THE EVALUATION OF CONSTRUCTION PROJECTS REALIZED WITH PUBLIC PRIVATE PARTNERSHIP MODEL IN TURKEY

A THESIS SUBMITTED TO

THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES

OF

MIDDLE EAST TECHNICAL UNIVERSITY

BY

OSMAN CAN ÜREL

IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS

FOR

THE DEGREE OF MASTER OF SCIENCE

IN

CIVIL ENGINEERING

FEBRUARY 2015

Approval of the thesis:

THE EVALUATION OF CONSTRUCTION PROJECTS REALIZED WITH PUBLIC PRIVATE PARTNERSHIP MODEL IN TURKEY

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ABSTRACT

THE EVALUATION OF CONSTRUCTION PROJECTS REALIZED WITH PUBLIC PRIVATE PARTNERSHIP MODEL IN TURKEY

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February 2015, 147 Pages

Public–private partnerships (PPPs) are increasingly used in the public facilities and services provision with the growing economic development experienced in Turkey. However, there is an urge for more and better workable and efficient improved practices in future PPP projects. This research considers six types of common public projects in Turkey that are often delivered by the PPP method, including highway, airport, harbor & marina, custom facility & custom gate, industrial facility & urban infrastructure and health facility. Experienced practitioners in Turkey were asked to rank the severity of 30 commonly faced problems sought from a comprehensive literature review and expert interviews conducted in Turkey. The results show that the three most important problems in realizing PPP projects were “The lack of detailed preparation of public institute before tendering”, “Formation of additional high cost and downturn in the financial market as a result of simultaneous presentation of projects having huge investment cost”, and “Inadequate planning and prioritization of projects before presenting to the public”. In addition, the relative

importance of 30 potential critical success factors (CSF) for improving PPP system in the Turkey was searched and the most important factors were determined as “Prioritization of the large-scale PPP projects”, “The planning and coordination of investments among public institutions” and “Conducting detailed pre-work before the tendering of projects and preparation of realistic and detailed project feasibility studies”. The findings indicate that the stakeholders from both public and private sectors have low confidence in the public institutions.

Keywords: Public Private Partnership, Infrastructure Projects, Feasibility Studies, Financial Market, Investment Cost.

ÖZ

TÜRKİYE'DEKİ KAMU-ÖZEL İŞBİRLİĞİ (KÖİ) MODELİ İLE YÜRÜTÜLEN İNŞAAT PROJELERİ UYGULAMALARININ DEĞERLENDİRİLMESİ

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Şubat 2015, 147 Sayfa

Türkiye'deki gelişmekte olan ekonomi ile birlikte kamu yatırım ve hizmetlerinin sağlanmasında Kamu-Özel İşbirlikleri (KÖİ) artan bir şekilde kullanılmaktadır. Bununla birlikte gelecekteki KÖİ projelerinde daha uygulanabilir ve verimli işler geliştirme konusunda arzu bulunmaktadır. Bu çalışma karayolu, havaalanı, liman & marina, gümrük tesisi & gümrük kapısı, endüstriyel tesis & kentsel altyapı ve sağlık tesisi dâhil altı tip yaygın KÖİ modeli ile gerçekleştirilen kamu projesini ele almaktadır. Türkiye'deki tecrübeli çalışanlardan, kapsamlı literatür taraması ve uzman röportajları sonucunda belirlenen 30 adet yaygın olarak karşılaşılan problemlerin ciddiyetlerinin derecelendirmesi istenilmiştir. Sonuçlar KÖİ projelerinin gerçekleştirilmesi sırasında karşılaşılan en önemli üç problemi şöyle ortaya koymuştur: "Kamu kurumunun ihaleye çıkmadan önce ayrıntılı ön hazırlık çalışması yapmamış olması", "Yatırım bedeli büyük olan projelerin piyasaya eş zamanlı sunulması sonucunda finans piyasasında darboğaz ve ek yüksek maliyetler oluşması" ve "Projeler kamuoyuna sunulmadan önce planlama ve proje

önceliklendirme çalışmasının yetersiz yapılması". Bununla birlikte, Türkiye'deki KÖİ sistemini geliştirmek için gerekli 30 potansiyel kritik başarı faktörünün (KBF) göreceli önemi araştırılmış ve en önemli faktörler; "Büyük-ölçekli KÖİ projelerinin önceliklendirilmesi", "Kamu kurumları arasında yatırımların planlanması ve koordinasyonunun sağlanması", ve ihale öncesi detaylı ön çalışma yapılması ile gerçekçi ve detaylı proje fizibilite çalışmalarının hazırlanması" olarak belirlenmiştir. Sonuçlar kamu ve özel sektör paydaşlarının kamu kurumlarına karşı güven sıkıntısı yaşadığını ortaya koymaktadır.

Anahtar Kelimeler: Kamu Özel Ortaklığı, Altyapı Projeleri, Fizibilite Çalışmaları, Finans Piyasası, Yatırım Bedeli

To My Beloved Family…

ACKNOWLEDGEMENTS

I wish to express my deepest gratitude to my supervisor Prof. Dr. M. Talat Birgönül and co-advisor Prof. Dr. Irem Dikmen Toker for their patience, guidance, support and tolerance. This thesis would not be completed without their help. It has always been a privilege to work with them.

I want to thank Mr. Cem Galip Özenen, head of Public Private Partnerships Department of Turkish Ministry of Development, Mr. Hüseyin Arslan, chairman of the executive board of YDA Construction Co. Inc. and Mr. İzzet Saygın Akkaş, the deputy general manager at Bayraktar Construction Co. Inc. for their valuable comments and experiences they shared with.

Zeki Emre Tekin, expert in Public Private Partnerships Department of Turkish Ministry of Development, deserves special thanks. He has spared his time, shared his experience and knowledge. His continuous support was very valuable for me to finish this thesis.

I also want to thank Mr. Köksal Eren and Ms. Esra Arslanoğlu for their special assistance about the evaluation of thesis data.

I am also grateful to my dearest friends Semih Uçkan, Selman Yalçın, Volkan Üzeler, Yasin Gündoğdu, Halil Fırat Özel, Zeynel Altay Şahin and Mehmet Burak Saat for their motivation and support.

I should especially thank to the meaning of my life; my family. My father Mehmet Ürel and my mother Nihal Ürel who believed in me the way to achieve in this study. I always feel their endless love and support.

TABLE OF CONTENTS

LIST OF TABLES

TABLES

LIST OF FIGURES

FIGURES

LIST OF ABBREVIATIONS

PPP	Public Private Partnership
EPEC	European PPP Expertise Centre
EIB	European Investment Bank
CSF	Critical Success Factors
SSF	Success Sub-factors
SPSS	Statistical Package for the Social Science
BOOT	Build-Own-Operate-Transfer
BOT	Build-Operate-Transfer
PFI	Private Finance Initiative
DBO	Design-Build-Operate
BLT	Build-Lease-Transfer
CA	Concession Agreement
ORT	Operation Right Transfer
UK	United Kingdom
USA	United States of America
USD	United States Dollar

CHAPTER 1

INTRODUCTION

In the 1980s, share of public participation, state debt ratio, budget deficit and inflation rate were so high with the low growth rate in the economies of most developed countries. As a result of economically unstable situation, the governments were obliged to take precautions in order to reduce public debt. Instead of state investments, private capital was more attractive. Downsizing of the state, privatizing government business enterprises, and so outsourcing the delivery of public assets and services were some of the commonly preferred measures. In the early 1990s, build operate transfer (BOT) type procurement models which is a form of Public Private Partnership (PPP) became popular for the delivery of public assets such as public buildings, wastewater and potable water treatment plants, roads, and ports (Regan et al. 2009). In the world, PPP term originally was emerged from the UK in 1992. It was defined as private finance initiative (PFI) which implies financing, building and also operating of public infrastructure by introducing the private sector in accordance with the contracts usually lasting 25-30 years (Tieman, 2003). In most of the developed countries located in Europe, Australia and America, PPP has been successfully adopted for delivering construction projects (Cheung et al., 2012). Also, especially in recent years, public facilities of developing countries have faced with the problems of rapidly developing urbanization so PPP has shown itself as an important method for delivering infrastructure projects. As the time goes on, the importance of it for the construction industry increases especially in developing countries. Internationally, PPP has been used as a procurement method by more than 85 countries for delivering public infrastructure (Cheung and Chan, 2011).

If PPPs are constructed in a proper way, they will bring better value for money compared to traditional procurement approach. Delivering projects on time and on budget can be the most important advantages (Meidute & Paliulis, 2011). In addition, due to long term partnership, the public and the private partners tend to be more cooperative and this will create an additional synergy benefits. While public sector manages the legal system, regulation and control policies; private partner conducts highly technical tasks and complex financial arrangements. As a result of this, supports of both partners together with their special skills produces a higher value (Harris, 2004). In addition, spreading costs of large investments over the life of the PPP for the public sector is seen as an attractive advantage. Since public sector does not have to provide huge cash transfers, it facilitates the public sector's debt management. Even though there is not any public fund, the projects can be carried out by supports of private funds (Meidute & Paliulis, 2011). Also, the PPP projects offer a chance to private sector to handle huge projects with new markets like energy, municipal water systems. In addition, the private partner can facilitate gathering the necessary funds which is a huge support for the government (Jakutyte, 2012).

Although many potential benefits are obtained by the partners of PPP, there are some serious problems for carrying out successful PPP projects. A number of research and case studies in different countries were carried out to investigate the factors causing the success of PPP projects and also failure of them. Specifically, Hardcastle et al. (2002) and Zhang (2005a) had made a comprehensive review about the factors causing the success of PPP and classified them in categories. These were namely (i) effective procurement; (ii) project implementability; (iii) government guarantee; (iv) favourable economic conditions; and (v) available financial market. In addition, some risks were determined and grouped such as political risk (Chan et al., 2011), (ii) financial risk (Estache et al.,2007); (iii) legal effectiveness issues (Zhang, 2005b); (iv) operational risk (Shen etal.,2006); (v) market demand change (Ke et al.,2010); and (vi) environment risk (Grimsey and Lewis, 2002). For successfully completing PPP projects, all these risks and critical success factors should be known

and possible problems should be determined from the first step of projects. In this way, the specific solutions can be proposed.

In this thesis, the main aim is to determine and assess the main problems of both public and private sectors in construction projects carried out by PPP model and determining main critical success factors for improving PPP system in Turkey. In the scope of this thesis, a questionnaire form has been prepared according to the information obtained from literature survey and interviews carried out with experts.

Chapter 2 reports the findings of a literature survey about the determined problems and critical success factors in the construction industry. Also, previous research studies about this issue are summarized and presented in this chapter.

Chapter 3 reports the research methodology of the study and the contents of the questionnaire that consists of two parts, one of which focuses on determining the main problems, while the other focuses on critical success factors in order to improve the PPP system.

In Chapter 4, all results of statistical analysis and findings of questionnaire and the findings of previously carried out studies about problems of PPP projects and critical success factors have been listed by graphs and tables.

Finally, results of research and comparison of them with the previously carried out studies are reported in Chapter 5. Also, final comments about the results of the research study are listed in this chapter.

CHAPTER 2

LITERATURE REVIEW

2.1 Definition of PPP

There is not any single definition of PPP. Many definitions of PPPs have been used by different governments, scholars and international organizations. In most of the countries, private sector has the operation right for a period on behalf of the public sector. This period may change depending on the contract types like management contracts having short time and concession contracts usually including design, build, operation and finance parts of the construction.

Although lots of definitions could be found, Table 1 is sufficient to identify important elements defining PPP.

In broad terms, it can be defined as a cooperative arrangement for the public and private sectors that covers the sharing of risks, responsibilities, resources and rewards for reaching to objectives of both sides that may be in different countries around the world.

Table 1. Various Definitions of PPP

(Kwak et al. 2009)

Sources	Definitions
HM Treasury[a]	An arrangement between two or more entities that enables them to work cooperatively towards shared or compatible objectives and in which there is some degree of shared authority and responsibility, joint investment of resources, shared risk taking, and mutual benefit.
The World Bank[b]	The term "public-private partnerships" has taken on a very broad meaning. The key elements, however, are the existence of a "partnership" style approach to the provision of infrastructure as opposed to an arm's-length "supplier" relationship. Either each party takes responsibilities for an element of the total enterprise and they work together, or both parties take joint responsibility for each element. A PPP involves a sharing of risk, responsibility, and reward, and it is undertaken in those circumstances when there is a value-for-money benefit to the taxpayers.
European Commission[c]	A partnership is an arrangement between two or more parties who have agreed to work cooperatively toward shared and/or compatible objectives and in which there is shared authority and responsibility; joint investment of resources; shared liability or risk-taking; and ideally mutual benefits.
Canadian Council for Public Private Partnerships[d]	PPP is a cooperative venture between the public and private sectors, built on the expertise of each partner that best meets clearly defined public needs through the appropriate allocation of resources, risks, and rewards.

a. HM Treasury, Partnerships for Prosperity: the Private Finance Initiative, London, 1998.
b. The World Bank, World Bank Group Private Sector Development Strategy Implementation Progress Report, Washington, D.C., 2003.
c. European Commission, Guidelines for Successful Public-Private Partnerships, 2003.
d. Canadian Council for Public-Private Partnerships, "About PPP," 2004, available at <www.pppcouncil.ca/aboutPPP_definition.asp>.

2.2 Types of PPP

Various types of partnerships have been implemented to reflect different project objectives and requirements. These PPPs generally vary in terms of the degrees of private involvement (World Bank, 2007). There are some extreme conditions. In some cases, the public sector is fully responsible for all aspects of delivering public services; while at the other one is the private provision, where the private sector takes all those responsibilities. The involvement of private sector changes as the responsibility of public sector decreases.

Although there are many PPP types used all around the world (Design-Build-Transfer, Operation – Maintenance, Design-Build-Operate, Build-Lease-Operate-Transfer, Build-Own-Operate-Transfer, Design-Build-Transfer-Operate, Design Build-Finance-Operate, Build-Own-Operate etc.), some of them are preferred more than others (Adams et al. 2006). A continuum that shows the degree of private involvement of these five mostly used PPP types is shown in Figure 1. Also, in Table 2, definitions of these PPPs are summarized.

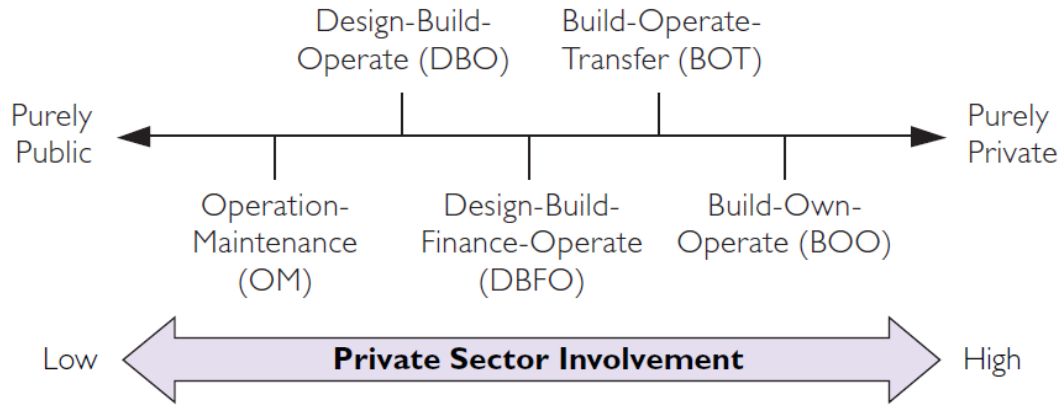


Figure 1. Continuum of Types of PPP (Kwak et al. 2009)

Table 2. Main Types of PPP

(Kwak et al. 2009)

Operation – Maintenance (OM)[a]	• The private sector is responsible for all aspects of operation and maintenance. • Although the private sector may not take the responsibility of financing, it may manage a capital investment fund and determine how the fund should be used together with the public sector.
Design-Build-Operate (DBO)[b]	• The private sector is responsible for the design, construction, operation, and maintenance of a project for a specified period prior to handling it over to the public sector.
Design-Build-Finance-Operate (DBFO)[c]	• The private sector is responsible for the finance, design, construction, operation, and maintenance of a project. • In nearly all cases, the public sector retains full ownership over the project.
Build-Operate-Transfer (BOT)[d]	• The private sector is responsible for the finance, design, construction, operation, and maintenance of a project for a concession period. • The asset is transferred back to the government at the end of concession period, often at no cost.
Build-Own-Operate (BOO)[e]	• Similar to a BOOT project, but the private sector retains the ownerships of the asset in perpetuity. • The government only agrees to purchase the services produced for a fixed length of time.

a. The World Bank, Public-Private Partnership Units: Lessons for their Design and Use in Infrastructure, Washington D.C., 2007.
b. E.S. Kelly, S. Haskins, and P.D. Reiter, "Implementing a DBO Project," Journal of American Water Works Association, 90/6 (June 1998): 34-46
c. U.S. Department of Transportation, "PPP Options," Federal Highway Administration (FHWA), <www.fhwa.dot.gov/PPP/dbfo.htm>.
d. M.M. Kumaraswamy and X.Q. Zhang, "Governmental Role in BOT-led Infrastructure Development," International Journal of Project Management, 19/4 (May 2001): 195-205.
e. L.W. Chege and P.D. Rwelamila, "Private Financing of Construction Projects and Procurement Systems: An Integrated Approach," in
Proceedings of CIB World Building Congress, Wellington, New Zealand, April 2001.

2.3 Worldwide Application of PPP

Especially during the last 20 years, PPP has gained a remarkable importance in both developed and developing countries. Developments under the participation of private sector to an infrastructure developments are monitored and reported under the four main sectors such as energy, transport, telecom, water and sewerage by the World Bank since 1990s. According to these reports, between the years of 1990-2013, in these four main sectors at developing countries where private sector has at least 15% ownership in a project with PPP, privatization in the form of share or asset sales and also hundred percent private investment, the total number of projects is 6146 and the total capital value of them is nearly 2 trillion and 2 hundred billion U.S. Dollars. Distribution of these investments according to the sectors are listed in Table 3.

Table 3. PPP Size in Developing Countries, 1990-2013
(http://ppi.worldbank.org, 2014)

Sector	Project Investment (US$ Million)	Project Count
Telecom	949,122	856
Energy	767,179	2890
Transport	408,558	1553
Water and Sewerage	74,545	847

Countries are listed in Table 4 with respect to their rankings in project numbers and investments. It can be seen that Turkey is found in the first ten countries with 159 projects having a total of 99 billion 173 million USD investment amount between the years of 1990-2013.

Table 4. Top 10 Countries by Project Counts and Investments, 1990-2013

(http://ppi.worldbank.org, 2014)

Country	Project Count
China	1151
India	775
Brazil	693
Russian Federation	337
Mexico	227
Argentina	217
Turkey	159
Chile	157
Colombia	143
Thailand	132

Country	Project Investment (US$ Million)
Brazil	438,291
India	321,583
Russian Federation	145,290
China	127,854
Mexico	126,915
Turkey	99,173
Argentina	93,908
Indonesia	63,184
Philippines	61,491
Malaysia	60,086

In addition, if the PPP performances of developing countries are analyzed between the last 5 years (2009-2013), it can be seen from figure 2 that Turkey is located after Brazil and ranked as 4th in terms of project counts. Besides that Turkey is ranked as 3th after Brazil among the order of investment amounts.

