedure allows attracting more potential bidders in order to increase competition and depth of field. Competitive procurement process.</p>	<p>Jefferies, Gameson, Rowlinson, 2002. Hardcastle, Edwards, Akintoye, Li, 2006. De Clerck, Demeulemeester, Herroelen, 2012.</p>
16	<p>Commitment of all of the parties. Stable and intensive willingness to seek for mutually beneficial solutions of all of the parties.</p>	<p>Kanter, 1999. Hardcastle, Edwards, Akintoye, Li, 2006. European PPP Expertise Centre, 2013. Žabko, Zepa, Šūpule, Vaivode, 2010.</p>
17	<p>Involvement of all of the key parties during project planning. Minimization of possibility of</p>	<p>Jefferies, Gameson and Rowlinson, 2002.</p>

	some unexpected factors evolving during the implementation phase, not considered during planning phase, like civil unrest.	
18	Thorough and realistic cost/benefit assessment of the projects involved. Assessment whether the economic effect of the implementation of the project does satisfy the needs of majority.	Hardcastle, Edwards, Akintoye, Li, 2006. European PPP Expertise Centre, 2011.
19	Transparent and clear project appraisal policy. Setting of public policy goals and PPP implementation decisions, based on interests of all stakeholders.	European PPP Expertise Centre, 2011.
20	Strong monitoring and evaluation system for the projects implemented. Strong monitoring and evaluation teams for the projects implemented. Proper recording, archiving and referencing for future planning purposes.	Alinaitwe & Ayesiga, 2013. European PPP Expertise Centre, 2011.
21	Willingness to share authority amongst the parties. Private partner's involvement in processes and provision of services usually associated with public person's duties.	Kanter, 1999. Hardcastle, Edwards, Akintoye, Li, 2006. Alinaitwe & Ayesiga, 2013.
22	Technology transfer. Willingness to share knowledge and technology in order to use it within the partnership and after the end of the project, in case of specific public partner requirements.	Qiao, Wang, Tiong, Chan, 2001. Jefferies, Gameson and Rowlinson, 2002. Alinaitwe & Ayesiga, 2013.
23	General knowledge about PPP concept and mechanism of action. Availability of information about PPP experience in the stakeholder environment.	Investment and Development Agency of Latvia, n.d. Qiao, Wang, Tiong, Chan, 2001.

Table 4.1. Preliminary success factor definition list for PPP implementation based on literature review.

Source: Developed by the authors of this paper.

4.2. Case study

The second step was using the initial factor list that was based on theoretical research of relevant theoretical sources, and applying this list to execute a multi-case comparative analysis of seven cases. The application of identified success factors allowed comparing cases on a consistent basis, with the aim to identify, which of the factors attributed to the success or failure of each of the cases.

To analyse factors, which influenced case outcomes, seven cases were selected, which represent experience of Finland, Greece and Latvia – countries, which were chosen for case study according to case selection parameters mentioned in the Methodology section.

4.2.1. Highway 4 Järvenpää-Lahti, Finland

Case is about construction of 70 km of 4-lane motorway utilizing the existing 2-lane road. The project also included 88 new bridges. (Finnish Transport Agency, 2013). It was the first Finnish infrastructure project procured using the PPP model. Build-Operate-Transfer (BOT) was used as the type partnership contracts, which was signed in 1997. The total value of this contract was approximately 240 MEUR. The contract expired in 2012, and the road was returned to the Finnish Transport Agency. This means that the project has reached the hand-back phase and is successfully finished. The total period of the contract was 15 years, from which for 2.5 years it was in construction phase and the term of 13 years was operational period. During the 4 months (1996-1997) before the contract was signed, there was a bidding and negotiation period. In this case, the Public partner defined the following basic criteria for offer evaluation: quality - 10% and price - 90%. The bidding and negotiation phase was evaluated as successful, mainly because of quantity of the bidders and the fact that Public partner took bidders' critical requirements into account during the negotiation process. The participants included experienced and well-known contractors and financiers. The shadow toll payment mechanism was used in this case. The payment system was based on vehicle volumes on the road segments. Some availability deductions were provided, if

the road or some of its segments were not in use due to some reason, like obstacles on the road, which reduced speed limit. Another important factor, which was considered in the agreed payment system, was the service level – it was measured by the quality of road operations and maintenance, and an exact deduction mechanism was developed as well for the situation where the Private partner would demonstrate lack of service quality. As one of important conditions from the point of view of risk allocation, traffic volume risk was included. It is likewise important to note that the hand-back process started 3 years before the contract expiration and thereby all the possible issues were eliminated to the time of hand-back. This case represents notably overall efficient organization and good collaboration between partners.