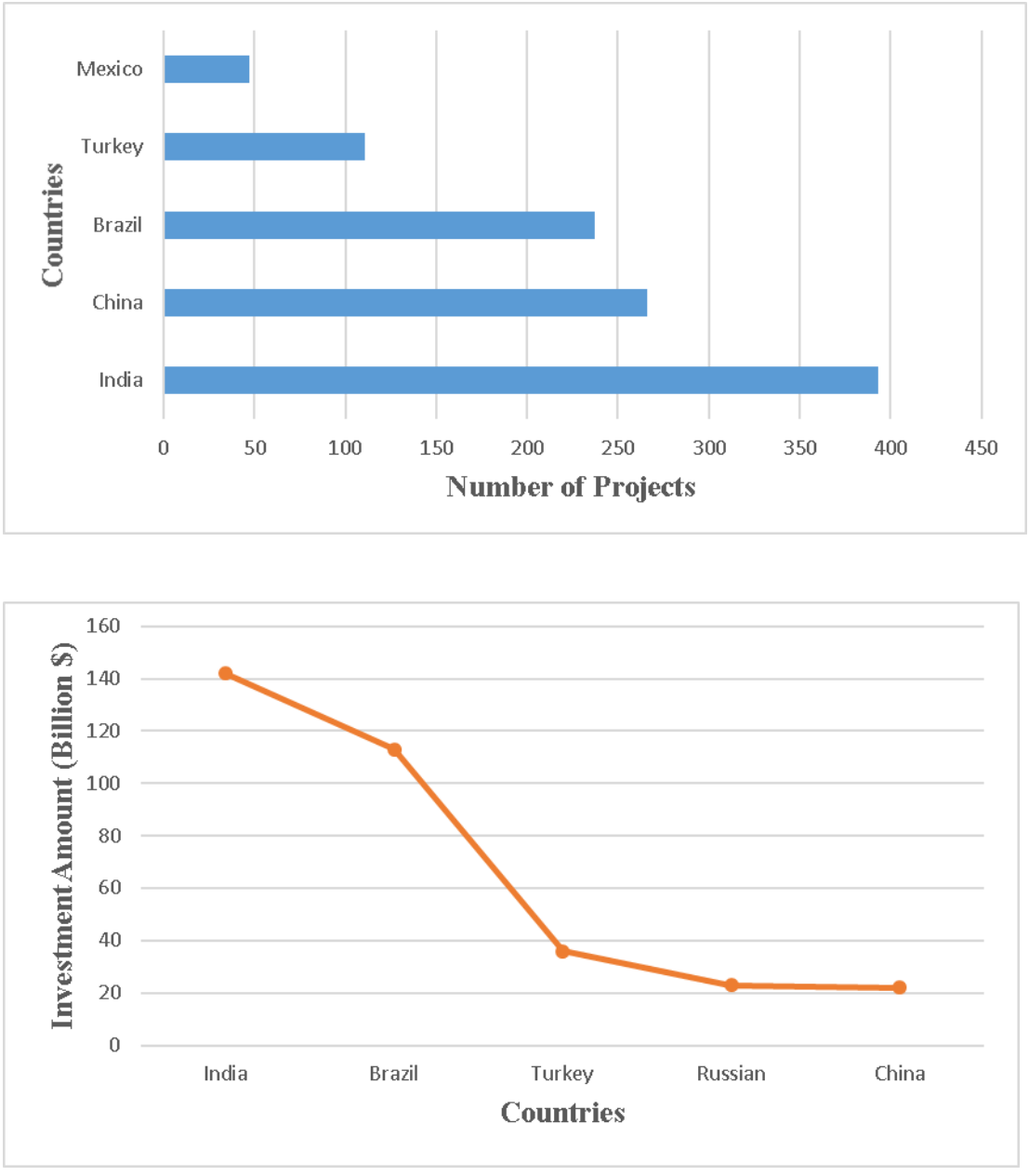


Figure 2. Top 5 Countries by Project Counts and Investments, 2009-2013 (Adopted from World Bank PPI Database, 2014)

Besides the World Bank, there is an European PPP Expertise Centre (EPEC) which was established under the European Investment Bank (EIB) in order to provide guidance and counseling to the members of the European Union (EU) countries. Turkey is also one of the members of this institute. EPEC holds and reports the records of PPP investments and projects. According to the report of EPEC, evaluating the final condition of European PPP market by the first half of 2014, Figure 3 and Figure 4 shows that;

- Total value of PPP transactions which reached financial close in the European Market by the first half of 2014 has an amount of 9 billion euros.
- In the first half of 2014, 34 PPP transactions were financially closed which are remarkably more than the first half of 2013 with 24 transactions. Since 2012, there is a steady grow in the numbers of contracts being closed in Europe.
- In the first half of 2014, four large projects have reached to the financial close which constitutes more than 80 % of the total European Market. These were;
    - the Intercity Express Programme II (EUR 2.6 billion) in the UK;
    - the Northern Marmara motorway (EUR 2 billion) in Turkey;
    - the A11 Bruges-Zeebrugge motorway (EUR 1.1 billion) in Belgium; and
    - the Mersey Gateway bridge (EUR 700 million) in the UK.
- Over the first half of the year, at least one PPP transaction was closed by 12 countries when compared with the 10 countries in first half of 2013.
- The United Kingdom (UK) was the largest PPP market in value terms (EUR 4.3 billion). It is followed by Turkey and Belgium.
- When the number of transactions are reviewed, the UK is also the leader with 11 deals closed in the first half of 2014. It is followed by Germany (5), France (4) and Greece (3).

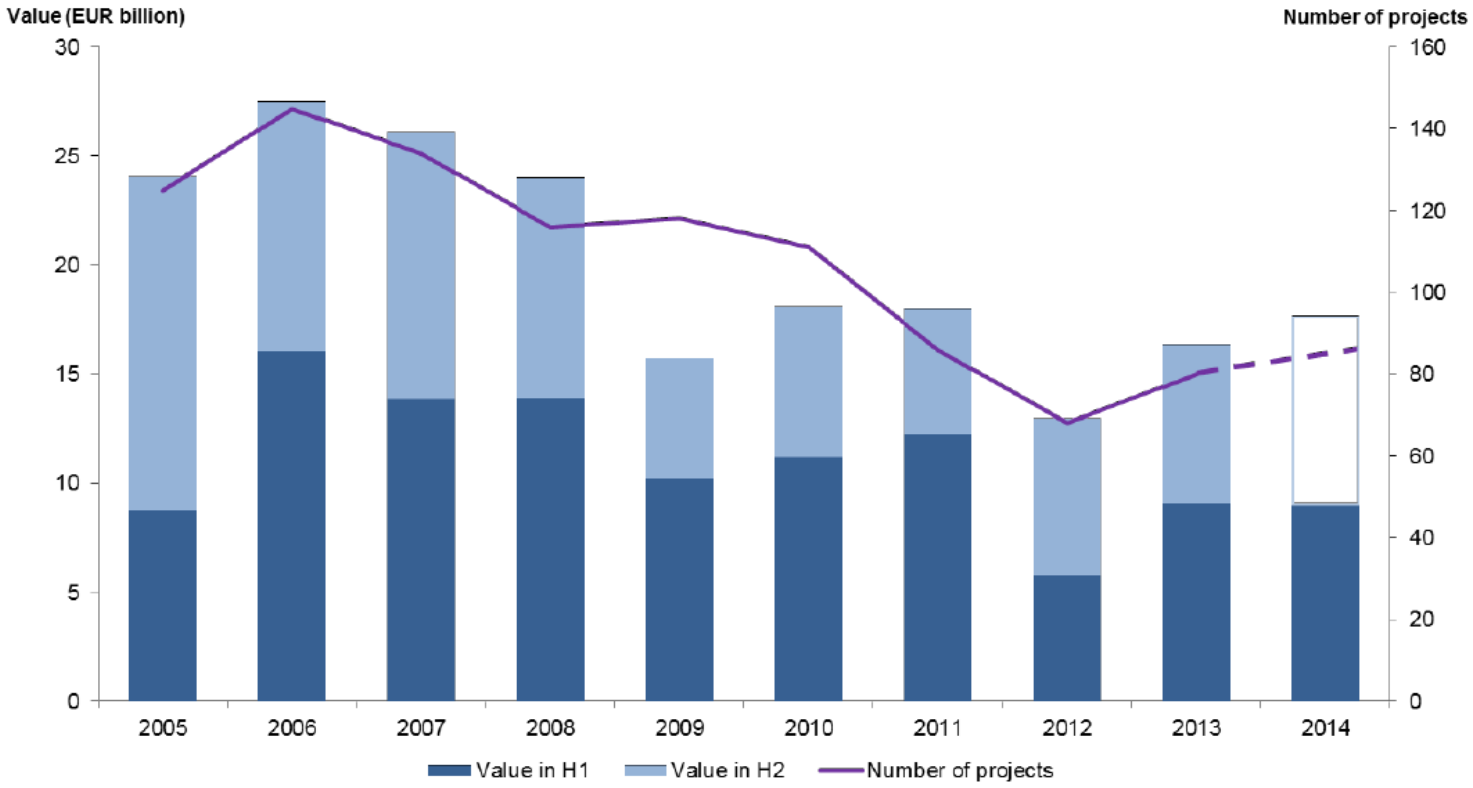


Figure 3. The European PPP Market by Value and Number of Projects since 2005

(EPEC Report. 2014)

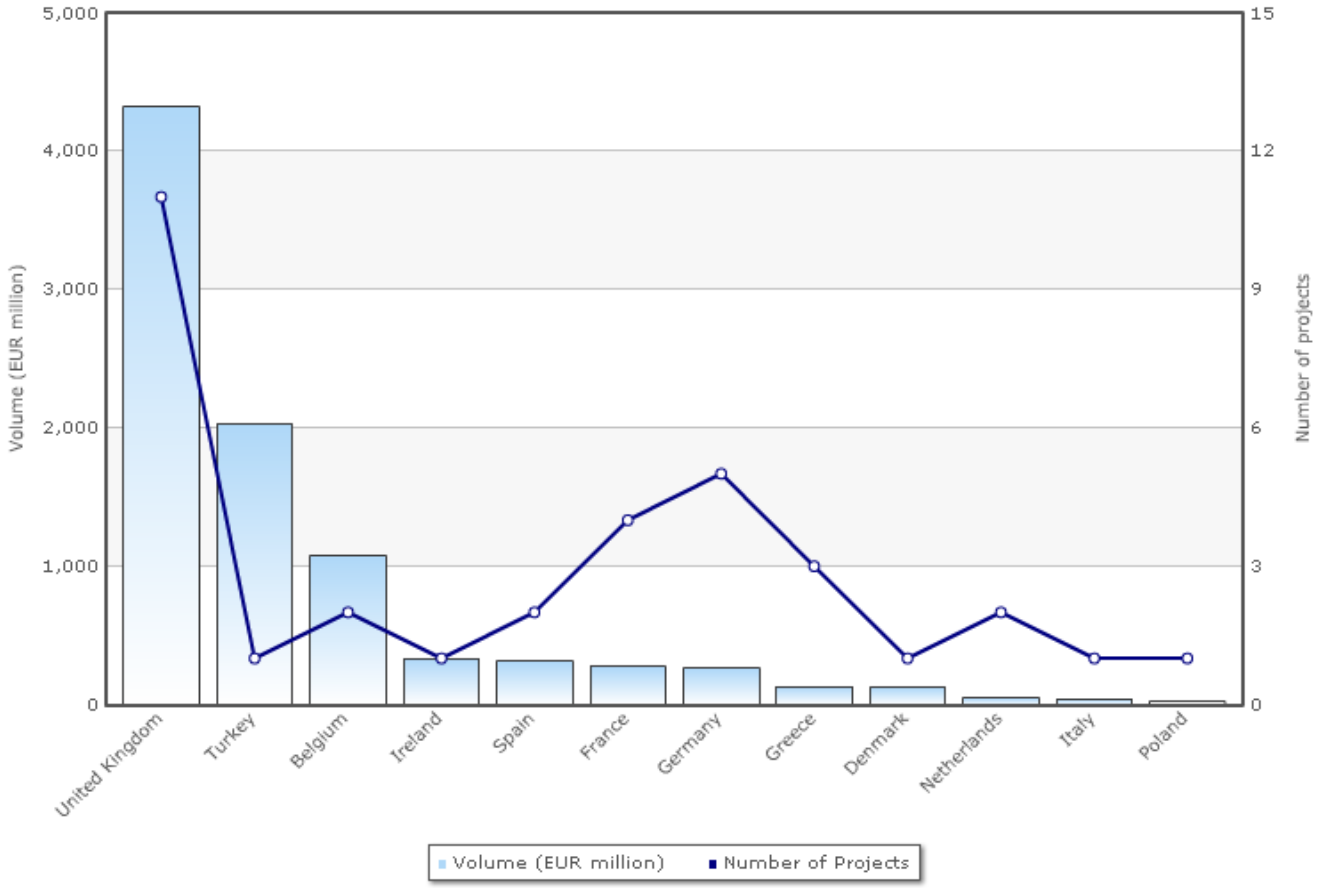


Figure 4. The European PPP Market by Value and Number of Projects in H1 2014 by country (EPEC Report. 2014)

2.4 Advantages and Disadvantages of PPP

The resource saving in many ways is the one of the essential advantages of the PPP approach. This helps governments to give attention on their specialized project areas without directing their own resources to unfamiliar or big infrastructure projects (Cumming, 2007). Since private sector is a part of this approach, government capacity including assets, data and intellectual property are also used in a more productive way. This leads an increase in the quality of public services (Edkins and Smyth, 2006). Moreover, public services are delivered more efficiently with the contribution of private sector's experience and skills. Another advantage is that risks are shared at different stages with the public and private sectors (Shen et al., 2006). When the public projects are carried out with commercial discipline approach of private sector, the risk of delay in project duration and over budgeting can be limited in a minimum level (Li and Akintoye, 2003; Ho, 2006).

In addition, PPP approach helps to improve the economic return of investments beside the other advantages for saving resources by the efficient usage of them. For instance, Li and Akintoye (2003) showed that lifecycle costs of projects are dramatically reduced by the PPP approach, since capital investment of government is spreaded over the lifespan of a project. As a result, the targeted rate of return for governmental investment is guaranteed.

Zhang (2006) identified and summarized advantages of PPP projects through literature review in different types of contracts, case studies of worldwide PPP practices and interviews with international PPP experts. Several important benefits are:

- Facilities are fully completed and ready to operation with the help of various resources belonging to private sector.
- PPP helps to delivery of infrastructure services in a more reliable and efficient way with a lower cost;
- An innovation is more preferred and used by PPP approach;

- PPP helps to decrease in public sector expenses;
- PPP allows the public sector to avoid from huge capital investments at the initial phase of the project;
- PPP usually provides a support to the economic growth by employment opportunities in a project region;
- PPP helps to decrease in the life-cycle cost of the project and its delivery time;
- According to the agreement the public sector has a chance to transfer risks about finance, construction, and operation of projects to the private sector.

Although it is thought that public infrastructure projects are realized with a little or no cost to the public sector, this is not the reality. Kumaraswamy and Zhang (2001) showed some cases of BOT projects which had faced with problems due to exceeding budget, misestimation of price and income returns, and also the disputes between the government and the private operators. In addition, most of the case, the public sector compensates the cost of failure at the end of the projects. Political barriers are also an important problem on realizing PPPs (Algarni et al., 2007). Since PPP projects are the special ones to be needed to handle with private legislation, in most of the cases, the public authorities has to carry out long discussing periods before required legal acts are to be made. Moreover, sometimes resistance is shown for adopting new PPP approach. The delivery approach of PPP method usually are not understood well by the executive government agencies.

Kwak et al. (2009) listed and summarized the some important critics directed to PPP in his study including:

- Although it has been more than 30 years from the practicing in the world, PPPs can be still evaluated as a new concepts needed to be understood by some countries;
- There is a lack of required knowledge and capability in public and private sectors for implementing such long lasting projects;

- Since PPP projects have usually high contract prices, competition is limited between private companies;
- PPP projects have a more tendency to be delayed because of the political resistances, public protests and also long lasting negotiation processes;
- There is a probability of increasing cost in PPP projects since when compared with the public sector, private sector cannot get credits for the projects with low interests like the public sector;
- Since most of the information are mentioned as “commercial-in-confidence” in tender documents, accountability of projects is difficult;
- PPPs may cause to higher costs to public users because of the lack of competition and being the only one in sector while providing the infrastructure services.

2.5 Previous Studies on Evaluation of PPP Projects in other Countries

There is a wide range of uncertainties and risks related with the PPP. Due to the long and complex contractual agreements, PPPs has a difference from a traditional procurement methods. PPPs require much more responsibilities and include risks for both public and private partners. Therefore allocation of risks between these both sides is more difficult. Researchers have directed their motivation to investigate these specific properties of PPPs. These researches focused on partner’s responsibilities and relations, PPP risks, PPP finance, PPP type selection and in the center critical success factors of PPP projects. This classification model can be seen in Figure 5.

Many researches have been carried out in the literature in order to determine problems of PPPs and so propose corresponding solutions under the concept of Critical Success Factors (CFSs) in construction sector. These factors are the most important part for reaching a detailed understanding of the faced problems during the all stages of the project. In order to develop an efficient PPP procurement agreement, these factors has to be identified in the first step. As a result of case studies and

interviews with construction professionals and experts, various list of CFSs were determined by researchers.

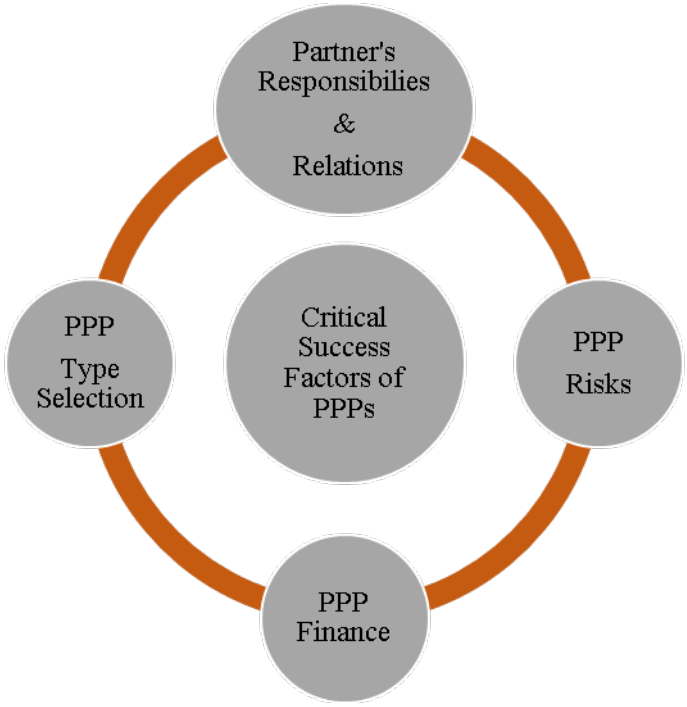


Figure 5. PPP Research Classification Model

In 2001, Qiao et al. made a study to determine and analyze the relative importance of the CSFs in all steps of the BOT type projects in China. Qualitative and quantitative research methods were used in three stages. As a result of interviews with professionals and literature review, approximately 50 factors associated with BOT projects in China were determined and categorized in phases. These were 1) preliminary qualification evaluation phase, 2) tendering phase, 3) concession award phase, 4) construction phase, 5) operation phase, and 6) transfer phase. According to the literature review and interviews, the filtration was applied and final list of CSFs were selected. Then, a questionnaire survey and long interviews were done with related project companies and public authorities to evaluate the importance of CSFs. Finally, the survey findings were confirmed with the selected BOT projects in China. As a result of the survey, Qiao et al. (2001) determined in each phase the most important CSFs. These are respectively; appropriate project identification at

preliminary qualification evaluation phase, competitive tendering system at tendering phase, reasonable risk allocation at concession award phase, quality control and supervision at construction phase, management control at operation phase and technology transfer at transfer phase.

In 2002, Jefferies et al. developed a success factor framework for the BOOT projects from the related literature and tested it against a case study of Stadium Australia. The framework helps to increase awareness to crucial factors at an initial planning stage of BOOT projects. Also, it discusses issues from all perspectives so that precautions can be taken for all phases of the project including construction, operation and finally transfer phases. The identified critical success factors for the large infrastructure projects procured under the BOOT concept is listed under the Table 5.