4.2.2. E18 Muurla-Lohja, Finland

This was a project where 51.3 km of motorway, 12.5 km of other public roads and 27.1 km of private roads were constructed. The motorway has seven tunnels with the total length of 5.2 km and eight interchanges. General information about this case was taken from the Finnish Transport Agency's Public Private Partnership Review (Finnish Transport Agency, 2013). BOT type of contract was used for this partnership. The project started in January 2004 with a bidding phase, and in October 2005 the parties signed the Contract for 24 years of cooperation, from which 3 years of construction period and 21 years of operational period. The Facility's transfer is planned at the moment of the Contract's termination, which will happen in 2029. The total value of this contract is 700 MEUR. The public partner used "quality -10% and price - 90%" criteria as offers' evaluation approach. In this case, also the shadow toll payment mechanism was used, and the payment system was based on the infrastructure's availability and performance. The private partner's solution commercially quite aggressive, considering the fact that construction costs were rising above expectations. In addition to that, the traffic control system was offered also on a very high technical level, taking responsibility for meeting specific standards. This led to a slight delay in the completion of the project and even partially damaged the relationship between the parties. Another issue met by the partners during the operational phase: they were pushed to review documentation of the payment mechanism due to disputes in its interpretation.

4.2.3. Attiki Odos Tollway, Greece

Represents a case about 65km road construction, including 18 tunnels and 32 urban interchanges. The case describes the BOT type of contract. The bidding and negotiations phase was 7 years long, from 1990 to 1997. The total contract value was

about 1244 MEUR. The contract will expire in 2027, after 7 years of the construction phase and 23 years of the operational phase. A Flat Toll payment model is used for this project. In this case during the construction phase several archaeological findings occurred, what caused delays and cost overruns. The contract includes special conditions of an early termination in case the rate of return on equity reaches 13.1%. But at the same time, the contract architecture does not contain incentives for reducing the operating and maintenance expenses. This leads to excess spending from the private partner's side thus avoiding an early termination of the contract (Papaioannou & Peleka, 2006).

4.2.4. Rion - Antirion Bridge, Greece

The bridge is 2.8 km long and the deepest bridge foundation in the world (Papaioannou & Peleka, 2006). After 5 years of bidding period (1991-1996), this project of BOT type partnership includes 8 years of construction period and 42 years of operational period. Its total value is 800 MEUR. The Flat Toll payment model is used for this project. This contract also contains an early termination clause, which means that the object is transferred in case of the shareholders' nominal return exceeding the 11.5% threshold (Papaioannou & Peleka, 2006).

4.2.5. Thessaloniki Submerged Arterial, Greece

The project is a 6.5 km arterial street of which 2.5 km is a tunnel under the sea level. The bidding period was 7 years long (2000-2007). The contract is signed for 30 years of BOT type partnership. The total cost of this project is evaluated for 450 MEUR. The Flat Toll charging method was used for this agreement. An early termination of the contract will take place, if the rate of return on equity reaches 4%.

All three above-described Greece infrastructure cases had in common a lack of experience and competence of all parties and on all project phases, despite inviting experienced and well-known constructors and financiers to participate. This fact usually caused enormous delays in project execution and extremely comprehensive documentation. It also influenced relatively long bidding and negotiation periods (Papaioannou & Peleka, 2006).

4.2.6. Highway E77 Rīga-Sēnīte, Latvia

Case represents a project, which was started in 2007 with the bidding and negotiation phase, but cancelled in 2010 without reaching an agreement (Procurement Monitoring Bureau, 2010). For Latvia, it was a pilot project (large scale) without a previous track record. It used the existing road infrastructure ('brownfield' project) as base, having fewer risks than 'greenfield' projects. The risk allocation issue was

discussed between public and private partners, deepening the negotiations during the tender stage on too much risk allocation towards private partner that can impact the final price. Also, the actual State procurement procedure of that time was not well suited for PPP purposes. Financial requirements were not sustainable in the financial environment of that time. The State economic policy was changed sharply after government re-elections, which was also caused by the global economic crisis developing during that period of time. The project total value was evaluated at 185 MEUR. All participants included experienced and well-known contractors and financiers, but the lack of understanding of PPP principles led to lack of project acceptance due to the higher initial contract cost. The initial cost of the project was considered to be too high, also because the construction market conditions were not favourable at that time. The shadow toll payment method was going to be used in this project.

4.2.7. Police speed cameras, Latvia

A project that the parties were implementing not using a PPP model, but the classic procurement in accordance with the state procurement law in 2010 (Procurement Monitoring Bureau, 2011). This case also represents an unsuccessful implementation of the partnership, where the contract was cancelled during operational phase. The aim of this project was to increase traffic safety, reduce workload for policemen and to also reduce corruption risk during 5 years of cooperation with the private partner. The payment mechanism considered redirecting 35% from the fines collected by the State authority to the private partner. And the bid evaluation criteria for this project were related to the smallest share of the collected fines. Technical conditions were not realistic for the private partner, causing delays in the construction phase. This case also demonstrated a strong dissatisfaction and resistance from the local society – road users, from whose fines the private partner's revenue was generated (Ministry of Interior, 2012).

We have relied on the previous research of some of the projects, as well as publicly available secondary sources to identify the key areas of important factors, which have proven to be essential for each individual project. According to our comparative multi-case analyses, we have concluded that the following success factors could be identified as being crucial, or have had significant impact on the life cycle of the individual case PPP projects:

- Project financial feasibility;

- Project technical feasibility;
- Sustainable economic policy;
- Stakeholder acceptance;
- Appropriate risk sharing and risk allocation;
- Transparency in the procurement procedure.

It is important to note that “Appropriate risk sharing and risk allocation” was the most common success factor, identified by researchers; therefore, we explored this concept further, and established a more detailed breakdown of this factor, since the general term encompasses too many critical areas without exploring each individual subcategory and its relevance to the Latvian environment. For the purpose of general decision-making, success factor for “Appropriate risk sharing and risk allocation” was rated, using discussions on all subcategories, since each single subcategory does not reflect the whole scope of this factor.

Comparative multi-case analyses allowed us to reach two tactical goals – firstly, to test the preliminary success factor list against real life cases and scenarios that were deliberately chosen to include both positive and negative PPP project experience, also both locally, in Latvia, and regionally – in Europe, and secondly, to improve the preliminary factor list with both definitions and descriptions of the success factors, in order to achieve a higher degree of suitability for the last stage of the research of success factors – testing of the success factor list by exposing it to evaluation, grading by and discussion among industry experts – representatives of key stakeholders, in order to achieve the goal of obtaining a list of critical success factors that are most relevant to the local business and social environment in Latvia.

4.3. Critical success factors for PPP implementation in Latvia

Although the results of the research do not provide a definitive road map for implementation of PPP projects in Latvian business environment for transport infrastructure development, it does provide an insight in the application of both international practice and previous local experience for a more successful next chapter of PPP initiative developments, and the potential drivers for positive development in this field. The previous experience in implementation of PPP projects in Latvia indicates the need to address potential failure risks before and during all phases of PPP implementation, starting from the planning phase, in order to avoid previous pitfalls and

ensure a smooth and mutually beneficial implementation of PPP initiatives. Thus the need to define critical success factors for infrastructure PPP projects in Latvia, based on the local social economic environment and comparative analyses of both relevant best practices and failures to successfully implement PPP, was identified and set as the primary goal of this paper.

The following success factors were chosen by the authors of this paper as to be critical for PPP project implementation in transport infrastructure, in the specific Latvian context. The factors have been further grouped according to their impact on particular PPP project implementation:

4.3.1. General factors

4.3.1.1. Availability of competent personnel to participate in PPP project implementation

Availability of competent personnel to participate in PPP project implementation as ability to attract skilled specialists during all phases of project planning and project implementation, including preparation of tender documentation, pre-tender negotiations, tender phase, tender review and actual project implementation, heavily influences the chances of project success, due to the impact on all aspects of the project life. Lack of competence in the project planning stage, or even as early as feasibility study stage, may lead to choosing the wrong project, as in case of E77 (A. Matīss, 2015), which may attribute to project failure, and lack of competence during preparation of tender documentation stage may also lead to decreased quality and depth of competitor field (A. Pārups, 2015) and increased risk of rejection from the financial sector to finance the project, or an unnecessary increase in financing costs, due to uncertainty and following risk provisions (Expert No. 3, 2015).

4.3.1.2. Presence of an enabling PPP policy

Mostly viewed as a political and legislative factor, the presence of an enabling PPP policy ranges from the actual existence of a legal framework that enables the public sector to engage in PPP project activities, to existence of a political will and acceptance of the use of PPP as a public infrastructure development tool. A certain enabling political stance is crucial for the project during the entire project life cycle, as presence of the enabling political stance is a critical prerequisite to project success, and without such stance the project implementation is impossible (E. Strods, 2015; Z. Brunavs, 2015); and it is especially crucial during the tender stage, up to final closing of the deal, as the

procurement procedure may be terminated at any stage, in which case there is also a chance of a large-scale reputation and trust-related issues from the private sector, due to public sector inconsistency (A. Pārups, 2015). In the particular case of transport infrastructure PPP projects in Latvia, the success of a set of pilot projects would not only lay foundation for a positive track record in PPP implementation that would attract a larger range of competitors, but also form precedents for a legal framework of actual use and application, as the current legal framework has been left untested (A. Pārups, 2015) in practice, that would benefit the cost/benefit ratio of any particular project.