Table 5. Critical Success Factor Framework Developed from the Stadium Australia Case Study.
(Adopted from Jefferies et al. 2002)

Critical Success Factors	Comment/response
Environmental impact	A carefully prepared Environmental Impact Statement will often assist in bid and approval processes.
Approval process efficiency /complicated negotiations	The promise of efficient approval processes assists likelihood of success.
Technical innovation/complexity	Technical innovation can be a solution to overcoming project complexity.
Developed legal/economic framework	Is a critical success factor which all parties must be aware of yet is sometimes a gamble borne by the project company in undertaking a project.
Political stability – opposed/support	By virtue of the concession period, BOOT projects will see changes in administration. Greater political stability and support will aid in success

Table 5 (Continued) (Adopted from Jefferies et al. 2002)

Selecting the right project	Not all projects are suited to BOOT. Public and private agreement over the advantages the concept has to offer needs to be found. Project feasibility must show evidence of viability
Existing JV/ strategic alliances	This experience or network is viewed favorably. A local partner in an international BOOT contributes greatly towards success.
Org. size-resource management/ ability	Proven experience and adequate resource to expedite such contracts relaxes government concern in award of the project. Issues of level and availability of local/national knowledge and expertise are vital
Trust	Government will feel more comfortable in awarding the project if the sponsors are known and trusted
Community support	Strong community support can only assist the projects likelihood of success. It may result also in a quicker and more efficient approval process.
Feasibility study	Comprehensive feasibility is critical to project success from both public and private perspective.
Transfer of technology	Technology transfer benefits may assist with government and local support, thus raising success likelihood.
Financial capability	Financial capability and credibility are critical to the success of the project especially regarding investors. The need exists also for the project company to be able to account for contingencies.
Compatibility/complimentary skills	This was a significant factor in Stadium Australia. All consortium teams 'fitted' well with complimentary styles and created a sense of trust among key parties
Consortium structure	Structure forms the foundation for all risk management and contributes significantly to the projects likely success. In international BOOT, local partcptn. and representation is crucial

In 2003, Akintoye et al. reported the important points for achieving best value in private finance initiative (PFI) projects and also the associated problems with it. His research was based on 68 interviews working with PFI projects including contractors, public sector clients, consultants and management organizations of facilities. Then, the qualitative software was used to analyze the results of the interviews. The result of the analysis showed that detailed risk analysis, appropriate risk allocation, drive for faster project completion, encouragement of innovation in project development and maintenance cost and curtailment in project cost escalation are the factors contributing to the achievement of best value in PFI projects. Factors effecting negatively to the achievement of best value in PFI projects are: high cost of the PFI procurement process, lengthy and complex negotiations, difficulty in specifying the quality of service, pricing of facility management services, potential conflicts of interests among those involved in the procurement, and the public sector clients' inability to manage consultants. Table 6 and Table 7 respectively lists the all determined important problems affecting the success of PFI projects in UK and also proposed solutions from the perspectives of public sector, private sector and consultants.

Table 6. Problems Identified for PFI by Interviewed Participants

(Adopted from Akintoye et al. 2003)

Public Sector	Private Sector	Consultant
Inadequacy in the mutual understanding between clients and their advisory teams	Lack of relevant experience in PFI	Lack of transparency in PFI risk allocation and evaluation.
Difficulty in finding suitably qualified IT and other technical consultants for assessing risks	Unclear client priorities and objectives	Uncertainty of project funding
Incapacity of Top Managers to understand risk details.	Provision of incomprehensive up-front project information by clients	Level of commitment of the public sector to each project is difficult to predict
	Demands of clients being "wish list", instead of sensible	The long lasting negotiation time
	Slow negotiations	
	Less open communication with the client, especially on the pricing of specific risks	
	Inconsistent risk assessment and management across different organizations of a concortium.	
	High bidding costs, mainly attributed to the cost of consultancy services	

Table 7. Recommended Solutions for Problems of PFI by Interviewed Participants (Adopted from Akintoye et al. 2003)

Public Sector	Private Sector	Consultant
Reliable standard on how to deal with risk	Improving clients' expertise.	Risk-transfer issues should be spelled out, opened to challenge and dialogue.
Historic statistical data on PFI risks should available for different type of projects	Standardization of the PFI risk assessment and management.	
The allocation of sufficient time for risk assessment	Developing a national database for historical records.	
Establishment of teams of experts in PFI for managing risks in all phases of the project up to tender.	Involving operating companies at the initial design phase	
	Provision of sufficient time for preparing bids	
	Closer communication with funders as early as possible	
	Provision of assistance to small companies to cope with the PFI market conditions.	

In 2005, Zhang identified, analyzed and categorized many CSFs for PPPs in general. His research was established on a systematic approach. At the initial phase, a literature review was conducted and the CSFs were identified from the both public and private sector's perspectives. Then, through case studies from different countries some projects were reviewed and experiences were obtained from both successful and failed projects from the United Kingdom, United States, China, India, Malaysia, the Philippines, Sri Lanka and Thailand. After these, the ideas of PPP experts and practitioners were received to list factors that believed are important and they were wanted to rank them according to the importance degree. Finally, the determined CSFs in the above mentioned steps were classified into five main categories which

includes success sub-factors and the results were compared with the worldwide expert opinions. As a result of the research, the determined CSFs and related Success Sub factors (SSFs) for PPP projects are listed in Table 8.

Table 8. Critical Success Factors and Success Sub-factors for Public–Private Partnership (PPP) Projects

(Zhang, 2005a)

Critical Success Factor	Success Sub factor
Favorable investment environment	(1) Stable political system; (2) Favorable economic system; (3) Adequate local financial market; (4) Predictable currency exchange risk; (5) Predictable and reasonable legal framework; (6) Government support; (7) Supportive and understanding community; (8) The project is in public interest; (9) Predicable risk scenarios; (10) The project is well suited for privatization; and (11) Promising economy.
Economic viability	(1) Long-term demand for the products/services offered by the project; (2) Limited competition from other projects; (3) Sufficient profitability of the project to attract investors; (4) Long-term cash flow that is attractive to lender; and (5) Long-term availability of suppliers needed for the normal operation of the project.

Table 8 (Continued) (Zhang, 2005)

Reliable concessionaire consortium with strong technical strength	(1) Leading role by a key enterprise or entrepreneur; (2) Effective project organization structure; (3) Strong and capable project team; (4) Good relationship with host government authorities; (5) Partnering skills; (6) Rich experience in international PPP project management; (7) Multidisciplinary participants; (8) Sound technical solution; (9) Innovative technical solution; (10) Cost-effective technical solution; (11) Low environmental impact; and (12) Public safety and health considerations.
Sound financial package	(1) Sound financial analysis; (2) Investment, payment, and drawdown schedules; (3) Sources and structure of main loans and standby facilities; (4) Stable currencies of debts and equity finance; (5) High equity/debt ratio; (6) Low financial charges; (7) Fixed and low interest rate financing; (8) Long-term debt financing that minimizes refinancing risk; (9) Abilities to deal with fluctuations in interest/exchange rates; and (10) Appropriate toll/tariff level(s) and suitable adjustment formula.
Appropriate risk allocation via reliable contractual arrangements	Appropriate and reliable risk allocation in:(1) Concession agreement; (2) Shareholder agreement; (3) Design and construct contract; (4) Loan agreement; (5) Insurance agreement; (6) Supply agreement; (7) Operation agreement; (8) Offtake agreement; and (9) Guarantees/support/comfort letters.

According to the results of a questionnaire survey done with international experts, relative significances of these predetermined CSFs and SSFs were evaluated. Analysis results showed that there is a consistency between the rankings of experts from the industrial and the academic sectors. Long-term demand for the products/services offered by the project under CSF of economic viability, concession agreement under CSF of appropriate risk allocation via reliable contractual arrangements, appropriate toll/tariff levels and suitable adjustment formula under CSF of sound financial package, stable political system under CSF of favorable investment environment, good relationship with host government authorities under CSF of reliable concessionaire consortium with strong technical strength were determined as the most important sub success factors with respect to five main CSF aspects (Zhang, 2005).

In 2005, Li et al. designed a questionnaire survey in order to evaluate the importance of CSFs relative to one another. First, CSFs were determined with the detailed literature review from the previous researches. Based on the 18 CSFs identified by the above-mentioned studies, the questionnaire survey was prepared including three parts. These were questions about the respondents' individual and organizational backgrounds; issues about PPP/PFI projects, including questions about CSFs; and risk and risk management within PPP/PFI projects.

As a result of the analysis of the survey response data, the relative importance of CSFs for UK PPP/PFI projects are respectively in descending order of importance: strong private consortium, appropriate risk allocation and risk sharing, available financial market, commitment/responsibility of public/private sectors, thorough and realistic cost/benefit assessment, project technical feasibility, well-organized public agency, good governance, favorable legal framework, transparency in the legal framework, political support, competitive procurement process, sound economic policy, multi-benefit objectives, stable macro-economic environment, government involvement by providing guarantees, shared authority between public and private sectors, social support. In addition to these ranking, the CSFs were classified into

five main groups: effective procurement, project implementability, government guarantee, favorable economic conditions, and available financial market (Li et al. 2005).

In 2007, Wang et al. established a critical success factors model for infrastructure PPP projects in China due to the low success rate of them. It was aimed to identify the relations between the CSFs and low success rate of projects. First of all, after reviewing relevant researches, 45 success factors were identified for the infrastructure projects carried out with PPP. Then, as a result of the questionnaire survey and statistical analysis, 21 of them were selected as critical (Table 9).

Table 9. Success Factors of Infrastructure Projects realized with Public–Private Partnership (PPP)
(Adapted from Wang et al. 2007)

(1)The own factors of PPP projects
• Project scale
• **Demand for project product or service (Critical Success Factor)**
• The level to satisfy national economy
• Rationality of financial evaluation
• **The attraction of private capital (CSF)**
• The technical feasibility of the project
• **Innovation of the project technology (CSF)**
• Economical rationality of the technical program
(2) Favorable investment environment
• Stable political situation
• **Good international reputation (CSF)**
• **Consistent with the public interest (CSF)**
• Stable law frame
• **Prosperous potential of economic development (CSF)**
• Adequate local financial sources
• Predictable exchange risk

Table 9 (Continued) (Wang et al., 2007)

(3)Project company competence
• Company scale and financial strength
• **Leaders' ability (CSF)**
• **Efficient project team (CSF)**
• **Reasonable project organizational structure (CSF)**
• Specific project decision-making process
• The ingenious combination with partners
• **Development and management experience for PPP projects(CSF)**
• Good relationship with government authorities
(4)Project contractor and operator competence
• Enterprise credit
• Enterprise's financial situation
• Experience in similar project
• Machinery and equipment for construction
• Professional technology and management level
• The total contract price
(5)Regulations and policies for PPP projects
• **Reasonable risk-sharing mechanism (CSF)**
• **Financial system and policy for PPP projects (CSF)**
• **The improvement of regulation and policy (CSF)**
• **Rational pricing mechanism (CSF)**
• **Effective supervision mechanism (CSF)**
(6)Government support
• Preferential loan rates
• Government subsidy
• **Government political support (CSF)**
(7)Product characteristics
• Product or service's quality
• Satisfying environmental standards
• **Satisfying public safety and health standards (CSF)**
• **Price rationality (CSF)**
(8)Project management
• Project plan
• **Effective project control (CSF)**
• **Rational risk-sharing (CSF)**
• **Communication and coordination (CSF)**

Finally, interpretative structural model was formed in order to analyze the relationship between these factors (Figure 6) and it was revealed that 5 factors have ability to affect the application of other success factors and so they have crucial

importance. These five factors are located in the lowest level: (1) Reasonable risk-sharing mechanism, (2) Financial system and policies for PPP projects, (3) The improvement of regulation and policy, (4)Rational pricing mechanism, (5) Effective supervising mechanism.

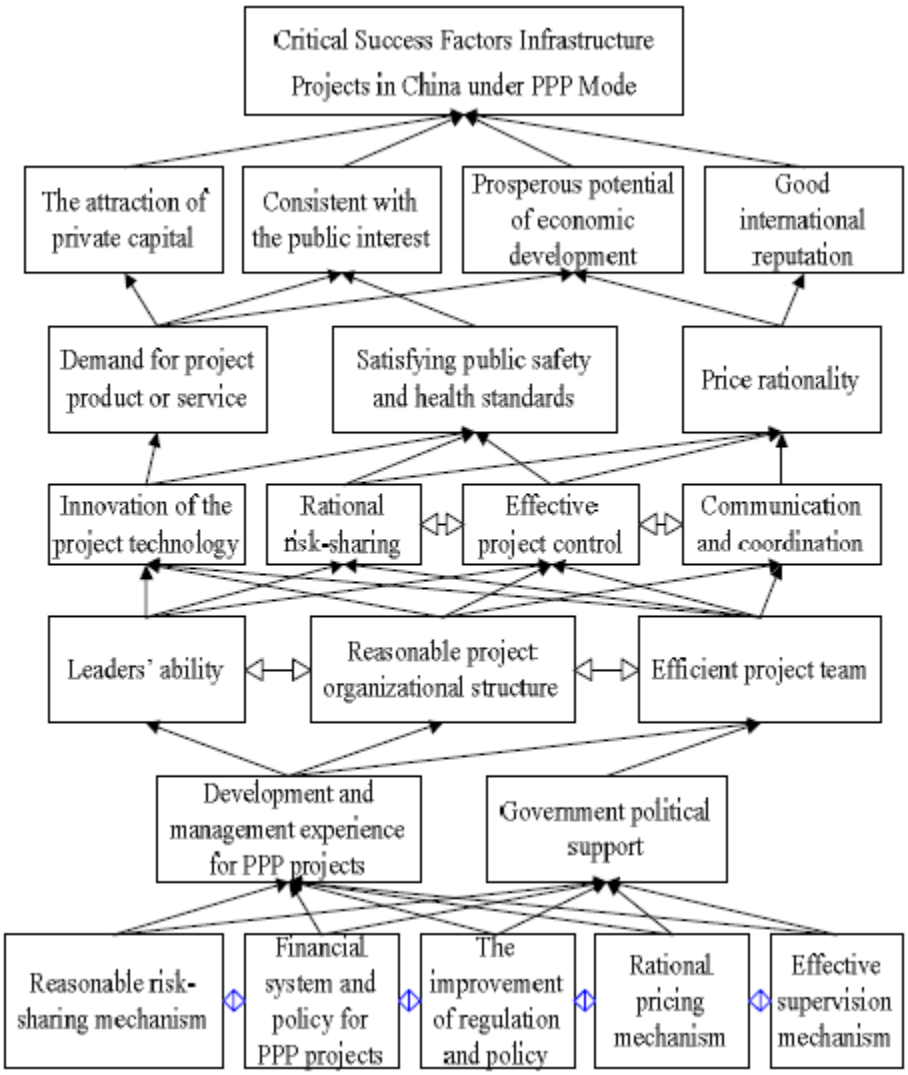
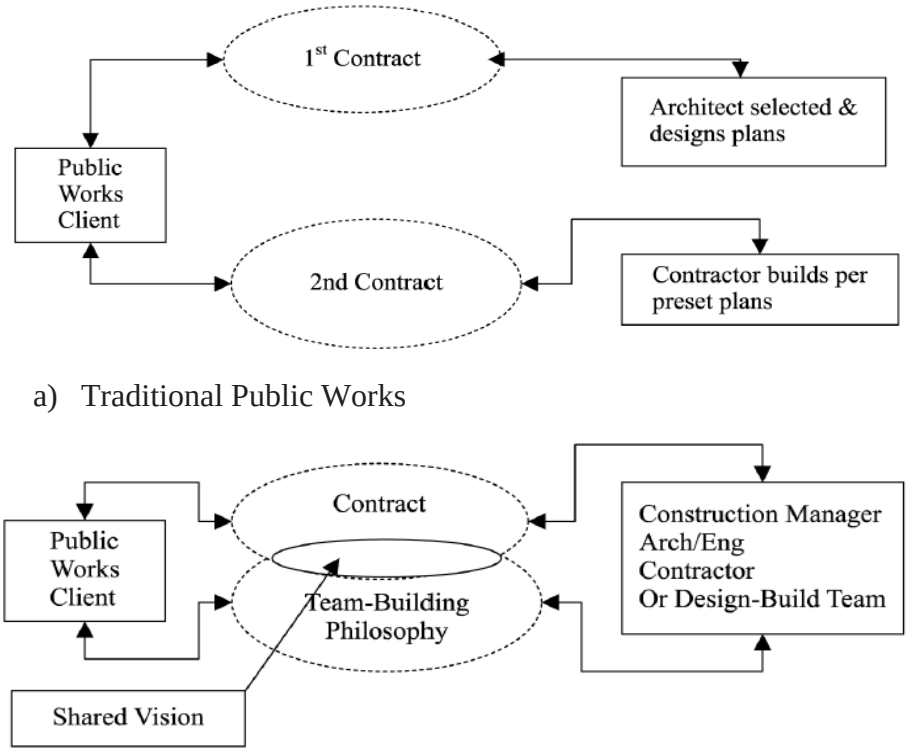


Figure 6. Interpretative Structure Model for Critical Success Factors under PPP Model

(Wang et al. 2007)

In 2008, Jacobson and Choi analyzed and compared main factors contributing to the success of PPPs and public works projects. First, the advantages of PPP compared to

tradional public works were introduced with the below Figure 7. In traditional public works, first the public authority make an agreement with the architect. When the architect delivers the design documents to the public authority, the contractor made an offer and realize to the project with that plans. Therefore, before selecting the contractor project plans were completed in a limited time without enough discussion and lowest bid contractor has to obey it. Meanwhile in PPP strategy, contractors has a chance to discuss projects with architect and offer their bids. This design-bid-build sequence provides direct communication between the architectural team and the construction team. In general, public authority selects general contractor for not only providing construction services but also architectural and engineering design parts.



a) Traditional Public Works

b) Team/Partnering Relationship

Figure 7. Comparison of traditional public works and team/partnering relationships (Jacobson and Choi, 2008)

While conducting study, a qualitative approach was used by interviews, observations and reviewing historical data regarding the project named as The Manhattan Beach

PPP which is comprised of a two-story subterranean public parking garage and a central public town square above the parking deck. The interview questionnaire included open-ended questions allowing flexibility. 15 person were interviewed including city council members, city executives, senior department managers, operational personnel, senior construction executives, construction managers, development executive, lead architects and financial/project management experts. Ten success factors were determined that are suitable for this project according to the results of the survey. These were: developing a shared vision, commitment to the vision and its potential for meeting realistic business and public goals, open communication through regular intensive meetings with a mechanism to resolve challenges, and a willingness to collaborate to attain the shared vision, respect with those you work with, community outreach giving the city what community wants, political support, expert advice, risk awareness, clear roles and responsibilities (Jacobson and Choi, 2008).

In 2010, Ke et al. made a a study in order to find preferred risk allocation in China's PPP projects. 34 potential risks in PPP projects were identified by the desktop literature review, telephone surveys and previous works of other researchers. Then, a Delphi survey was conducted in two rounds in order to analyze the risks and their allocation between public and private sectors in China. In total 46 completed questionnaires were obtained for evaluation. As a result of the research, it was determined that expropriation and nationalization risk should only be given to responsibility of public sector. Government's reliability, Government's intervention, Poor political decision-making, Land acquisition, Corruption, approval and permit rejection/duration, supporting utilities risk such as electricity and water, uncompetitive tender conditions, competition with government's similar projects, change in law, tax regulation changes, immature juristic system should mostly belong to the public sector. Financial risk, construction/operation changes, longer construction completion, delay in supply during construction, technology risk, operation cost overrun, residual assets risk, consortium inability, organization and coordination risk, private investor change should mostly be given to the

responsibility of private sector. Public/political opposition, tariff change, force majeure conditions, payment risk of consumer/government, environmental protection rules, insufficient financial audit of government to the project company, subjective evaluation and design of concession period, improper contracts, inflation, foreign exchange and convertibility, ground/weather conditions, market demand change, third party reliability, interest rate should be equally shared by both parties.

In 2011, Cheung and Chan reviewed the three types of projects including water and waste water, power and energy and transportation delivered by PPP method in China. Interview was carried out with the 38 experienced professional in the sector and they were asked to rank the predetermined 20 risk factors obtained from a detailed literature review. As a result of the research, the obtained ranked risk factors can be seen in Table 10. According to the results: government intervention, public credit, financing risk, poor public decision-making process, subjective project evaluation method, completion risk, government corruption, imperfect law and supervision system, and inability of concessionaire were the crucial risk factors for all three types of projects. Cheung and Chan (2011) also emphasized that the most of the risks of PPP projects in China are fundamentally related to the government.

Table 10. Comparison of Risk Ranking among Different Project Sectors (Cheung and Chan, 2011)

Risk No	Name of Risk	Rank of Water and Wastewater Project	Rank of Power and Energy Project	Rank of Transportation Project
1	Government intervention	4	1	1
2	Public credit	5	5	2
3	Financing risk	1	9	8
4	Poor public decision-making process	6	7	5
5	Subjective project evaluation method	3	3	7
6	Completion risk	2	14	16
7	Government corruption	12	2	10
8	Price change	9	10	3
9	Operation cost overrun	8	6	9
10	Imperfect law and supervision system	13	8	4
11	Project/operation changes	14	18	6
12	Inability of concessionaire	16	4	11
13	Inflation	7	15	20
14	Conflicting or imperfect contract	10	16	14
15	Interest rate fluctuation	11	11	18
16	Insufficient project finance supervision	15	13	12
17	Delay in project approvals and permits	17	19	15
18	Inadequate competition for tender	17	20	17
19	Foreign exchange fluctuation	17	17	19
20	Change in market demand (noncompetition factor caused)	20	12	13

In 2012, Ng. et al. made a study to explore the important factors to be evaluated at the initial phase of PPP projects from the perspectives of public, private and general community. First, a detailed literature review was conducted and advantages and possible risks to be faced in PPPs were determined including many success factors proposed by researchers for the feasibility stage of the project. Experts' ideas were also received in order to verify these obtained CSFs and in total, 36 CSFs from the literature are evaluated as relevant to the initial phase of a PPP projects. They were grouped under five main groups: (i) technical factors; (ii) financial and economic factors; (iii) social factors; (iv) political and legal; and (v) others (staff issue and possible management actions) (Table 11). Then, a prepared questionnaire survey was distributed to the respondents and they were asked to evaluate these factors in terms of their importance using a 7-point Likert scale in Hong Kong. 181 answers were obtained from the survey in total. As a result, acceptable level of tariff is evaluated as the most important factor needed to be evaluated at the feasibility phase of PPP projects. Cost effectiveness and financial attractiveness are evaluated as the most crucial factors from the public and private sectors respectively. Moreover, reliable service delivery, availability of strong private consortium, the existence of a long-term demand for the proposed services and alignment with government's strategic objectives were ranked as the higher importance in comparison to other factors for the success of PPP projects.

Table 11. Critical Success Factors for PPP Projects

(Ng. et al. 2012)

Technical
• Project size is technically manageable by a single consortium
• Possibility of innovative solutions (e.g. leading to time/cost savings)
• Availability of Government experience in packaging similar PPP projects
• Availability of experienced, strong and reliable private consortium
• Service quality can be easily defined and objectively measured
• Contract is flexible enough for frequent change in output specification
• Project is not susceptible to fast-paced change (e.g. technological change)
Financial and economic
• Project is more cost effective than traditional forms of project delivery
• Project can be substantially self-funded or on a non-recourse basis
• Project value is sufficiently large to avoid procurement disproportionate Procurement costs
• Project is of financial interest to private sector
• Project can attract foreign capital
• Project is bankable and profitability of the project is sufficient to attract investors and lenders
• Economic environment is stable and favorable
• Existence of a sound governmental economic policy
• Competition from other projects is limited
Social
• There is a long-term demand of the products/service in the community
• The community is understanding and supportive
• Delivery of services is stable and reliable
• Level of toll/tariff is acceptable
• Project can create more job opportunities
• Project is environmentally sustainable
Political and legal
• Project is not politically sensitive
• Political environment is stable
• There is political support for the project
• The project is compatible with current statutory and institutional arrangements
• There is a favorable legal framework (mature, reasonable and predictable)

Table 11 (Continued) (Ng et al., 2012)

Other
• Fairness of new conditions to employees
• Possibility of significant redundancy
• Existence of a resolution for any civil service staff redundancy
• Supportiveness and commitment of staff to the project
• Flexibility to decide appropriate risk allocation
• Support from the government (e.g. guarantee or loans) is available
• Authority can be shared between the public and private sectors
• Possibility of an effective control mechanism over the private consortium
• Matching government's strategic and long-term objectives

In 2013, Tang et al. researched and categorized the critical factors that affects the efficiency of PPP during early briefing stages of the project In Australia. Initially, a literature review was done about the PPP situation in Australia. Then, using obtained information, four main groups were identified with sub factors which are procurement, stakeholder, risk, and finance. Then, a questionnaire survey was prepared and distributed to the public and private sectors for evaluation of the potential of these factors to improve the PPP briefing stage. According to the analysis of literature, 15 procurement-related factors were obtained. These are respectively from highest rank to the lower: Experience of the brief writer, Adequate time for briefing, Control of process, Identification of client/owner requirements, Clear goals and objectives, Clear and precise briefing documents, Feedback from completed projects, Thorough understanding of client/owner requirements, Clear end-user requirements, Consensus building, Good record of decisions made, Flexibility of briefs to cater for changes, Time for freezing of brief documents, Development of a framework agreed by the key parties, Proper priority setting. In addition, 18 factors that may affect efficiency of relationship among stakeholders were identified. These are respectively from highest rank to the lower: Open and effective communication, Skillful guidance and advice from project manager, Openness and trust, Clarity of roles of stakeholders, Holding workshops for stakeholders, Knowledge of statutory and lease control of the project, Selection of briefing team, Experience of the client, Knowledge of client's responsibility, Honesty, Knowledge of consultants, Clear management structure, Experience of

stakeholder group, Sufficient consultation with stakeholders, Team commitment, Good facilitation, Balance of the needs/requirements of different stakeholders, Agreement of brief by all relevant parties.

Moreover, 9 factors were found relating to risk issues and 6 factors were determined for finance related issue of the briefing stages of PPP projects. These are respectively in descending order of importance; Commencement of risk register, Quantification of consequences of risks, Calculation of transferable and retained risks, Estimation of risk probabilities, Special risk assessment, Possible allocation of responsibilities and risks between the government and the private sector, Calculation of risk values, Identification of desired risk allocation, Good measurement of risk management/mitigation for the risk-related factors while Practical budget and program, Proposed commercial arrangement, Good financial standing of the private partner, Conduct of socioeconomic studies, Demonstration of how PPP can achieve the best value for money, Prepared bidding for funds through the Resource Allocation Exercise process are for the finance-related issues (Tang et al. 2013).

In 2014, Republic of Turkey Ministry of Development published a report on the evaluation of Public Private Cooperation in Turkey under the Tenth State Development Plan prepared by Public Private Cooperation Specialized Commission with the coordination of Public Private Cooperation Department. The purpose of this Commission is to analyze the present situation of PPP and to determine problems and proposed solutions that can be faced in Turkey from the 2014 up to 2023. This Special Commission conducted two successive meetings in 2012 and 55 person from Public, 23 person from Contractors, 17 person from Finance Institutions, 9 Non-Governmental Organizations, 2 person from universities and the consulting firms were attended as representatives. In these meetings, the all phases of Public Private Cooperation were discussed in 7 sessions which are respectively: Planning, Project Design and Approval, Tender Process, Contract Process, Financing, Construction and Operation, and Institutional Organization and Legislation. As a result of the long discussions of experienced professionals in Public Private Cooperation sector, the

opinions were expressed under below listed main ideas in summary (Table 12). In addition to them, the priority steps to be taken in order to develop and strengthen the application of PPP are categorized under these four main groups: establishment of a center coordination unit for the PPP for determining strategies and managing the process, improving the legal framework, overcoming problems resulting from lack of institutional capacity, and determination of the supports to be provided to the PPP model by public sector.

Table 12. Problems of PPP Projects in Turkey
(Republic of Turkey Ministry of Development,
Tenth State Development Plan, 2014)

Planning Phase
Usage of Public Private Partnership term instead of Public Private Cooperation
Inadequate sectorial and project planning and prioritization
Unexpected additional high costs at financial markets due to the same time launching of projects requiring huge amount of investment
The inadequate pre-planning of projects
The importance of preparing realistic and detailed feasibilities specifically examining financing opportunities
Usage of Public-Sector Comparator for selecting procurement methodology
During the planning phase of projects, taking into account the law of competence
The importance of experiences obtained from judicial decisions in planning phase of projects
The importance of stakeholder analysis for project
A policy need on local administration projects
The need for establishing a Special Agency to maintain PPP projects in the public sector with high coordination and consistent policies
The need of review of international experiences on PPP
Project Design and Approval Phase
The importance of conducting competition tenders for the project designs
Creating project group for each project to be realized with PPP model
The comparison on usage of preliminary project and as-built project while tendering
The importance of usage of consultant
The allowance to the private sector for developing projects and presenting them to the public sector for making a tender
The requirement of the including more PPP methods to the new legislative study of PPP

Table 12 (Continued) (Republic of Turkey Ministry of Development, 2014)

Tender Phase
The determination of tender system for PPP model and development of tender evaluation procedure
Inadequate preparation to tenders and negative effects of addendums
Providing legal supports to the bureaucrats in the cases of claims against the tenders
Raising rates of bind bond letters and requesting letter of intent for credit
The need for including right of raising claim in tenders at legal regulation
Prevention of tender delays turning into a tradition
The need for clearly defined durations and stages in tenders
Contract Phase
The requirement of clear and detailed writing of the contracts used in tendering
Entry into effect of the contracts with the financial close
Regulation of the termination of the contract conditions with the correct risk allocation
Adapting contracts to the changing conditions
Financing Phase
The impact of the crisis in finance market to the credit market of project
Increasing financial supports to the projects provided by public
The effect of increase of foreign capital in the Turkish banking sector in the credit process
The positive impact of foreign consortium partners and the benefit of encouraging them
The increase in credit costs and risk premiums due to the weak points in the project development processes
Looking into alternative finance methods and taking opinions of banks and companies during the development process of projects
The positive effect of the direct agreement mechanism between public sector and banks
The positive effect of covering project credits by Undersecretariat of Treasury In case of termination of the contract prior to the completion time
Construction and Operation Phase
Problems caused by the having many public authorities for decision on some sectors and lack of coordination during the realization of the investment
During the investment process using technical advisers by public institutions
During the operational phase, continuation of relationship between the public authority and project company with the partnership approach
The requirement of making performance evaluation and control of projects as publicly available
Institutional Organization and Legislation
Making unifying new PPP law with removal of many laws and regulations of PPP
Legislative changes to avoid interruption of project after awarding it
Not secret project specifications and contracts after tenders

CHAPTER 3

RESEARCH METHODOLOGY

The aim of this study is to determine and assess the judgments of both public and private sectors in terms of the types of Turkish construction projects carried out by PPP model and the most important problems with the critical success factors for improving PPP system.

This study was prepared with the adaptation of the methodology that Ng et al. (2012) and Hwang et al. (2013) applied in their own researches. The methodology used is shown in Figure 8. The method used for this research includes four main parts which are literature survey, pilot study questionnaires, face-to-face interviews and statistical data analysis.

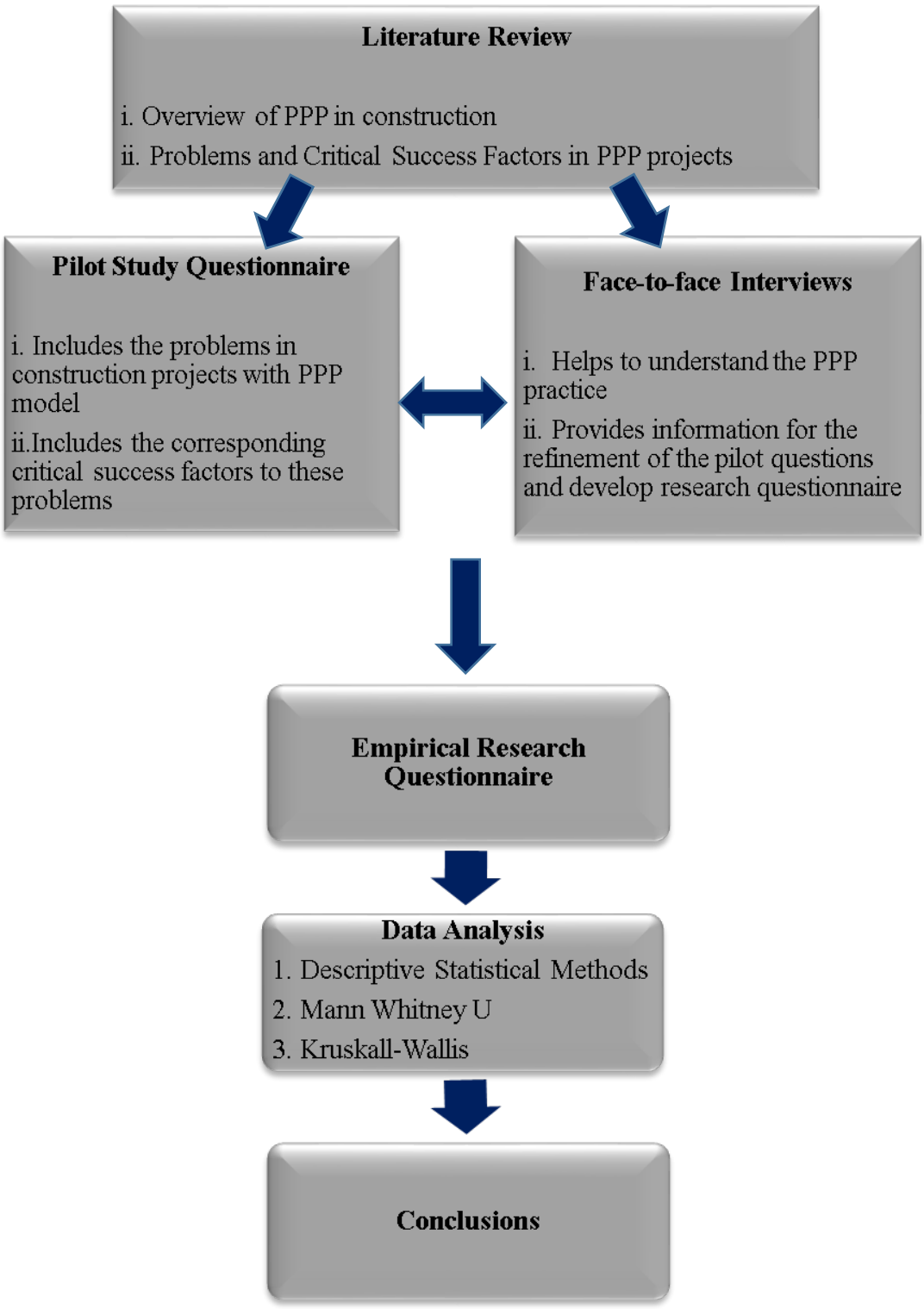


Figure 8. Research Framework

(Adopted from Ng et al. (2012))

In this research, the questionnaire is composed of 5 parts for the private sector investors while including 4 parts for the public sector administrations. There are 71 questions for the private sector professionals and 69 questions are available for the public sector professionals. Information about the content, organizing questions, applying and analyzing of survey will be mentioned in the upcoming sections.

3.1. Design of the questionnaire

Before delivering final questionnaire to the attendants, first of all a detailed literature survey was conducted in order to determine problems faced in the construction projects realized with PPP and related success factors to improve the PPP system in Turkey. In the light of this information, preliminary questions were checked and discussed with three experienced professionals by interview.

3.1.1. Literature Survey

As mentioned previously, due to the nature and complexity of PPP projects, they have a potential for having more problems compared to those traditionally procured projects. In this respect, CSFs have the main importance to explore the main points for the successful delivery of PPP projects. Also, there is a drive for more and better public infrastructure in Turkey with the increasing economic development. Therefore, the importance of PPP is crucial for Turkey as mentioned previously in World Bank reports.

Various surveys were conducted in different countries to determine problems and critical success factors of PPP projects such as Qiao et al. (2001), Jefferies et al. (2002), Akintoye et al. (2003), Zhang (2005), Li et al. (2005), Wang et al. (2007), Jacobson and Choi (2008), Ke et al. (2010), Cheung and Chan (2011), Ng. et al. (2012), Tang et al. (2013) as it was mentioned before. In addition to all these information, since this study is mainly conducted for presenting the condition of PPP in Turkey, the fundamentally used resource for selecting problems and

corresponding proposed success factors to them belongs to Republic of Turkey Ministry of Development's published report on the evaluation of Public Private Cooperation.

3.1.2 Pre-Questionnaire

The survey was designed based on a detailed literature survey and includes 5 parts. Those 5 parts are formed as follows;

- General Information about Participants
- The Experience of Your Company with the PPP Projects (Only for Private Sector)
- The Information about the Project to be Evaluated
- The Main Problems Encountered in Carrying Out PPP Projects
- The Critical Success Factors to Improve the Structure of the PPP System

In the first section, general information about the participants was requested. The information gathered from respondents are: "name of their institution or company", "e-mail addresses of them", "years of experience in construction industry", "years of experience in PPP projects", "sector that they are now working", "number of workers in their companies". Participants were divided into specific categories according to their general characteristics. Identified critical factors resulting in the questionnaire were analyzed in accordance with the categories in which the participants are classified.

The second part seeks to determine experience of respondents' companies in PPP projects. In this section, participants were asked about: "years of experience in PPP projects carried out by their company in Turkey". In addition, the respondents were asked to rate the success of their company about the conducted or completed PPP projects in Turkey.

In the third part, the participants were asked to determine one project for the evaluation in upcoming parts and the information about this project were investigated. These were about: “type of selected PPP project”, “sector of selected PPP project” and finally “rating success of their institution/company about the conducted or completed project.

In the fourth part, the essential problems faced while carrying out PPP projects were listed as a result of literature survey and interviews. Respondents were asked to rate them to identify the most important ones.

In the fifth and also final part, the necessary success factors for improving the PPP system in Turkey were determined with literature survey and interviews. Respondents were asked to rate them to identify the most crucial ones.

3.1.3 Face-to-face interviews

Before delivering to the participants, the prepared questionnaire using the literature review was revised in the light of the interviews with three experienced professionals in which one of them from public and the other ones from the private sector. As a result of these interviews the below listed information was obtained.

Cem Galip Özenen, Head of PPP Department at the Turkish Ministry of Development, was the first interviewed person. This department monitors, evaluates the PPP projects and also ensures coordination between the parties of these projects. In addition, taking measures to ensure compliance of planned BOT projects with sectorial strategies and development plans is also the one of the important missions of this department. As it was mentioned, the main used resource while preparing questionnaire was the report of Public Private Cooperation Specialized Commission with the coordination of PPP Department.

Cem Galip Özenen said that, PPP projects should be realized with detailed planning and prioritization under the coordination of public authorities. If this is not provided and projects with high investment amounts are presented simultaneously to the market, there is a risk of financing difficulty due to the occurrence of additional high costs. In addition, Özenen states that the pre-feasibility reports of projects should have realistic data for not only directing private companies to the right way but also for the evaluation of projects whether they are realized with PPP or traditional procurement methods by making comparative analysis from the economic and financial perspectives. According to the Cem Galip Özenen, there is a need for a single law covering all different PPP legislation and also one central independent unit responsible for the coordination of all PPP projects.