4.3.1.3. Financial capacity / ability of the parties

Financial capacity or financial abilities of the parties have been identified as a crucial factor due to the impact of this factor on the long-term effect of a PPP project, both in the public and the private sector. On the public sector side, the commitment a public partner makes in a PPP project has a horizon of 20 to 30 years, with a certain amount of financial liabilities, arising from such a long term contract, which affects public sector budget, ability to attract additional revenues and implement additional development projects. For example, the Netherlands spend around 20% of their yearly road maintenance budget on payments to private partners for PPP project services, whereas the optimal level of spending of road maintenance budget for PPP purposes is evaluated at 10-15% (A. Matīss, 2015), as any additional expenses could seriously impact the ability to finance routine maintenance of the transport infrastructure. Municipalities, as potential target group for PPP project implementation, must also align their needs and financial possibilities, in order to achieve a long term balance between long term commitment and short term needs. The private sector, upon entering a long term commitment as part of a PPP project, must also possess the ability to compensate for short term fluctuations in cash flows or other operational setbacks, in order to be able to maintain the quality of services, agreed according to the PPP contract, which also leads to the discussion on private partner's stability, experience and competence during all stages of project implementation.

4.3.1.4. Stable macro-economic environment

Stable macro-economic environment is a crucial factor due to its dual impact on PPP project implementation, or any other large-scale development decision. Firstly, a stable economic environment allows the public sector to understand its capabilities more clearly and to make plans in a longer term, thus enabling the public sector also to commit

to PPP projects with underlying long-term commitments such projects contain. Secondly, in a stable macro-economic environment the financial markets look more favourably towards Latvia, allowing the public sector to plan for lower PPP implementation costs due to lower financing costs and less country-specific risk provisions. The current macro-economic environment has even been valued as favourable to PPP implementation in Latvia due to quantitative easing and investor activity in the infrastructure sector (Expert No. 3, 2015).

4.3.2. Project-specific factors

4.3.2.1. Project financial feasibility

Project financial feasibility emerged as the most commonly mentioned and discussed success factor from the list of the identified success factors that was detected by both authors of this paper and the experts, and valued as essential for project success (A. Bērziņš, 2015). Based on the definition, set by the authors, this factor defines the boundaries of the financial requirements for the project, and their alignment with the purpose of the PPP project and any underlying cost/benefit analyses, conducted for the purposes of the project in question. The impact of decisions, made during the planning phase of the project, that increase the complexity of financial requirements for the project, may heavily impact the risk appetite of the private partner and also the risk provisions, included in the financing options from the financial sector (Expert No. 3, 2015). As additional risk provisions generally impact the price of the available project funding, the public sector's benefits from increased requirements are outweighed by the potential increase of project costs, due to the uncertainty of the project requirements in the financial sector. Inclusion of various long term options, or requiring financial commitments from the private partner or the financial sector, may be viewed as beneficial for the public partner in a short term, or if reviewed out of a broader context, but in fact any cost, arising from exaggerated or unnecessary requirements would either have to be reimbursed by the public sector and ultimately the society, or it would cause a potential project failure due to the lack of financing or private sector initiative (Expert No. 3, 2015), as in the case of E77 project (see Section 4.2). Therefore, PPP project goals and requirements from the private partner have to be ambitious, but also proportionate to the costs of such requirements (A. Matīss, 2015), and involvement in the planning and tender preparation stage of key parties – private partner and financial sector, is viewed as

beneficial (A. Pārups, 2015), enabling public partner to rectify and minimize the negative impact of this factor towards failure of the project goals (A. Matīss, 2015).

4.3.2.2. Project technical feasibility

Project technical feasibility has been identified as critical due the impact of this factor on the actual work assignment in a PPP project. Additional requirements exceeding policy goals, unnecessary technological features all impact the cost of the project, as well as too uncertain work assignment of public sector requirements. In short, the public sector should be able, with the input from the previously identified critical success factors of PPP competence, to identify and specify public sector needs and to formulate such needs and requirements in a clear, descriptive way that allows the private sector and the financial sector to clearly identify all the requirements associated with this task. Also, the public sector is encouraged to limit their requirements to their actual needs (E. Strods, 2015) and avoid the temptation to include too much technical risk provision in the work assignment, due to the financing options and the lack of need to pay for the project straight away in full amount. The intensity of usage must be forecasted with great precision during the preparation stage (A. Matīss, 2015), as discrepancies in key requirements can lead to increased private partner risks and increased project and financing costs.

4.3.2.3. Thorough and realistic cost/benefit assessment of the projects involved

Cost/benefit assessment is a critical factor for project success in a larger framework of PPP policy and public sector goals for certain period or industry. A cost/benefit assessment should form the foundation for any PPP-related decision (A. Pārups, 2015), which in turn also need the input from one of the general critical success factors – availability of competence in the public sector, in order to align public sector goals and capabilities with the idea of PPP use in order to achieve a beneficial result, based on economic and financial evaluation (A. Matīss, 2015). Therefore, the use of PPP financing mechanism, which is perceived as a more costly option for infrastructure development (E. Strods, 2015) has to be justified, in order to convince all key stakeholders about the benefits such long-term commitment generates for all parties involved.