The second interview was made with Hüseyin Arslan, the chairman of the board of directors of YDA Construction Co. Inc., who has made great efforts for the improvement of the PPP sector in Turkey.

Hüseyin Arslan states that the first thing should be start from the solving the name of this partnership. Public Private Partnership term should be preferred instead of Public Private Cooperation. If the name of this work is partnership, public sector will realize that they do not have the dominant role in these projects and should listen and discuss all aspects of projects with the private sector on the same table. The purpose of meeting will not focus on problems of public side and private side, but how the project will be more successful while providing maximum benefit to the partners. According to the Arslan, the tender process should be determined carefully. The published lots of addendums causes to change in most of the tender documents and shows that the tender planning was not done well enough. Also, tender documents especially agreements should be bankable since they are actually among the partners of these projects. Without banks, as a private sector we could not finance these projects by ourselves. In addition, Arslan emphasized that if the public sector will be one of the shareholders in projects, the financing will be much easier due to the increased trust of banks.

The third interview was made with İzzet Saygın AKKAŞ, the deputy general manager at Bayraktar Construction Co. Inc., who has mostly worked for several international large scale infrastructure projects and many others in Turkey.

İzzet Saygın Aktaş explained that the public sector should not only be partner of private companies in project construction stage but also it should continue at operation phase of projects. The success of projects will actually show themselves at operation phase. Especially, the benefit to the public of these projects should be monitored and researched by the public sector. Therefore necessary precautions can be taken. In addition, Aktaş states that the financial closes of projects are important issue. Since, after contract agreement, there are long periods of financial discussions and looking for finance alternatives, the construction period may have long delays. Aktaş also emphasized that performance and quality related criteria are not evaluated enough in tenders when compared with the operating time or monetary criteria. These causes an important problems in construction and operation phases from the quality and efficiency perspectives.

3.1.4 Final Questionnaire

A pilot-study was conducted with a couple of project managers having experience in PPP projects to validate the questionnaire As a result of the pilot study and in the light of bilateral talks, the previously prepared pre-questionnaire was improved by finalizing the problems and critical success factors to be evaluated. Final questionnaire consisted of five parts and 71 questions for the private sector participants and four parts and 69 questions for the public sector participants. In a survey on the web, open-ended questions were asked in the first, second and third sections. In the fourth and fifth part of the survey, the participants were requested to answer questions using five-point Likert scale (1=least important and 5=most important) depending on their selection of project at the third part. The applied final questionnaire can be seen in Appendix.

3.2 Conducting Questionnaire

The questionnaire is an option for collecting information from people in a logical and easy way. In other words, it is a method used for asking predetermined appropriate questions to the designate populations that were previously decided. They can be applied with various methods including face-to-face interviews, phone calls and distribution of emails which is mostly preferred one. Today, most of the surveys are carried out via internet since large amounts of information can be collected from lots of person in a short time in a practical way. Moreover, the results of the questionnaires can usually be collected quickly and analyzed scientifically and objectively than other types of research methods.

The questionnaire was published on the internet through professional survey application program for the purpose of reaching a large number of people and getting responses quickly. The selected target group for the distribution of questionnaire is in line with the aim of study. The selected group includes institutions from public sector and investor companies from private sector which have worked before or now working on PPP construction projects in Turkey. Participants were mostly obtained from the attendants of meetings about Public Private Cooperation Workshop in Turkey which was mentioned previously. All participants of these meetings have direct or indirect relation with PPP projects in Turkey. In addition to that, several attendants were also obtained with the reference of interviewers mentioned before. As a result of the researches, 56 answered questionnaires were obtained. Information on the profile of the participants are presented in the following section.

3.3 Analysis of the Questionnaire Results

Statistical analysis was done by using SPSS 15.0 (Statistical Programs Social Sciences) software program. 196 questionnaires were sent out. 60 respondents returned with completed questionnaires. However, 56 of them were valid with 29 % effective return rate. These 56 respondents were included in the study. Reliability analysis were made in order to test the reliability of the resulting data sets from the

questionannaire. Alpha coefficient for reliability analysis (Cronbach's alpha) was used. Reliability of the questions were calculated above 0.70 which was accepted as minimum in the literature. As a result of the analysis the main problems faced by the public and private sector participants in carrying out PPP projects were analyzed by questionnaire consisting of 30 items and reliability was calculated as 93 %. In addition to that critical success factors in order to imrove the PPP system in Turkey were manalyzed by questionnaire consisting of 30 items and reliability was calculated as 82.7 %.

Frequencies, percentages, valid percentages and cumulative percentages were given for the evaluation of the data (qualitative). Descriptive statistical methods (mean, standard deviation, median, minimum and maximum values) were used for the questions evaluated with 5-point Likert Scale (quantitative).

For the comparison of data for the two groups, if the data are normally distributed T test is used. If the data do not have a normal distribution then Mann Whitney U test is used. However, the N value of the data analyzed in this study is below 30 while comparing sub-groups, without looking the whether the data is distributed normally or not, Mann Whitney U test were used in all paired comparisons.

One-way Anova test is used for the comparison of more than two groups having normal distributed data while Kruskal Wallis test is used if there is not normal distribution. However, the data analyzed in this study is below 30 while comparing sub-groups, without looking the distribution whether normal or not, the Kruskal Wallis test is used in all comparisons. Also, bonferroni corrected Mann-Whitney U test was used in order to determine the group of data causing the difference.

All statistical calculations were evaluated in the 95 % confidence interval and $p<0.05$ level of significance.

CHAPTER 4

FINDINGS AND ANALYSIS OF SURVEY RESULTS

4.1 Profiles of Participants and Classified Categories

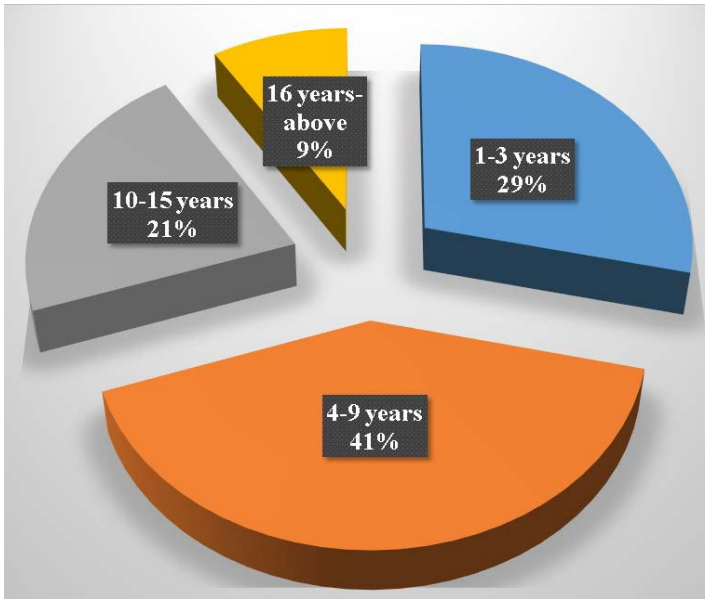
According to the answers to the questionnaire, 56 participants (21 public and 35 private sector participants from 22 different investor companies) were grouped under different categories. These categories can be seen in Figures 9, 10, 11, and 12 in details and are as follows:

1. Experience of participants in PPP construction projects,
2. The sector of participants that they are now working,
3. The position of participants in their institution/company,
4. The number of workers at participants' companies (private sector)

The participants are classified under 4 categories according to their experience in PPP construction projects. These categories are as follows:

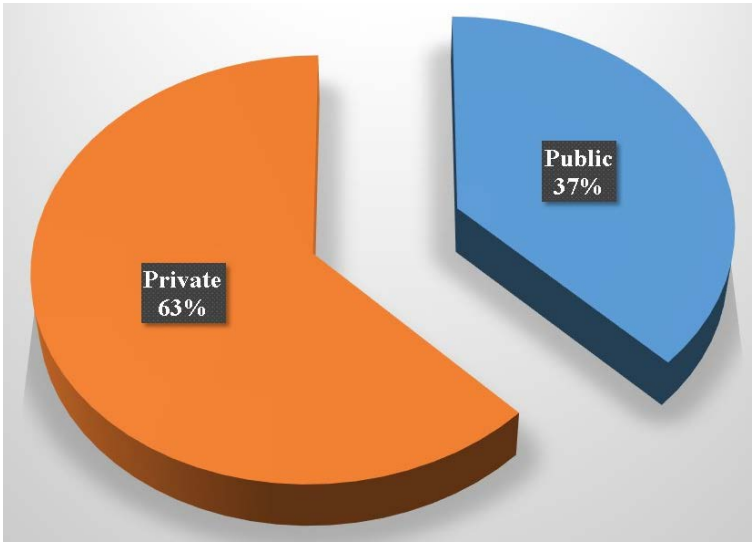
a. Having (1–3) years of experience
b. Having (4–9) years of experience
c. Having (10–15) years of experience
d. Having (16-above) years of experience

Figure 9. Classification of participants by their experience in PPP construction Projects



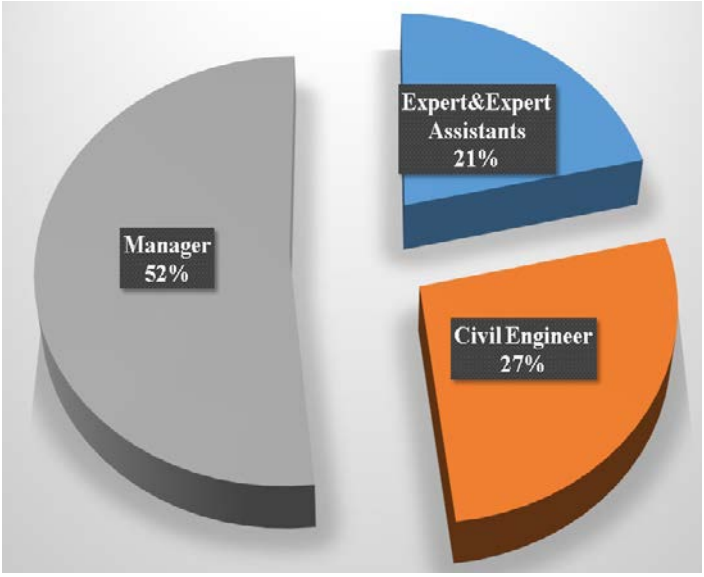
The participants are asked about “the sector that they are now working” and the classification of them accordingly is shown in Figure 10.

Figure 10. Classification of participants according to the sector that they are now working



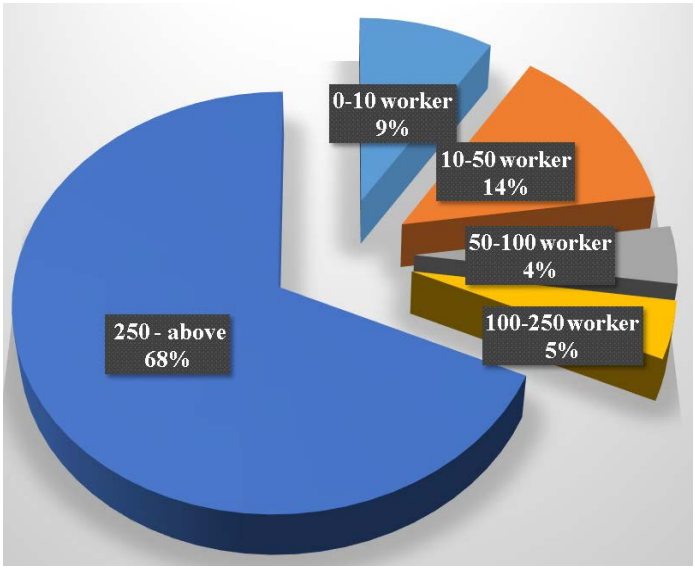
"The position of participants in their institution/company" was asked to the respondents. Their classification is shown in Figure 11.

Figure 11. Classification of participants according to the position at their institution / company



Among private sector, the participants are asked for the number of workers at their companies. The results are shown in Figure 12.

Figure 12. Classification of companies of participants' according to the number of workers



4.2 The Experience of Participants' Companies with the PPP Projects and the Classified Categories (Only for Private Sector)

According to the answers to the questionnaire, 35 participants from 22 different companies in the private sector were grouped under different categories and their evaluation was analyzed. These categories and evaluation can be seen in Figures 13 and 14 in details and are as follows:

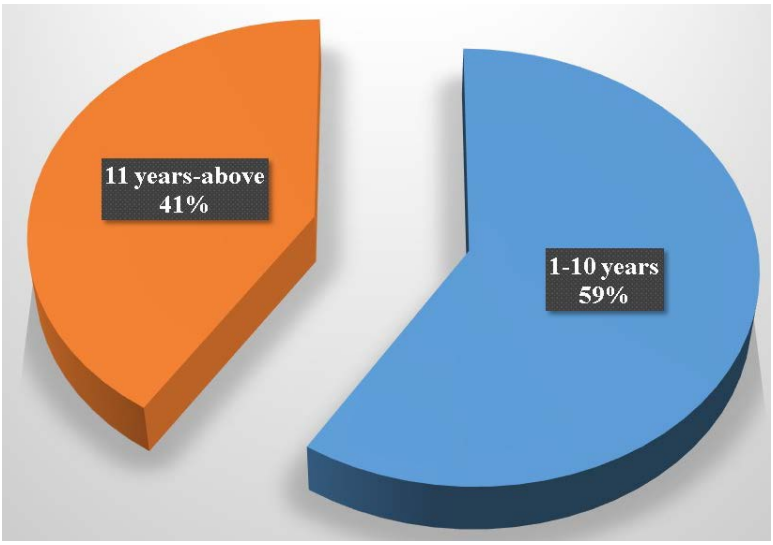
1. Experience of participants' companies with PPP projects in Turkey,
2. Scores participants have given their company for the evaluation of success in below listed steps of PPP projects at Turkey (1-very unsuccessful, 5-very successful):

    a. Funding in Appropriate Conditions and Time
    b. Design Process Preparations
    c. The Completion of Investment in the Period of Contract
    d. Profitability of the Project
    e. Management of Operating Period

The participants' companies are classified under 2 categories according to experience in PPP construction projects at Turkey. These categories are as follows:

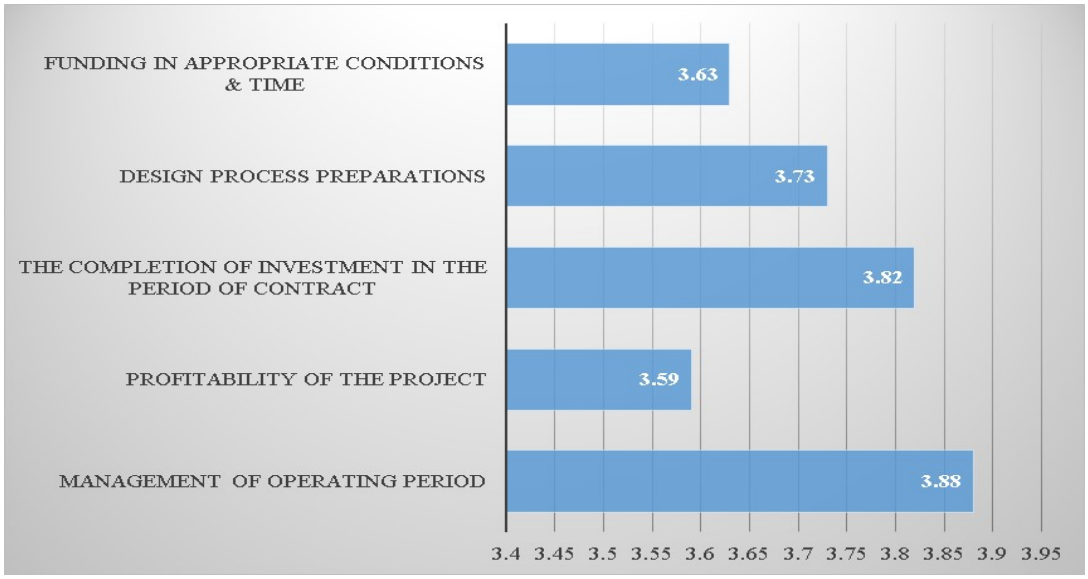
a. Having (1–10) years of experience
b. Having (11–above) years of experience

Figure 13. Classification of companies of participants' according to the experience in PPP construction projects at Turkey



Participants are asked for the scoring their company for the evaluation of success in PPP project steps that they are involved at Turkey. Results are presented in accordance with the mean scores of statements in Figure 14.

Figure 14. Scores that participants have given their company for the evaluation of success in listed steps of PPP projects at Turkey



4.3 The Information about The PPP Project to be evaluated for the faced problems

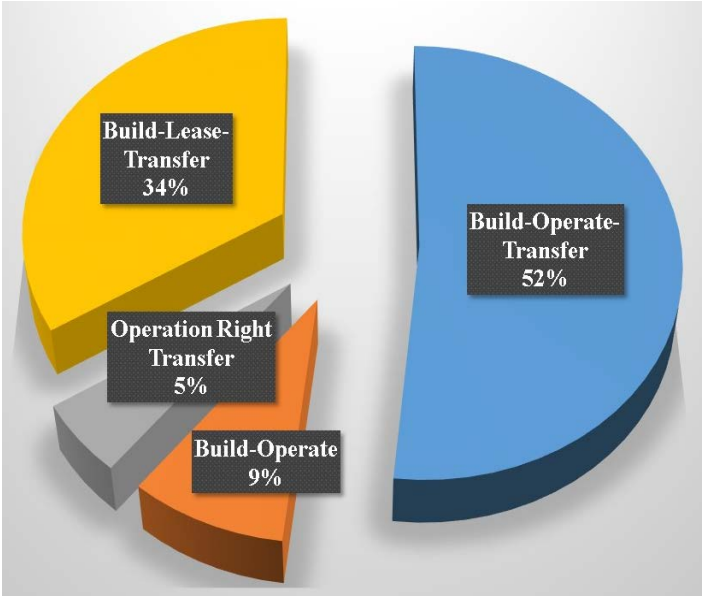
According to the answers to the questionnaire, 56 participants (21 from public and 35 from private sector) were grouped under different categories and their evaluation was analyzed. These categories and evaluation can be seen in Figures 15, 16 and 17 in details and are as follows:

1. PPP project category that the participants will evaluate,
2. PPP project type that the participants will evaluate,
3. Scores participants have given their institution/company for the evaluation of success in below listed steps of selected PPP project to be evaluated in fourth part of questionnaire (1-very unsuccessful, 5-very successful):

    a. Legislative Preparedness
    b. Project Planning – Prefeasibility Preparation
    c. Project Planning – Prefeasibility Evaluation
    d. Preparation of Tender Documents
    e. Funding in Appropriate Conditions and Time
    f. Design Process Preparations
    g. The Completion of Investment in the Period of Contract
    h. Profitability of the Project
    i. Management of Operating Period

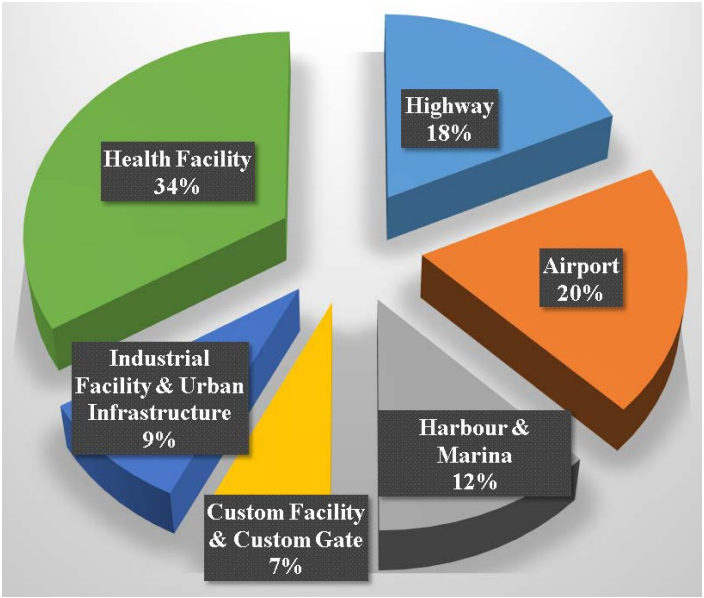
The participants are asked for the selected PPP project category for the evaluation of faced problems (fourth part of questionnaire). The results are shown in Figure 15.

Figure 15. Classification of participants with respect to selected PPP project category for the evaluation of faced problems



The participants are also asked for the selected PPP project type for the evaluation of faced problems. The results are shown in Figure 16.

Figure 16. Classification of participants with respect to selected PPP project type for the evaluation of faced problems



Participants are asked for the scoring their institution/company for the evaluation of success in steps of selected PPP project to be evaluated in following part of questionnaire. Results are presented in accordance with the mean scores of statements in Figure 17.

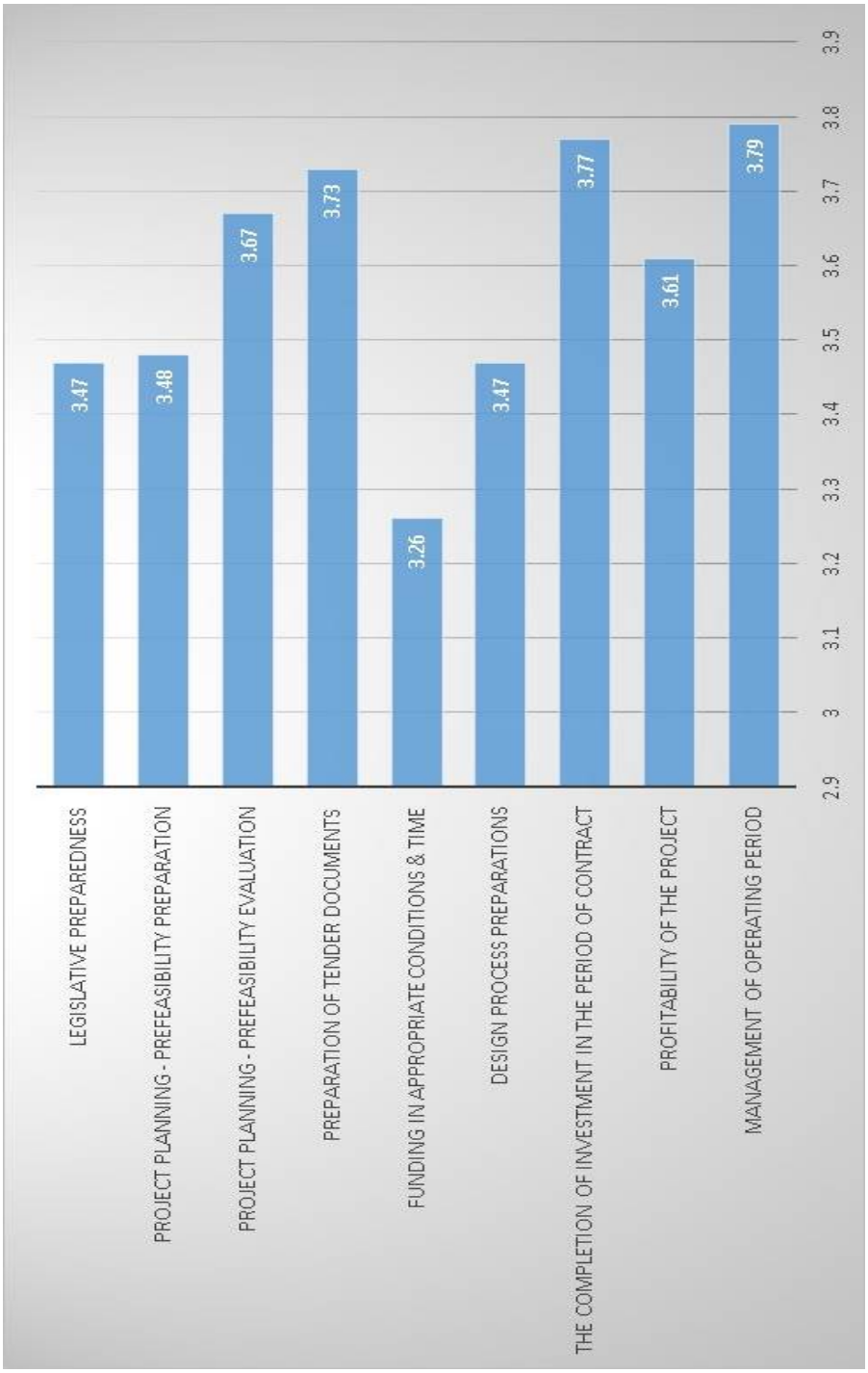


Figure 17. Scores that participants have given their institution/company for the evaluation of success in listed steps of selected PPP project at Turkey

4.4 The Main Problems Encountered in Carrying Out PPP Projects

In Table 13, the results of responses of the 30 questions that has been made with the purpose of identifying main problems considered important by the 56 participants from public and private sectors in carrying out PPP projects are listed.

Before analyzing the responses, first the reliability analysis of these 30 questions were checked. According to these analysis, Cronbach's Alpha was found as 0,930 (reliability % 93) and the all 30 questions are reliable.

Table 13. The main problems encountered by the participants in carrying out PPP projects

Problems		Mean	Std. Dev.	Var.	Sum	Frequency				
						5	4	3	2	1
Q1	**Inadequate planning and prioritization of projects before presenting to the public in the sector of selected project**	3.82	1.35	1.82	214	22	19	5	3	7
Q2	**Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost in the sector of selected project**	3.86	1.23	1.51	216	22	17	7	7	3
Q3	**The lack of cooperation in project planning and coordination among the public institutions**	3.77	1.22	1.49	211	18	21	7	6	4
Q4	**The lack of detailed preparation of public institute before tendering**	3.98	1.12	1.25	223	23	18	8	5	2
Q5	**The incompatible legal process with the project's needs**	3.20	1.49	2.23	179	14	15	6	10	11
Q6	**Tendering with general, unclear, open-ended specification and contract**	3.29	1.51	2.28	184	16	14	7	8	11
Q7	**The problem of municipal plan between investor and municipality during the project design work**	2.80	1.49	2.23	157	10	10	12	7	17
Q8	**The lack of realistic data in the prepared pre-feasibility report**	3.71	1.41	1.99	208	21	18	5	4	8
Q9	**The lack of comparative economic and financial analysis, in order to realize project with PPP model instead of tradional methods. (Public Sector Comparator)**	3.68	1.48	2.19	206	23	14	6	4	9
Q10	**Not taking the opinions of citizens, companies ,other stakeholders and non-governmental organizations to be affected from the project**	3.54	1.32	1.74	198	14	21	10	3	8
Q11	**The absence of as-built projects while realizing tenders**	2.89	1.59	2.53	162	12	12	9	4	19

Table 13 (Continued)

Problems		Mean	Std. Dev.	Var.	Sum	Frequency				
						5	4	3	2	1
Q12	**Insufficient usage of consultants during the preparation of tender files for project**	3.54	1.17	1.38	198	10	25	12	3	6
Q13	**Insufficient number of investors participating tender**	2.86	1.48	2.20	160	9	12	15	2	18
Q14	**The low interest of international investors for participating tender**	3.04	1.48	2.18	170	12	11	14	5	14
Q15	**The lack of adequate evaluation of performance and quality criteria in addition to operation period or monetary criteria in the tender**	3.55	1.32	1.74	199	15	20	9	5	7
Q16	**Low bid bond criteria in the tender**	1.88	1.10	1.20	105	1	4	12	9	30
Q17	**Many changes in original tender documents with the addendums**	3.07	1.40	1.96	172	8	19	11	5	13
Q18	**Postponement of tender date**	2.04	1.21	1.45	114	2	5	14	7	28
Q19	**The late notification of the tender result to the participants**	2.14	1.24	1.54	120	2	7	14	7	26
Q20	**The insufficient knowledge in PPP legislation about the objection mechanism to the tender**	2.04	1.33	1.78	114	4	5	11	5	31
Q21	**The lack of regulations in the contract of project having 20-30 years duration to adopt the changing conditions**	3.32	1.39	1.93	186	13	16	13	4	10
Q22	**The high equity/loan ratio of project**	2.48	1.48	2.18	139	6	13	5	10	22
Q23	**The enforcement for the termination of contract even in little contradiction of contract by investor**	2.41	1.56	2.43	135	8	9	8	4	27
Q24	**Inadequate and unreliable contract and tender documents in the eyes of creditors**	3.63	1.50	2.24	203	23	12	7	5	9
Q25	**Short-term maturity period for credits of finance institutions**	3.50	1.41	2.00	196	16	18	10	2	10
Q26	**Not providing adequate financial support to the project by public (direct credit supply, demand guarantee, treasury guarantee, refinancing guarantee, etc.)**	2.34	1.58	2.48	131	9	7	6	6	28

Table 13 (Continued)

Problems		Mean	Std. Dev.	Var.	Sum	Frequency				
						5	4	3	2	1
Q27	**Because of the foreign partners of Turkish banks, providing long-term financing to the projects in limited amount**	3.21	1.42	2.03	180	10	22	5	8	11
Q28	**Not being made balanced distribution of financial risks in contract**	3.29	1.44	2.06	184	14	15	10	7	10
Q29	**The high cost of project financing**	3.63	1.26	1.58	203	18	14	13	7	4
Q30	**The continuation of design and construction phases of project at the same time**	2.39	1.55	2.39	134	7	10	9	2	28

The analysis of data in Table 13 shows that the most popular 3 responses about the problems in carrying out PPP projects are as follows respectively;

1. The lack of detailed preparation of public institute before tendering
2. Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost.
3. Inadequate planning and prioritization of projects before presenting to the public.

Meanwhile, the least important problem was evaluated as the low bid bond criteria in the tender.

The importance of main problems encountered by the participants in carrying out PPP projects are analyzed according to the criteria listed below:

1. Experience of participants in PPP construction projects at Turkey,
2. The position of participants in their institution/company,
3. The sizes of participants' companies (private sector),
4. Experience of participants' companies in PPP projects at Turkey (private sector),
5. PPP project categories that the participants' have evaluated,

6. PPP project types that the participants' have evaluated,
7. The sector of participants that they are working.

When we make a comparison between the main problems considered important by the participants while carrying out PPP projects according to the experience of participants in PPP construction projects, values in Table 14 was obtained. As it can be seen, when responses are analyzed with respect to identified categories, the most important problem for the participants with an experience of both (1-10 years) and (10 & above years) is "The lack of detailed preparation of public institute before tendering". In addition to that "Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost" is evaluated as the most important one for the participants with an experience of (10 & above years).

As a result of the Mann-Whitney U test (Table 15), it was observed that there is not a significant difference between categories of experience of participants in PPP construction projects for the responses given to the questions ($p>0.05$).

Table 14. The main problems considered important by the participants in carrying out PPP projects according to their experience

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
1-10 Years	N	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
	Mean	3.77	3.77	3.79	3.95	3.31	3.36	2.77	3.69	3.62	3.49	2.77	3.49	2.90	2.97	3.49
	Std. Deviation	1.31	1.33	1.20	1.14	1.40	1.46	1.49	1.32	1.48	1.34	1.55	1.25	1.50	1.51	1.35
	Median	4	4	4	4	4	4	3	4	4	4	3	4	3	3	4
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
10 - Above Years	N	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
	Mean	3.94	4.06	3.71	4.06	2.97	3.12	2.88	3.76	3.82	3.65	3.18	3.65	2.76	3.18	3.71
	Std. Deviation	1.33	0.97	1.31	1.09	1.71	1.65	1.54	1.64	1.51	1.32	1.70	0.99	1.48	1.42	1.26
	Median	4	4	4	4	4	3	3	4	4	4	3	4	3	3	4
	Minimum	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

		Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
1-10 Years	N	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
	Mean	1.77	2.87	2.03	2.26	2.10	3.31	2.59	2.41	3.54	3.33	2.51	3.38	3.28	3.56	2.44
	Std. Deviation	0.96	1.42	1.14	1.23	1.37	1.38	1.46	1.52	1.54	1.49	1.64	1.35	1.38	1.25	1.50
	Median	1	3	2	2	1	4	2	2	4	4	2	4	3	4	2
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
10- Above Years	N	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
	Mean	2.12	3.53	2.06	1.88	1.88	3.35	2.24	2.41	3.82	3.88	1.94	2.82	3.29	3.76	2.29
	Std. Deviation	1.36	1.28	1.39	1.27	1.27	1.45	1.52	1.70	1.42	1.17	1.39	1.55	1.61	1.30	1.69
	Median	1	4	1	1	1	3	2	1	4	4	1	3	4	4	1
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 15. Comparison of responses to main problems considered important by the participants in carrying out PPP projects according to their experience in business life

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
Q1	1-10 Years	27.44	1070.00	290.00	0.435
	10 - Above Years	30.94	526.00		
Q2	1-10 Years	27.87	1087.00	307.00	0.647
	10 - Above Years	29.94	509.00		
Q3	1-10 Years	28.67	1118.00	325.00	0.903
	10 - Above Years	28.12	478.00		
Q4	1-10 Years	28.15	1098.00	318.00	0.799
	10 - Above Years	29.29	498.00		
Q5	1-10 Years	29.59	1154.00	289.00	0.437
	10 - Above Years	26.00	442.00		
Q6	1-10 Years	29.19	1138.50	304.50	0.621
	10 - Above Years	26.91	457.50		
Q7	1-10 Years	28.09	1095.50	315.50	0.770
	10 - Above Years	29.44	500.50		
Q8	1-10 Years	27.63	1077.50	297.50	0.525
	10 - Above Years	30.50	518.50		
Q9	1-10 Years	27.74	1082.00	302.00	0.582
	10 - Above Years	30.24	514.00		
Q10	1-10 Years	27.90	1088.00	308.00	0.663
	10 - Above Years	29.88	508.00		
Q11	1-10 Years	27.19	1060.50	280.50	0.348
	10 - Above Years	31.50	535.50		
Q12	1-10 Years	28.38	1107.00	327.00	0.932
	10 - Above Years	28.76	489.00		
Q13	1-10 Years	28.95	1074.00	314.00	0.747
	10 - Above Years	27.47	467.00		
Q14	1-10 Years	27.87	1087.00	307.00	0.654
	10 - Above Years	29.94	509.00		
Q15	1-10 Years	27.73	1081.50	301.50	0.579
	10 - Above Years	30.26	514.50		
Q16	1-10 Years	27.60	1076.50	296.50	0.494
	10 - Above Years	30.56	519.50		
Q17	1-10 Years	26.31	1026.00	246.00	0.116
	10 - Above Years	33.53	570.00		
Q18	1-10 Years	28.76	1121.50	321.50	0.847
	10 - Above Years	27.91	474.50		
Q19	1-10 Years	30.08	1173.00	270.00	0.243
	10 - Above Years	24.88	423.00		
Q20	1-10 Years	29.17	1137.50	305.50	0.609
	10 - Above Years	26.97	458.50		
Q21	1-10 Years	28.35	1105.50	325.50	0.912
	10 - Above Years	28.85	490.50		
Q22	1-10 Years	29.62	1155.00	288.00	0.419
	10 - Above Years	25.94	441.00		
Q23	1-10 Years	28.60	1115.50	327.50	0.939
	10 - Above Years	28.26	480.50		
Q24	1-10 Years	27.63	1077.50	297.50	0.526
	10 - Above Years	30.50	518.50		
Q25	1-10 Years	26.83	1046.50	266.50	0.230
	10 - Above Years	32.32	549.50		
Q26	1-10 Years	30.36	1184.00	259.00	0.165
	10 - Above Years	24.24	412.00		
Q27	1-10 Years	30.37	1184.50	258.50	0.176
	10 - Above Years	24.21	411.50		
Q28	1-10 Years	28.23	1101.00	321.00	0.848
	10 - Above Years	29.12	495.00		
Q29	1-10 Years	27.65	1078.50	298.50	0.543
	10 - Above Years	30.44	517.50		
Q30	1-10 Years	29.05	1133.00	310.00	0.680
	10 - Above Years	27,24	463,00		

The problems considered important by the participants while carrying out PPP projects are also analyzed according to position of them in their institution/company in 2 categories as managers and others which includes experts and civil engineers. When responses are analyzed according to identified categories, the most important factor for the participants in both categories is “The lack of detailed preparation of public institute before tendering” (Table 16).

With Mann-Whitney-U test, it is assessed whether there is a difference between identified categories according to the responses given by the participants. As a result of the Mann-Whitney U test (Table 17), it was observed that there is not a significant difference between participants according to their working position while realizing PPP construction projects for the responses given to the questions ($p>0.05$).

Table 16. The main problems considered important by the participants in carrying out PPP projects according to position of them in their institution/company

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
Managers	N	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
	Mean	3.90	3.86	3.79	4.03	3.10	3.28	2.86	3.55	3.55	3.72	3.10	3.62	2.90	3.14	3.55
	Std. Deviation	1.26	1.22	1.26	1.12	1.61	1.58	1.55	1.53	1.53	1.28	1.42	1.05	1.45	1.43	1.33
	Median	4	4	4	4	3	3	3	4	4	4	3	4	3	3	4
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
The Others	N	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
	Mean	3.74	3.85	3.74	3.93	3.30	3.30	2.74	3.89	3.81	3.33	2.67	3.44	2.81	2.93	3.56
	Std. Deviation	1.46	1.26	1.20	1.14	1.38	1.46	1.46	1.28	1.44	1.36	1.75	1.31	1.55	1.54	1.34
	Median	4	4	4	4	4	4	3	4	4	4	2	4	3	3	4
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

		Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
Managers	N	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
	Mean	2.03	3.03	2.00	1.90	2.03	3.28	2.48	2.59	3.79	3.66	2.21	3.00	3.34	3.66	2.31
	Std. Deviation	1.21	1.43	1.34	1.26	1.43	1.41	1.50	1.64	1.47	1.34	1.68	1.44	1.40	1.34	1.51
	Median	2	3	1	1	1	3	2	2	4	4	1	3	4	4	1
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
The Others	N	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
	Mean	1.70	3.11	2.07	2.41	2.04	3.37	2.48	2.22	3.44	3.33	2.48	3.44	3.22	3.59	2.48
	Std. Deviation	0.95	1.40	1.07	1.19	1.26	1.39	1.48	1.48	1.53	1.49	1.48	1.40	1.50	1.19	1.60
	Median	1	3	2	3	1	4	2	1	4	4	2	4	4	4	2
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 17. Comparison of responses to main problems considered important by the participants in carrying out PPP projects according to their working position in their institution/company

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
Q1	Managers	28.81	835.50	382.50	0.876
	The Others	28.17	760.50		
Q2	Managers	28.36	822.50	387.50	0.945
	The Others	28.65	773.50		
Q3	Managers	29.10	844.00	374.00	0.764
	The Others	27.85	752.00		
Q4	Managers	29.31	850.00	368.00	0.684
	The Others	27.63	746.00		
Q5	Managers	27.86	808.00	373.00	0.756
	The Others	29.19	788.00		
Q6	Managers	28.69	832.00	386.00	0.926
	The Others	28.30	764.00		
Q7	Managers	29.09	843.50	374.50	0.775
	The Others	27.87	752.50		
Q8	Managers	26.93	781.00	346.000	0.434
	The Others	30.19	815.00		
Q9	Managers	26.88	779.50	344.50	0.419
	The Others	30.24	816.50		
Q10	Managers	30.93	897.00	321.00	0.229
	The Others	25.89	699.00		
Q11	Managers	30.43	882.50	335.50	0.343
	The Others	26.43	713.50		
Q12	Managers	28.91	838.50	379.50	0.835
	The Others	28.06	757.50		
Q13	Managers	28.78	834.50	383.500	0.892
	The Others	28.20	761.50		
Q14	Managers	29.57	857.50	360.50	0.602
	The Others	27.35	738.50		
Q15	Managers	28.45	825.00	390.00	0.980
	The Others	28.56	771.00		

		Mean Rank	sum of Ranks	Mann-Whitney U	P Value
Q16	Managers	30.40	881.50	336.50	0.323
	The Others	26.46	714.50		
Q17	Managers	28.17	817.00	382.00	0.872
	The Others	28.85	779.00		
Q18	Managers	27.45	796.00	361.00	0.589
	The Others	29.63	800.00		
Q19	Managers	25.19	730.50	295.50	0.093
	The Others	32.06	865.50		
Q20	Managers	28.05	813.50	378.50	0.814
	The Others	28.98	782.50		
Q21	Managers	27.74	804.50	369.500	0.711
	The Others	29.31	791.50		
Q22	Managers	28.33	821.50	386.50	0.932
	The Others	28.69	774.50		
Q23	Managers	30.14	874.00	344.00	0.406
	The Others	26.74	722.00		
Q24	Managers	30.47	883.50	334.50	0.328
	The Others	26.39	712.50		
Q25	Managers	29.91	867.50	350.50	0.486
	The Others	26.98	728.50		
Q26	Managers	26.84	778.50	343.50	0.398
	The Others	30.28	817.50		
Q27	Managers	25.97	753.00	318.00	0.210
	The Others	31.22	843.00		
Q28	Managers	28.95	839.50	378.50	0.827
	The Others	28.02	756.50		
Q29	Managers	29.19	846.50	371.50	0.735
	The Others	27.76	749.50		
Q30	Managers	27.71	803.50	368.50	0.685
	The Others	29.35	792.50		

Before analyzing the main problems considered important in carrying out PPP projects with respect to the companies of private sector participants (at manager position), the companies are grouped in two level according to their sizes. Considering the Turkish Legislation, according to the no of workers, the companies with 0-250 workers are categorized as small-medium sized (in sub-categories) enterprises while the companies having more than 250 workers are the large-scale ones. The most important factor for the participants working at small-medium sized companies is “The lack of detailed preparation of public institute before tendering while “Inadequate and unreliable contract and tender documents in the eyes of creditors” is the most important one for the participants’ at large-scale companies (Table 18).