4.3.2.4. Appropriate risk allocation and risk sharing between public and private partners

Seen as one of the critical factors, appropriate risk allocation and risk sharing between public and private partners is also the most controversial factor due to the sensitivity and opinion bias, based on the representation of the experts surveyed. Compromised by a larger quantity of individual risk factors, the risk profile of project is essential and critical to all parties involved, in order to attain a mutually acceptable and successful result. The public sector acknowledges the impact of the project risk profile on the tender prices from the private partner, but it also stresses the importance of not transferring too much risk from the private partner, by stating that each party should undertake risks the relevant party can influence (A. Matīss, 2015). For private partners, undertaking certain risks is a voluntary action, therefore too aggressive risk transfer from the public partner to the private partner may once again result in unnecessary risk provisions and risk premiums, or a rejection from the private sector to participate in a project with an unfavourable risk profile. For example, if revenue risk is not managed in a mutually acceptable manner, the private partner is not protected from long term cash flow cuts or increased operational costs, which is an essential part of private partner business case (M. Stabulniece, A. Rubene, L. Štrausa, 2015) and ability to settle liabilities towards financial sector. Traditionally, risks are managed through relevant provisions in the tender documentation, but sufficient competence for parties involved is necessary to achieve the risk balance that corresponds to both public and private sector interests.

4.4. Appropriate PPP model for application in Latvia

The second part of our research was the definition of PPP's payment model options and basic PPP contract types. As an outcome of the literature review we distinguished two basic options of payment models in PPP projects, which are normally applied during the project operational phase. The first was a direct payment model, where a private-sector party is authorized to charge end users direct fees for using the infrastructure, built by the private partner, for example a toll payment for using a section of a road, highway or tunnel. The other model was indirect payments, where payments are made by the public-sector partner on a pre-agreed fixed schedule basis, tied to infrastructure usage intensity by users, or lane availability. In the latter model the public sector is the main purchaser of the services supplied by the private partner, thus removing demand and part of the revenue risk from the agreement. Such significant division of project financing mechanism was therefore defined as the criterion for

choosing one of two available models, also offering a choice of particular operational models or agreement types, as described in Section 3. After being able to define two separate models, this choice of two models was included in both the preliminary survey of Latvian experts, and also in the context of semi-structured interviews, in order to understand the underlying motivation for each of the experts to choose one of the offered financing models.

According to the expert interview data, majority of the experts surveyed chose in favour of shadow or indirect tolling method as the most suitable for transport infrastructure PPP projects in Latvia, citing an array of different justifications for such choice. The arguments in favour of shadow tolling includes the lack of suitable alternatives for transport infrastructure, taking into consideration the current state of the transport infrastructure in Latvia, which may also affect the usage of alternative routes that may not be suited for the increased intensity of traffic due to direct tolling on key transport routes, also due to the obvious social pressure that the direct tolling may impose on the society. Another argument in favour of indirect or shadow tolling is the social perception of public sector liabilities and the degree of services, provided by the public sector – transport infrastructure development, together with internal and external security, healthcare and general education have been traditionally associated with the public sector. A change in the mechanism of such public service provision requires a certain degree of changes in the social mind-set, especially due to the fact that transport infrastructure in Latvia currently does not offer any direct tolling options, and generally speaking, stakeholders might not be convinced to directly pay a private party for services that are presumed to be included in the annual tax payments on transportation, excise and others, and also due to the poor quality of these services.

Some of the arguments in favour of direct tolling also outline the development potential for this PPP financing model as well. As one of the experts has indicated, the direct tolling mechanism would be acceptable, if a precise price adjustment process would be established, corresponding to the economic cycle of the national economy. Another suggestion in favour of the direct tolling is choosing direct tolling model for transport infrastructure PPP projects that increase the efficiency of traffic infrastructure above the normal expected level of efficiency, in order to attract consumption of the offered services from the entrepreneurial sector, by saving cost due to less downtime, faster and more efficient delivery, fuel efficiency. In a more mature PPP market, the direct tolling has also been mentioned by experts as being more lucrative for private

partners, especially equity investors, who search for additional revenues, rather than the stability approach of shadow tolling, where the maximum level of revenues is defined by the contract and based on certain required factors, in order to reach a different revenue level than expected under the contract. Experts from the financial sector also argue that the direct tolling approach in Latvia in pilot projects would not be viewed favourably by international lenders, due to the lack of experience with both the legal framework of PPP implementation in Latvia, and the ability for all parties to come to terms that are acceptable for the lenders to finance such projects, which are essentially based on the cash flow of the tolling model, usually with insufficient securities to cover any risks for the lenders. Also, as the direct tolling targets actual users of the infrastructure, this is viewed as a more favourable option in the long term, since it does not affect the part of the tax system that does not use the particular part of infrastructure, understanding that in order to achieve an established track record of project implementation, it is crucial to successfully implement one or more pilot projects, therefore the best solution in short term would be to use indirect payment methods, due to the lower revenue risk for the private partner.