There is a statistically significant difference between two responses of the participants. These are “The incompatible legal process with the project's needs” ($p<0.05$) and “Low bid bond criteria in the tender”. Both of these problems are considered more important by the participants working at companies having more than 250 workers ($p<0.01$) (Table 19).

Table 18. The main problems encountered by the participants in carrying out PPP projects according to the size of participants’ companies

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
0-250	N	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Mean	4.00	3.57	3.71	4.14	2.57	3.29	3.57	3.86	4.00	3.86	3.14	4.00	2.71	2.71	3.71
	Std. Deviation	1.29	1.62	1.11	1.07	1.27	1.50	1.62	1.35	1.53	1.46	2.04	1.41	1.70	1.70	1.38
	Median	5	4	4	4	2	3	4	4	5	4	4	4	3	3	4
	Minimum	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
250-Above	N	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	Mean	3.73	4.20	4.33	4.07	3.93	4.07	3.40	3.40	3.80	4.07	3.40	3.67	3.47	3.60	3.87
	Std. Deviation	1.28	1.01	0.72	0.96	1.28	1.22	1.35	1.35	1.15	0.96	1.24	1.11	1.46	1.30	1.06
	Median	4	5	4	4	4	4	3	4	4	4	3	4	4	4	4
	Minimum	1	2	3	2	1	1	1	1	1	2	1	1	1	1	2
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 18 (Continued)

		Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
0-250	N	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Mean	1.00	3.43	2.57	2.57	2.14	3.43	3.86	3.14	3.57	3.86	2.14	3.14	3.71	3.43	3.00
	Std. Deviation	0.00	1.51	1.51	1.62	1.95	1.27	1.46	1.35	1.40	1.46	1.95	1.35	1.50	1.51	1.63
	Median	1	4	2	3	1	4	4	3	4	4	1	3	4	4	4
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	1	5	5	5	5	5	5	5	5	5	5	5	5	5	5
250-Above	N	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	Mean	2.80	3.33	2.07	2.13	2.47	4.00	3.13	3.40	4.40	4.27	3.33	3.33	3.87	4.13	2.73
	Std. Deviation	1.21	1.23	1.16	1.25	1.46	1.31	1.41	1.35	0.91	0.80	1.68	1.45	0.92	0.99	1.28
	Median	3	4	2	2	3	5	4	4	5	4	4	4	4	4	3
	Minimum	1	1	1	1	1	1	1	1	2	3	1	1	2	2	1
	Maximum	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5

Table 19. Comparison of responses to main problems considered important by the participants in carrying out PPP projects according to sizes of their companies

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
Q1	0-250	12.57	88.00	45.00	0.630
	250-Above	11.00	165.00		
Q2	0-250	9.93	69.50	41.50	0.447
	250-Above	12.23	183.50		
Q3	0-250	9.00	63.00	35.00	0.237
	250-Above	12.67	190.00		
Q4	0-250	12.00	84.00	49.00	0.837
	250-Above	11.27	169.00		
Q5	0-250	7.36	51.50	23.50	**<0.039***
	250-Above	13.43	201.50		
Q6	0-250	9.07	63.50	35.50	0.237
	250-Above	12.63	189.50		
Q7	0-250	12.21	85.50	47.50	0.731
	250-Above	11.17	167.50		
Q8	0-250	13.14	92.00	41.00	0.447
	250-Above	10.73	161.00		
Q9	0-250	13.00	91.00	42.00	0.490
	250-Above	10.80	162.00		
Q10	0-250	11.36	79.50	51.50	0.945
	250-Above	11.57	173.50		
Q11	0-250	11.21	78.50	50.50	0.891
	250-Above	11.63	174.50		
Q12	0-250	13.50	94.50	38.50	0.332
	250-Above	10.57	158.50		
Q13	0-250	9.43	66.00	38.00	0.332
	250-Above	12.47	187.00		
Q14	0-250	9.14	64.00	36.00	0.267
	250-Above	12.60	189.00		
Q15	0-250	11.29	79.00	51.00	0.945
	250-Above	11.60	174.00		

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
Q16	0-250	5.50	38.50	10.50	**<0.002****
	250-Above	14.30	214.50		
Q17	0-250	12.07	84.50	48.50	0.783
	250-Above	11.23	168.50		
Q18	0-250	13.00	91.00	42.00	0.490
	250-Above	10.80	162.00		
Q19	0-250	12.57	88.00	45.00	0.630
	250-Above	11.00	165.00		
Q20	0-250	10.14	71.00	43.00	0.535
	250-Above	12.13	182.00		
Q21	0-250	9.21	64.50	36.50	0.267
	250-Above	12.57	188.50		
Q22	0-250	13.93	97.50	35.50	0.237
	250-Above	10.37	155.50		
Q23	0-250	10.50	73.50	45.50	0.630
	250-Above	11.97	179.50		
Q24	0-250	8.57	60.00	32.00	0.162
	250-Above	12.87	193.00		
Q25	0-250	10.71	75.00	47.0	0.731
	250-Above	11.87	178.00		
Q26	0-250	8.50	59.50	31.50	0.142
	250-Above	12.90	193.50		
Q27	0-250	10.79	75.50	47.50	0.731
	250-Above	11.83	177.50		
Q28	0-250	11.57	81.00	52.00	1.000
	250-Above	11.47	172.00		
Q29	0-250	9.43	66.00	38.00	0.332
	250-Above	12.47	187.00		
Q30	0-250	12.64	88.50	44.50	0.581
	250-Above	10.97	164.50		

* $p < 0.05$ ** $p < 0.01$

When the main problems considered important by the participants for a PPP projects according to the experience of their companies in PPP projects at Turkey are analyzed, the companies having 1-10 year experience evaluated “The lack of cooperation in project planning and coordination among the public institutions” is the most important one while the companies having 11-above year experience evaluated “The lack of detailed preparation of public institute before tendering” as the most important problem (Table 20).

In the comparison of responses given by the participants, As a result of the Mann-Whitney U test (Table 21), it was observed that there is not a significant difference between participants according to both categories ($p>0.05$).

Table 20. The main problems encountered by the participants in carrying out PPP projects according to the experience of their companies in PPP projects at Turkey

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
1-10 Years	N	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
	Mean	3.62	3.69	4.08	3.77	3.31	3.85	3.31	3.23	3.62	4.00	3.08	3.46	3.15	3.23	3.69
	Std. Deviation	0.33	0.35	0.29	0.30	0.38	0.39	0.38	0.38	0.42	0.34	0.42	0.39	0.42	0.44	0.33
	Median	4	4	4	4	3	4	3	4	4	4	3	4	3	3	4
	Minimum	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
11-Above Years	N	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	Mean	4.11	4.44	4.22	4.56	3.78	3.78	3.67	4.00	4.22	4.00	3.67	4.22	3.33	3.44	4.00
	Std. Deviation	0.45	0.38	0.22	0.18	0.49	0.43	0.50	0.41	0.22	0.33	0.50	0.22	0.55	0.44	0.37
	Median	5	5	4	5	4	4	4	4	4	4	4	4	4	4	4
	Minimum	1	2	3	4	1	1	1	1	3	3	1	3	1	1	2
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 20 (Continued)

		Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
1-10 Years	N	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
	Mean	2.38	3.31	2.23	2.38	2.62	3.85	3.54	3.38	4.00	4.00	2.69	3.15	3.62	3.77	2.92
	Std. Deviation	0.35	0.36	0.32	0.38	0.47	0.41	0.35	0.33	0.36	0.32	0.50	0.41	0.35	0.30	0.37
	Median	3	4	2	2	3	4	4	4	4	4	2	3	4	4	3
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1
	Maximum	4	5	4	5	5	5	5	5	5	5	5	5	5	5	5
11-Above Years	N	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	Mean	2.00	3.44	2.22	2.11	2.00	3.78	3.11	3.22	4.33	4.33	3.33	3.44	4.11	4.11	2.67
	Std. Deviation	0.47	0.44	0.49	0.45	0.47	0.36	0.56	0.52	0.29	0.29	0.62	0.44	0.26	0.45	0.50
	Median	1	4	2	2	1	4	3	4	5	5	4	4	4	5	3
	Minimum	1	1	1	1	1	2	1	1	3	3	1	1	3	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 21. Comparison of responses to main problems considered important by the participants in carrying out PPP projects according to experience of their companies in PPP projects at Turkey

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
Q1	1-10 Years	10.27	133.50	42.50	0.263
	11-Above Years	13.28	119.50		
Q2	1-10 Years	9.69	126.00	35.00	0.091
	11-Above Years	14.11	127.00		
Q3	1-10 Years	11.38	148.00	57.00	0.915
	11-Above Years	11.67	105.00		
Q4	1-10 Years	9.62	125.00	34.00	0.081
	11-Above Years	14.22	128.00		
Q5	1-10 Years	10.62	138.00	47.00	0.427
	11-Above Years	12.78	115.00		
Q6	1-10 Years	11.85	154.00	54.00	0.753
	11-Above Years	11.00	99.00		
Q7	1-10 Years	10.77	140.00	49.00	0.513
	11-Above Years	12.56	113.00		
Q8	1-10 Years	9.88	128.50	37.50	0.138
	11-Above Years	13.83	124.50		
Q9	1-10 Years	10.77	140.00	49.00	0.504
	11-Above Years	12.56	113.00		
Q10	1-10 Years	11.77	153.00	55.00	0.805
	11-Above Years	11.11	100.00		
Q11	1-10 Years	10.46	136.00	45.00	0.352
	11-Above Years	13.00	117.00		
Q12	1-10 Years	10.15	132.00	41.00	0.214
	11-Above Years	13.44	121.00		
Q13	1-10 Years	11.12	144.50	53.50	0.732
	11-Above Years	12.06	108.50		
Q14	1-10 Years	11.23	146.00	55.00	0.811
	11-Above Years	11.89	107.00		
Q15	1-10 Years	10.81	140.50	49.50	0.530
	11-Above Years	12.50	112.50		
Q16	1-10 Years	12.38	161.00	47.00	0.414
	11-Above Years	10.22	92.00		
Q17	1-10 Years	11.23	146.00	55.00	0.809
	11-Above Years	11.89	107.00		
Q18	1-10 Years	11.69	152.00	56.00	0.861
	11-Above Years	11.22	101.00		
Q19	1-10 Years	12.04	156.50	51.50	0.625
	11-Above Years	10.72	96.50		
Q20	1-10 Years	12.35	160.50	47.50	0.428
	11-Above Years	10.28	92.50		
Q21	1-10 Years	12.00	156.00	52.00	0.649
	11-Above Years	10.78	97.00		
Q22	1-10 Years	11.96	155.50	52.50	0.678
	11-Above Years	10.83	97.50		
Q23	1-10 Years	11.62	151.00	57.00	0.918
	11-Above Years	11.33	102.00		
Q24	1-10 Years	11.00	143.00	52.00	0.639
	11-Above Years	12.22	110.00		
Q25	1-10 Years	10.81	140.50	49.50	0.519
	11-Above Years	12.50	112.50		
Q26	1-10 Years	10.77	140.00	49.00	0.504
	11-Above Years	12.56	113.00		
Q27	1-10 Years	11.00	143.00	52.00	0.657
	11-Above Years	12.22	110.00		
Q28	1-10 Years	10.54	137.00	46.00	0.383
	11-Above Years	12.89	116.00		
Q29	1-10 Years	10.42	135.50	44.50	0.326
	11-Above Years	13.06	117.50		
Q30	1-10 Years	11.96	155.50	52.50	0.679
	11-Above Years	10.83	97.50		

The main problems considered important by the participants while carrying out PPP projects were analyzed in terms of the evaluated PPP project categories. When responses are analyzed according to the identified categories, the most important factor in Build-Operate-Transfer (BOT) type projects is “The lack of detailed preparation of public institute before tendering” while in Build-Operate (BO) type projects is “Inadequate planning and prioritization of projects before presenting to the public”. “Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost” is evaluated as the most important one for the Operation Right Transfer (ORT) (Concession Agreement-CA) projects. Finally, “The lack of cooperation in project planning and coordination among the public institutions” is appreciated as the most important problem in Build-Lease-Transfer (BLT) type projects (Table 22).

When an assessment with Kruskal Wallis test was made to determine whether there is a difference between responses given among categories. “The lack of cooperation in project planning and coordination among the public institutions”, “The incompatible legal process with the project's needs” and “The late notification of the tender result to the participants” are evaluated as more important in BLT type projects more than BO and CA projects. “The problem of municipal plan between investor and municipality during the project design work” is evaluated as more important in BOT and BO projects than CA type projects. “Insufficient number of investors participating tender”, “The insufficient knowledge in PPP legislation about the objection mechanism to the tender” and “Not providing adequate financial support to the project by public (direct credit supply, demand guarantee, treasury guarantee, refinancing guarantee, etc.)” are appreciated as more important in BLT type projects than BO type projects. “The low interest of international investors for participating tender” is evaluated as more important in BOT and CA type projects than BO projects. “Many changes in original tender documents with the addendums” is evaluated as more important in BOT type projects than BO projects. “The high cost of project financing” is appreciated as more important in BOT and CA projects than BO type projects (Table 23) ($p<0.05$).

Table 22. The main problems encountered by the participants in carrying out PPP projects according to the category of evaluated PPP project

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
Build-Operate-Transfer	N	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
	Mean	3.66	3.83	3.83	4.03	3.14	3.14	3.17	3.86	3.93	3.72	3.10	3.66	2.97	3.48	3.62
	Std. Deviation	1.52	1.07	1.14	1.02	1.48	1.60	1.54	1.46	1.44	1.22	1.47	1.01	1.57	1.40	1.40
	Median	4	4	4	4	3	4	3	4	5	4	3	4	3	4	4
	Minimum	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Build-Operate	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Mean	4.00	3.00	2.40	3.40	1.40	2.40	3.40	3.40	2.60	3.60	1.00	3.40	1.00	1.00	3.40
	Std. Deviation	1.00	1.87	1.14	1.14	.55	1.14	1.52	1.34	1.14	1.52	0.00	1.52	0.00	0.00	1.52
	Median	4	2	2	3	1	2	4	4	3	4	1	4	1	1	4
	Minimum	3	1	1	2	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	4	5	2	4	5	4	4	5	1	5	1	1	5
Concession Agreement	N	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Mean	3.00	4.33	2.67	3.33	1.00	2.33	1.00	3.67	3.67	3.33	1.00	3.00	2.67	3.00	3.00
	Std. Deviation	1.73	0.58	1.53	2.08	0.00	1.15	0.00	2.31	2.31	2.08	0.00	1.73	1.53	1.73	1.73
	Median	4	4	3	4	1	3	1	5	5	4	1	4	3	4	4
	Minimum	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	4	5	4	5	1	3	1	5	5	5	1	4	4	4	4
Build-Lease-Transfer	N	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	Mean	4.16	4.05	4.21	4.16	4.11	3.89	2.37	3.58	3.58	3.26	3.37	3.47	3.21	2.89	3.58
	Std. Deviation	1.07	1.31	1.03	1.12	0.88	1.33	1.26	1.30	1.46	1.37	1.57	1.31	1.23	1.33	1.17
	Median	4	5	4	4	4	4	3	4	4	4	4	4	3	3	4
	Minimum	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

		Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
Build-Operate-Transfer	N	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
	Mean	2.10	3.52	1.93	1.97	1.69	3.17	2.52	2.34	3.34	3.55	2.48	3.07	3.31	3.79	2.55
	Std. Deviation	1.14	1.21	1.13	1.09	1.07	1.56	1.45	1.52	1.54	1.48	1.57	1.51	1.47	1.24	1.64
	Median	2	4	1	2	1	3	2	2	4	4	2	4	4	4	3
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	4	4	5	5	5	5	5	5	5	5	5	5
Build-Operate	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Mean	1.00	1.80	1.40	1.40	1.00	3.00	2.20	1.60	3.00	3.00	1.00	2.80	2.60	2.00	1.20
	Std. Deviation	0.00	0.84	0.89	0.89	0.00	1.22	1.30	0.89	1.22	1.22	0.00	1.30	1.14	0.71	0.45
	Median	1	2	1	1	1	3	2	1	3	3	1	3	3	2	1
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	1	3	3	3	1	4	4	3	4	4	1	4	4	3	2
Concession Agreement	N	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Mean	1.00	2.00	1.00	1.00	1.33	2.33	1.00	1.00	3.33	3.00	1.00	3.00	2.33	3.33	1.00
	Std. Deviation	0.00	1.73	0.00	0.00	0.58	1.15	0.00	0.00	2.08	1.73	.00	1.73	1.53	2.08	0.00
	Median	1	1	1	1	1	3	1	1	4	4	1	4	2	4	1
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	1	4	1	1	2	3	1	1	5	4	1	4	4	5	1
Build-Lease-Transfer	N	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	Mean	1.89	2.89	2.53	2.39	2.95	3.39	2.34	2.95	4.26	3.63	2.68	3.58	3.58	3.84	2.68
	Std. Deviation	1.10	1.49	1.31	1.36	1.47	1.08	1.59	1.68	1.28	1.38	1.67	1.30	1.43	1.01	1.49
	Median	1	3	3	3	3	4	3	3	5	4	3	4	4	4	3
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 23. Comparison of responses to main problems considered important by the participants in carrying out PPP projects according to the category of evaluated PPP projects