No clear evidence was found during this research for the most appropriate PPP contract type, since there is insufficient data for policy makers and stakeholders due to lack of a proven track-record of actual large scale PPP project implementation, and the public sector still has to decide on the substantial project terms and risk sharing principles. Experts argue that one significant factor, affecting the choice of a relevant PPP contract type or model, is the ability to delegate the choice of the precise technical solution to public sector requirements to the private sector, which allows introduction of innovation and also stimulates the exhibition of private sector competence and potentially superior effectiveness. This argument, combined with the nature of a transport infrastructure development projects, at least on the level of national and regional state roads, managed by the Ministry of Transport, suggests that a DBFO contract type would be seen more appropriate, due to the ownership status of the facility during all project stages, and the additional possibility to delegate the choice of the means for execution of such a project to the private sector. As argued before, the importance of risk allocation is crucial in any PPP project, but in the case of DBFO it may impact the success of the project even more, due to the fact that the financial sector would have to rely on the contract between public and private sectors as their collateral for the financing they provide.

5. Conclusions

The main goal of this paper was to identify the best possible conditions for transport infrastructure public-private partnership project implementation in Latvia, by answering the following research questions - what are the critical success factors of PPP in Latvia, which enable the public partner to reach the intended benefits for all PPP stakeholders, and what would be the most appropriate PPP model to use in the Latvian social and economic environment, if any? In order to answer the questions, a review of theory was conducted in order to define project success and identify factors that attribute to the project success, as well as to identify the potential models of PPP application. The outcome of the theoretical research was then applied to a multi-case comparative study of seven transport infrastructure projects from three different countries, in order to observe the importance of identified theoretical factors in real-life cases, and to revise and optimize the list of factors, attributing to project success. The improved factor list was then applied to interviews with local Latvian experts who represented various stakeholders, affected by potential implementation of PPP, in order to obtain expert opinion on factors, critical to the local social economic environment. As a result, we obtained a list of critical success factors, identified as critical in Latvian context, backed by arguments from experts from various stakeholder groups, as well as obtained data on the choice between the two PPP models, identified as the principal choice for public sector during the planning phase of transport infrastructure PPP projects.

The list of critical success factors for transport infrastructure PPP project implementation, as well as the optimal payment model of PPP allows shortcutting the application of international best practice in PPP-related policy making and decision taking processes, and sheds a light on the key critical areas that are identified as important for various stakeholders, thus allowing the public sector, as the initiator of PPP projects, to reach the most beneficial result for all stakeholders from the implementation of PPP initiatives. By following the path of critical areas that require the most attention during the planning and implementation process of PPP projects, stakeholders must focus on the following - competence building on all levels, which includes choosing the right priorities and projects and executing said projects with skill and precision, developing of mutually acceptable project terms and requirements, with a risk allocation model, relevant to the existing social and economic environment. As a result, the public sector should be able to build also on the negative experience of both local and international PPP projects, in order to restart the PPP initiative in transport infrastructure, avoiding

previous mistakes and ensuring a development of successful pilot projects that will allow the PPP concept to find a stable place in the social economic system of Latvia, which would also attributes to the future of PPP concept application in Latvia, as the reputation and skill of the public partners have a big impact on both the availability of options to implement PPP projects, and the actual cost of the implementation.

The choice of research methods in this paper has focused on qualitative approach, employing the experience-based opinions of key stakeholder representatives, but judging from the theoretical research in this field, a quantitative approach to critical success factor identification can also be used in the future. Even though a proper quantitative research is beyond the scope of this paper, data from preliminary surveys showed promising trends and result spreads, which, if applied to a larger scope of respondents with relevant industry background and past experience, could produce research results that would supplement the results of this paper. Such quantitative research approach would be more appropriate in a period of time, when a more wide-spread set of experience and knowledge is obtained in the public sector and stakeholder groups on actual performance of large scale PPP projects, therefore such research should be applied to the stakeholder environment at least after the financial close of a pilot project, allowing the respondents to observe the actual operation of PPP concept in the target environment.

6. References

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Appendix A. Types of PPP contracts

Public project		←—————→					Private project	
		←—————→ Public-Private Partnership —————→						
Contract Type	Public-sector procurement	Franchise (Afterimage)	Design-Build-Finance-Operate (DBFO)	Built-Transfer-Operate (BTO)	Built-Operate-Transfer (BOT)	Build-Own-Operate (BOO)		
Construction	Public sector	Public sector	Private sector	Private sector	Private sector	Private sector	Private sector	
Operation	Public sector	Private sector	Private sector	Private sector	Private sector	Private sector	Private sector	
Ownership	Public sector	Public sector	Public sector	Private sector during construction, then public sector	Private sector during Contract, then public sector	Private sector	Private sector	
Who pays?	Public sector	Users	Public sector or users	Public sector or users	Public sector or users	Public sector or users	Private-sector off taker public sector, or users	
Who is paid?	N/a	Private sector	Private sector	Private sector	Private sector	Private sector	Private sector	

Table A.1. Public and private provision of infrastructure

Source: Yescombe (2007)

Appendix B. Questionnaire. Critical factors and payment model for PPP implementation in Latvia

Part I. Critical factor definition list for PPP implementation in Latvia

Please evaluate to what degree each of the listed factors affects/triggers/promotes successful implementation of transport infrastructure PPP projects in Latvia, according to a scale from 1 to 5, where “1” is presumed being “not important factor”, and “5” is presumed being “very important, affects PPP implementation greatly”.

#	Factors	Rating					Description
		1	2	3	4	5	
1	Project technical feasibility						Technical requirements for procurement object aligned with public partner’s main goals for implementation of project, without unclear or too complex definitions or unnecessary objectives.
		1	2	3	4	5	
2	Project financial feasibility						Requirements or financial conditions aligned with relevant financial market capabilities, or private partner’s capabilities to produce a mutually acceptable financial offer, without unnecessary requirements that increase risk provisions.
		1	2	3	4	5	
3	Financial capacity / ability of the parties						All parties must possess ability not only to undertake liabilities of PPP projects, but also perform such liabilities on long-term basis, including potential cash flow and refinancing challenges.
		1	2	3	4	5	
4	Sustainable economic policy						Long term planning and setting of long-term priorities in public sector development policy, without sharp change in priorities in mid-term.
		1	2	3	4	5	
5	Stable macro-economic environment						Presence and quantity of geo-political risks, which could affect project in short and long term.
		1	2	3	4	5	
6	Level of bureaucracy in public sector						Good governance, effectiveness of public functions in various stages of the project – planning, procurement, execution, service.
		1	2	3	4	5	
7	Private sector development level						Availability of a certain level of national business services, to avoid importing most services, e.g. Banking products, construction services, raw material production.
		1	2	3	4	5	
8	Strong private consortia						Participation of experienced private partners with proven track record, in order to

		1	2	3	4	5	achieve the most favourable results in all stages of the project, with specific PPP and large-scale construction experience.
9	Availability of competent personnel to participate in PPP project implementation						Availability of local know-how during all stages of the project, including policy-making, planning and execution of the project.
		1	2	3	4	5	
10	Stakeholders' acceptance						General acceptance of the project by society and all stakeholder groups affected by the project, with well communicated positive gains and use of proper communication channels in order to raise stakeholder acceptance. Positive attitude towards PPP project implementation and willingness to support and freely participate in the PPP project, presence of a pro-investment culture among the population. Adequate transparency during all project stages, in order to meet stakeholder expectations both during and after the project implementation.
		1	2	3	4	5	
11	Presence of an enabling PPP policy						Favourable legal framework and relevant public sector priorities, e.g. PPP as a part of national development plans.
		1	2	3	4	5	
12	Favourable policies with respect to lending for PPP construction projects						Government involvement by providing additional guarantees, grants, tax exemptions.
		1	2	3	4	5	
13	A favourable environment for local private construction companies to compete favourably and expand compared to internationals and multinationals						A possibility to develop local construction industry and retain the bulk of economic turnover in the national economy, achieving a multiplier effect.
		1	2	3	4	5	
14	Appropriate risk allocation and risk sharing between public and private partners						Technical risk, due to engineering, project assignment and design failures.
		1	2	3	4	5	
							Construction risk, because of faulty construction techniques and cost escalation and delays in construction.
		1	2	3	4	5	
							Operating risk, as a result of higher operating costs and maintenance costs.
							Revenue risk, e.g. because of traffic shortfall or failure to extract resources, the

		1	2	3	4	5	volatility of prices and demand for products and services sold (e.g. minerals, office space, etc.), leading to revenue deficiency.
		1	2	3	4	5	Financial risks arising from inadequate hedging of revenue streams and financing costs.
		1	2	3	4	5	Force majeure risk, involving war and other calamities and acts of God.
		1	2	3	4	5	Regulatory/political risks, resulting from planning changes, legal changes and unsupportive government policies;
		1	2	3	4	5	Environmental risks, because of adverse environmental impacts and hazards;
		1	2	3	4	5	Project default, because of failure of the project from a combination of any of the above.
15	Transparency in the procurement process	1	2	3	4	5	Corruption factor. Timely and openly announced bidding procedure allow attracting more potential bidders in order to increase competition and depth of field. Competitive procurement process.
16	Commitment of all of the parties	1	2	3	4	5	Stable and intensive willingness to seek for mutually beneficial solutions of all of the parties.
17	Involvement of all of the key parties during project planning	1	2	3	4	5	Minimization of possibility of some unexpected factors evolving during the implementation phase, not considered during planning phase, like civil unrest.
18	Thorough and realistic cost/benefit assessment of the projects involved	1	2	3	4	5	Assessment whether the economic effect of the implementation of the project does satisfy the needs of majority.
19	A streamlined, transparent and clear project appraisal policy	1	2	3	4	5	Setting of public policy goals and PPP implementation decisions, based on interests of all stakeholders.

20	A strong monitoring and evaluation (M&E) system for the projects implemented	1	2	3	4	5	Strong monitoring and evaluation teams for the projects implemented. Proper recording, archiving and referencing, for future planning purposes.
21	Willingness to share authority amongst the parties	1	2	3	4	5	Private partners involvement in processes and provisions of services, usually associated with public person duties.
22	Technology transfer	1	2	3	4	5	Willingness to share knowledge and technology in order use it within the partnership and after the end of the project, in case of specific public partner requirements.
23	General knowledge about PPP concept and mechanism of action.	1	2	3	4	5	Availability of Information about PPP experience in the stakeholder environment.

Part II. PPP payment models for implementation in Latvia.

Please choose only the one out of two payment model options, which in your opinion will be the most appropriate for transport infrastructure PPP project implementation in Latvia.

#	Model	Description	Choice
1	Direct Toll	Private-sector party is allowed to charge end users the general public Service Fees for using the Facility – toll for using a road, tunnel etc.	
2	Shadow Toll	Payments are made by the Public Authority on the pre-agreed fixed schedule basis, tied on Facility usage intensity by users, e.g. per driver/km.	

Appendix C. List of interviewees.

Name	Organization	Position	Background	Interview date
Andris Bērziņš	Biedrība “Latvijas Ceļu būvētājs” (Association “Latvian Road Builder”)	Chairman of the Board	Formerly Prime Minister of the Republic of Latvia, Chairman of Riga municipality	23.03.2015
Zigmārs Brunavs	Biedrība “Latvijas Ceļu būvētājs” (Association “Latvian Road Builder”)	Executive director	Formerly a representative at Employers’ Confederation of Latvia and a member of academic staff at Riga Business School	23.03.2015
Expert No. 3 ¹	Private equity investment company	Partner	Formerly a top executive of one of the largest Scandinavian banks in the Northern Europe region	26.03.2015
Ainārs Mežulis	Saeima (Latvian Parliament)	Member of parliament	Formerly a Chairman of Smiltene municipality	26.03.2015
Edgars Strods	VAS “Latvijas Valsts ceļi” (SJSC “Latvian State Roads”)	Member of the Board	Formerly a Head of Transport department of Riga municipality and Member of the Board at SIA “Rīgas ūdens” (LLC “Riga Water”)	27.03.2015
Anrī Leimanis	Privātās un publiskās partnerības asociācija (Private Public Partnership Association)	Chairman of the Board	Formerly a high ranked executive at SIA “Lattelecom” and a Member of Service council at the Latvian Chamber of Commerce and Industry	30.03.2015
Andra Rubene	Law Office Tark Grunte Sutkiene	Partner, Head of Mergers & Acquisitions practice group, Latvia	Attorney at Law, recognized by Chambers Europe as an expert in capital market and private equity transactions	01.04.2015

¹ The expert has expressed a wish to remain anonymous. For the purposes of this paper, the authors will refer to this expert as Expert No. 3.

Linda Štrausa	Law Office Tark Grunte Sutkiene	Partner, Head of Baltic Corporate and Commercial practice group, Latvia	Attorney at Law, recognized by Chambers Europe as an expert in real estate transactions	01.04.2015
Māra Stabulniece	Law Office Tark Grunte Sutkiene	Associate, practice areas – public procurement, energy and infrastructure	Formerly employed by the Latvian Procurement Monitoring Bureau	01.04.2015
Anrijs Matīss	Ministry of Transport of the Republic of Latvia	Minister of Transport	Formerly a State secretary of the Ministry of Economics and Ministry of Transport of the Republic of Latvia	31.03.2015
Andris Pārups	Latvijas Investīciju un attīstības aģentūra (Latvian Investment and Development Agency)	Head of Export development department	Formerly a Head of PPP departments at the Ministry of Economics of Republic of Latvia, also employed by PriceWaterhouseCoopers and Deloitte	01.04.2015
Igors Šihmans	AS “A.C.B.”	Member of the Board	Formerly a Head of Corporate Finance Division at Rietumu banka and Chairman of the Board at a large scale infrastructure development project company	03.04.2015

Appendix D. General questions for the interviews

1. What is your attitude (positive/negative) towards PPP concept to use it in Latvia, and why?
2. Discussions of critical factors suggested by the interviewee.
3. Discussion of authors' preliminary critical factors, if they are different from interviewee's factors.
4. Are there any other factors not listed in the questionnaire that you consider important?
5. Discussion of the payment model suggested by the interviewee.
6. Which of the PPP types would be most appropriate in Latvia for the road infrastructure industry?