		N	Mean Rank	Kruskal Wallis Chi-Square	P Value
Q1	Build-Operate-Transfer	29	27.52	2.309	0.511
	Build-Operate	5	28.40		
	Concession Agreement	3	18.00		
	Build-Lease-Transfer	19	31.68		
Q2	Build-Operate-Transfer	29	27.12	2.350	0.503
	Build-Operate	5	21.40		
	Concession Agreement	3	32.50		
	Build-Lease-Transfer	19	31.84		
Q3	Build-Operate-Transfer	29	28.90	10.768	**<0.013****
	Build-Operate	5	11.90 [e]		
	Concession Agreement	3	14.83 [f]		
	Build-Lease-Transfer	19	34.42 [e,f]		
Q4	Build-Operate-Transfer	29	28.72	2.625	0.453
	Build-Operate	5	19.50		
	Concession Agreement	3	23.67		
	Build-Lease-Transfer	19	31.29		
Q5	Build-Operate-Transfer	29	27.95	19.031	**<0.001***
	Build-Operate	5	10.20 [e]		
	Concession Agreement	3	6.00 [f]		
	Build-Lease-Transfer	19	37.71 [e,f]		
Q6	Build-Operate-Transfer	29	27.17	6.640	0.084
	Build-Operate	5	18.70		
	Concession Agreement	3	17.33		
	Build-Lease-Transfer	19	34.87		
Q7	Build-Operate-Transfer	29	32.48 [b]	8.759	**<0.033***
	Build-Operate	5	34.80 [d]		
	Concession Agreement	3	9.00 [b,d]		
	Build-Lease-Transfer	19	23.84		
Q8	Build-Operate-Transfer	29	30.98	2.316	0.509
	Build-Operate	5	22.10		
	Concession Agreement	3	32.17		
	Build-Lease-Transfer	19	25.82		
Q9	Build-Operate-Transfer	29	31.55	5.112	0.164
	Build-Operate	5	15.20		
	Concession Agreement	3	31.67		
	Build-Lease-Transfer	19	26.84		
Q10	Build-Operate-Transfer	29	30.59	1.566	0.667
	Build-Operate	5	30.00		
	Concession Agreement	3	28.67		
	Build-Lease-Transfer	19	24.89		

		N	Mean Rank	Kruskal Wallis Chi-Square	P Value
Q11	Build-Operate-Transfer	29	30.62 [a,b]	13.088	**<0.004****
	Build-Operate	5	10.00 [a]		
	Concession Agreement	3	15.00 [b]		
	Build-Lease-Transfer	19	33.05		
Q12	Build-Operate-Transfer	29	29.45	0.418	0.937
	Build-Operate	5	27.70		
	Concession Agreement	3	23.83		
	Build-Lease-Transfer	19	28.00		
Q13	Build-Operate-Transfer	29	29.62	8.479	**<0.037***
	Build-Operate	5	9.50 [e]		
	Concession Agreement	3	26.33		
	Build-Lease-Transfer	19	32.13 [e]		
Q14	Build-Operate-Transfer	29	33.36 [a]	11.697	**<0.008****
	Build-Operate	5	7.50 [a,d]		
	Concession Agreement	3	28.50 [d]		
	Build-Lease-Transfer	19	26.61		
Q15	Build-Operate-Transfer	29	29.83	0.765	0.858
	Build-Operate	5	26.60		
	Concession Agreement	3	22.33		
	Build-Lease-Transfer	19	27.95		
Q16	Build-Operate-Transfer	29	31.83	7.572	0.056
	Build-Operate	5	15.50		
	Concession Agreement	3	15.50		
	Build-Lease-Transfer	19	28.89		
Q17	Build-Operate-Transfer	29	33.28 [a]	8.516	**<0.036***
	Build-Operate	5	14.00 [a]		
	Concession Agreement	3	17.67		
	Build-Lease-Transfer	19	26.74		
Q18	Build-Operate-Transfer	29	27.34	7.485	0.058
	Build-Operate	5	20.10		
	Concession Agreement	3	14.50		
	Build-Lease-Transfer	19	34.68		
Q19	Build-Operate-Transfer	29	26.74	9.891	**<0.020***
	Build-Operate	5	18.90 [e]		
	Concession Agreement	3	13.50 [f]		
	Build-Lease-Transfer	19	36.08 [e,f]		
Q20	Build-Operate-Transfer	29	24.97	14.016	**<0.003****
	Build-Operate	5	16.00 [e]		
	Concession Agreement	3	22.00		
	Build-Lease-Transfer	19	38.21 [e]		

* $p < 0.05$ ** $p < 0.01$

Table 23 (Continued)

		N	Mean Rank	Kruskal Wallis Chi-Square	P Value
Q21	Build-Operate-Transfer	29	27.38	4.384	0.223
	Build-Operate	5	23.70		
	Concession Agreement	3	15.83		
	Build-Lease-Transfer	19	33.47		
Q22	Build-Operate-Transfer	29	29.17	4.163	0.244
	Build-Operate	5	25.90		
	Concession Agreement	3	11.50		
	Build-Lease-Transfer	19	30.84		
Q23	Build-Operate-Transfer	29	28.02	5.759	0.124
	Build-Operate	5	21.40		
	Concession Agreement	3	14.00		
	Build-Lease-Transfer	19	33.39		
Q24	Build-Operate-Transfer	29	25.36	7.621	0.055
	Build-Operate	5	19.20		
	Concession Agreement	3	25.83		
	Build-Lease-Transfer	19	36.16		
Q25	Build-Operate-Transfer	29	29.57	1.881	0.597
	Build-Operate	5	20.70		
	Concession Agreement	3	22.83		
	Build-Lease-Transfer	19	29.82		
Q26	Build-Operate-Transfer	29	30.34	8.011	**<0.046***
	Build-Operate	5	14.50 [e]		
	Concession Agreement	3	17.50		
	Build-Lease-Transfer	19	31.58 [e]		
Q27	Build-Operate-Transfer	29	27.41	1.868	0.600
	Build-Operate	5	22.90		
	Concession Agreement	3	25.67		
	Build-Lease-Transfer	19	32.08		
Q28	Build-Operate-Transfer	29	28.86	3.578	0.311
	Build-Operate	5	19.90		
	Concession Agreement	3	18.17		
	Build-Lease-Transfer	19	31.84		
Q29	Build-Operate-Transfer	29	30.62 [a]	8.601	**<0.035***
	Build-Operate	5	8.90 [a,e]		
	Concession Agreement	3	27.17		
	Build-Lease-Transfer	19	30.63 [e]		
Q30	Build-Operate-Transfer	29	29.84	6.194	0.103
	Build-Operate	5	17.50		
	Concession Agreement	3	14.50		
	Build-Lease-Transfer	19	31.55		

The main problems considered important by the participants in PPP projects are also analyzed according to project types that the participants' have evaluated. When responses are analyzed according to identified categories, the most important problem for the highway projects is "The lack of detailed preparation of public institute before tendering". In airport projects, the participants appreciated "Inadequate planning and prioritization of projects before presenting to the public" and "Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost" as the most important problems. "The high cost of project financing" is evaluated as the most important one for the Harbour & Marina and the Custom Facility & Custom Gate projects. In Industrial Facility and Urban Infrastructure Projects the most important problem is "Inadequate planning and prioritization of projects before presenting to the public" while in Health Facility Projects "Inadequate and unreliable contract and tender documents in the eyes of creditors" is evaluated as the most essential one (Table 24).

With Kruskal Wallis test, it is assessed whether there is a difference between identified categories according to the responses given by the participants. As a result of the analysis made, in responses to statements “Inadequate planning and prioritization of projects before presenting to the public”, “Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost”, “The lack of cooperation in project planning and coordination among the public institutions” and “Not taking the opinions of citizens, companies ,other stakeholders and non-governmental organizations to be affected from the project” are evaluated as more important in Highway projects than Custom Facility & Gate projects. “Inadequate planning and prioritization of projects before presenting to the public” is appreciated as more essential in Airport projects than Custom Facility & Gate projects. In health facility projects when compared with the Custom projects there are significant differences between these problems: “Inadequate planning and prioritization of projects before presenting to the public”, “The lack of cooperation in project planning and coordination among the public institutions”, “The incompatible legal process with the project's needs”, “Insufficient number of investors participating tender” and “Inadequate and unreliable contract and tender documents in the eyes of creditors”. When compared with the Custom projects, “The lack of detailed preparation of public institute before tendering”, “The lack of realistic data in the prepared pre-feasibility report”, “The lack of comparative economic and financial analysis, in order to realize project with PPP model instead of tradional methods. (Public Sector Comparator)” and “Insufficient number of investors participating tender” are appreciated as significantly important in Harbor & Marina Projects. “The problem of municipal plan between investor and municipality during the project design work” and “The low interest of international investors for participating tender” are evaluated as more important in Harbor & Marina projects than Health Facility projects. In Harbor & Marina projects; “Insufficient number of investors participating tender”, “The low interest of international investors for participating tender” and “The lack of adequate evaluation of performance and quality criteria in addition to operation period or monetary criteria in the tender” are significantly

important when compared with the airport projects. “Insufficient number of investors participating tender” are more important problem in Ind. Fac. & Urban Inf. Projects than Custom projects. “The low interest of international investors for participating tender” are significantly important in Harbor & Marina projects when compared with the Ind. Fac. & Urban Inf projects. “The late notification of the tender result to the participants” and “The insufficient knowledge in PPP legislation about the objection mechanism to the tender” are evaluated as more crucial in Health Facility projects when compared with Airport projects ($p<0.05$) (Table 25).

Table 24. The main problems encountered by the participants in carrying out PPP projects according to the type of evaluated PPP project

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
Highway	N	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Mean	4.20	4.30	4.30	4.50	3.40	3.80	2.40	4.20	3.80	4.30	2.60	3.50	3.30	3.50	3.80
	Std. Deviation	0.79	0.67	0.67	0.85	1.43	1.23	1.51	1.03	1.62	0.95	1.43	1.18	1.25	1.35	1.40
	Median	4	4	4	5	4	4	2	5	5	5	3	4	3	4	4
	Minimum	3	3	3	3	1	1	1	2	1	2	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Airport	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	Mean	4.27	4.27	3.55	3.82	2.91	2.73	2.82	3.27	3.73	3.45	3.09	3.36	2.00	2.91	2.82
	Std. Deviation	1.27	1.19	1.37	1.40	1.70	1.85	1.66	1.85	1.49	1.37	1.58	1.36	1.18	1.45	1.60
	Median	5	5	4	4	2	2	3	4	4	4	3	4	1	3	3
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5
Harbour& Marina	N	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Mean	2.86	3.14	3.86	4.00	2.71	3.00	4.29	4.86	5.00	3.86	3.43	4.00	4.71	4.71	4.71
	Std. Deviation	1.21	0.90	0.69	0.00	1.70	1.53	1.50	0.38	0.00	1.21	1.51	0.58	0.49	0.49	0.49
	Median	3	3	4	4	2	3	5	5	5	4	4	4	5	5	5
	Minimum	1	2	3	4	1	1	1	4	5	2	1	3	4	4	4
	Maximum	4	4	5	4	5	5	5	5	5	5	5	5	5	5	5
Custom House& Custom Gate	N	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Mean	1.00	2.25	1.75	2.25	1.75	1.50	2.00	1.75	1.75	1.75	1.25	2.75	1.00	2.00	2.25
	Std. Deviation	0.00	0.50	0.50	0.50	0.50	0.58	0.82	0.96	0.96	0.96	0.50	0.96	0.00	1.41	0.50
	Median	1	2	2	2	2	2	2	2	2	2	1	3	1	2	2
	Minimum	1	2	1	2	1	1	1	1	1	1	1	2	1	1	2
	Maximum	1	3	2	3	2	2	3	3	3	3	2	4	1	4	3
Industril Facilit& Urban Infrastruc ture	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Mean	4.40	3.60	3.00	4.00	1.80	3.00	3.80	4.20	3.40	4.20	1.80	4.20	1.40	1.40	4.00
	Std. Deviation	0.89	1.52	1.58	1.00	1.30	1.00	0.84	0.45	1.14	0.45	1.79	0.84	0.89	.89	0.71
	Median	5	4	3	4	1	3	4	4	3	4	1	4	1	1	4
	Minimum	3	2	1	3	1	2	3	4	2	4	1	3	1	1	3
	Maximum	5	5	5	5	4	4	5	5	5	5	5	5	3	3	5
Health Facility	N	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	Mean	4.16	4.05	4.21	4.16	4.11	3.89	2.37	3.58	3.58	3.26	3.37	3.47	3.21	2.89	3.58
	Std. Deviation	1.07	1.31	1.03	1.12	0.88	1.33	1.26	1.30	1.46	1.37	1.57	1.31	1.23	1.33	1.17
	Median	4	5	4	4	4	4	3	4	4	4	4	4	3	3	4
	Minimum	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 24 (Continued)

		Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
Highway	N	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Mean	1.80	3.20	2.10	2.30	2.30	3.40	2.50	2.40	4.10	4.10	2.20	3.70	3.60	4.20	2.60
	Std. Deviation	1.14	1.62	0.99	1.34	1.25	1.43	1.43	1.71	1.29	1.29	1.55	1.25	1.43	1.14	1.51
	Median	1	4	3	2	3	4	3	2	5	5	2	4	4	5	3
	Minimum	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1
	Maximum	4	5	3	4	4	5	4	5	5	5	5	5	5	5	5
Airport	N	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
	Mean	2.36	3.18	1.36	1.27	1.36	2.91	1.73	2.00	2.55	3.36	1.64	2.36	2.91	3.18	2.09
	Std. Deviation	1.36	1.40	0.81	0.65	0.92	1.70	1.01	1.41	1.97	1.50	1.21	1.63	1.58	1.40	1.64
	Median	2	3	1	1	1	3	1	1	1	4	1	1	4	3	1
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	3	3	4	5	4	5	5	5	4	5	5	5	5
Harbour& Marina	N	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Mean	1.57	4.00	2.29	1.86	1.00	3.43	3.14	2.71	3.43	3.71	3.29	3.43	3.29	3.71	2.86
	Std. Deviation	0.79	0.58	1.60	1.07	0.00	1.62	2.04	1.60	1.27	1.38	2.14	1.72	1.70	1.60	1.77
	Median	1	4	2	1	1	3	4	4	4	4	5	4	4	4	4
	Minimum	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	3	5	5	3	1	5	5	4	5	5	5	5	5	5	5
Custom House& Custom Gate	N	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Mean	1.75	2.25	1.25	2.00	1.50	1.50	1.75	1.00	2.75	1.25	2.50	2.00	2.00	3.75	1.00
	Std. Deviation	0.96	0.96	0.50	0.82	0.58	0.58	0.50	0.00	0.96	0.50	0.58	0.00	0.00	0.96	0.00
	Median	2	3	1	2	2	2	2	1	3	1	3	2	2	4	1
	Minimum	1	1	1	1	1	1	1	1	2	1	2	2	2	3	1
	Maximum	3	3	2	3	2	2	2	1	4	2	3	2	2	5	1
Industrial Facility& Urban Infrastructure	N	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Mean	1.40	2.60	1.80	1.80	1.40	3.60	2.80	2.00	3.60	3.60	1.40	3.40	3.40	2.40	2.00
	Std. Deviation	0.89	1.52	1.10	1.10	0.89	0.55	1.30	1.00	0.55	0.55	0.89	0.89	1.14	1.14	1.73
	Median	1	2	1	1	1	4	3	2	4	4	1	4	3	2	1
	Minimum	1	1	1	1	1	3	1	1	3	3	1	2	2	1	1
	Maximum	3	5	3	3	3	4	4	3	4	4	3	4	5	4	5
Health Facility	N	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	Mean	1.89	2.89	2.53	2.79	2.95	3.79	2.74	2.95	4.26	3.63	2.68	3.58	3.58	3.84	2.68
	Std. Deviation	1.10	1.49	1.31	1.36	1.47	1.08	1.59	1.68	1.28	1.38	1.67	1.30	1.43	1.01	1.49
	Median	1	3	3	3	3	4	3	3	5	4	3	4	4	4	3
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 25. Comparison of responses to main problems considered important by the participants in carrying out PPP projects according to the type of evaluated PPP project

		N	Mean Rank	Kruskal Wallis Chi-Square	P Value
Q1	Highway	10	30.80 c		
	Airport	11	35.05 g		
	Harbour&Marina	7	15.71	18.705	<0.002**
	Custom House&Custom Gate	4	4.00 c,g,r		
	Industrial Facility&Urban I.	5	34.90		
	Health Facility	19	31.68 r		
Q2	Highway	10	32.60 c		
	Airport	11	34.45		
	Harbour&Marina	7	17.14	13.503	<0.019*
	Custom House&Custom Gate	4	8.75 c		
	Industrial Facility&Urban I.	5	26.20		
	Health Facility	19	31.84		
Q3	Highway	10	34.40 c		
	Airport	11	26.00		
	Harbour&Marina	7	26.79	14.255	<0.014*
	Custom House&Custom Gate	4	6.25 c,r		
	Industrial Facility&Urban I.	5	19.90		
	Health Facility	19	34.42 r		
Q4	Highway	10	36.25		
	Airport	11	27.59		
	Harbour&Marina	7	24.50 m	11.725	<0.039*
	Custom House&Custom Gate	4	6.63 m		
	Industrial Facility&Urban I.	5	27.50		
	Health Facility	19	31.29		
Q5	Highway	10	30.00		
	Airport	11	26.00		
	Harbour&Marina	7	24.07	14.871	<0.011*
	Custom House&Custom Gate	4	13.88 r		
	Industrial Facility&Urban I.	5	13.90		
	Health Facility	19	37.71 r		
Q6	Highway	10	33.15		
	Airport	11	23.45		
	Harbour&Marina	7	23.71	10.593	0.060
	Custom House&Custom Gate	4	10.75		
	Industrial Facility&Urban I.	5	24.20		
	Health Facility	19	34.87		
Q7	Highway	10	24.30		
	Airport	11	28.64		
	Harbour&Marina	7	44.00 o	12.264	<0.031*
	Custom House&Custom Gate	4	20.38		
	Industrial Facility&Urban I.	5	39.10		
	Health Facility	19	23.84 o		
Q8	Highway	10	33.50		
	Airport	11	25.59		
	Harbour&Marina	7	43.21 m	14.840	<0.011*
	Custom House&Custom Gate	4	8.63 m		
	Industrial Facility&Urban I.	5	30.40		
	Health Facility	19	23.82		
Q9	Highway	10	30.45		
	Airport	11	28.41		
	Harbour&Marina	7	45.00 m	14.798	<0.011*
	Custom House&Custom Gate	4	9.50 m		
	Industrial Facility&Urban I.	5	23.20		
	Health Facility	19	26.84		
Q10	Highway	10	38.55 c		
	Airport	11	27.36		
	Harbour&Marina	7	31.93	12.783	<0.025*
	Custom House&Custom Gate	4	8.88 c		
	Industrial Facility&Urban I.	5	35.50		
	Health Facility	19	24.89		

Table 25 (Continued)

		N	Mean Rank	Kruskal Wallis Chi-Square	P Value
Q11	Highway	10	25.65	8.946	0.111
	Airport	11	30.18		
	Harbour&Marina	7	33.93		
	Custom House&Custom Gate	4	12.88		
	Industrial Facility&Urban I.	5	18.10		
	Health Facility	19	33.05		
Q12	Highway	10	28.25	5.135	0.400
	Airport	11	26.59		
	Harbour&Marina	7	33.86		
	Custom House&Custom Gate	4	16.38		
	Industrial Facility&Urban I.	5	37.30		
	Health Facility	19	28.00		
Q13	Highway	10	32.80	28.004	<0.001**
	Airport	11	19.14 f		
	Harbour&Marina	7	49.00 f,m		
	Custom House&Custom Gate	4	9.50 m,n,o		
	Industrial Facility&Urban I.	5	13.20 n		
	Health Facility	19	32.13 o		
Q14	Highway	10	33.35	18.643	<0.002**
	Airport	11	27.18 f		
	Harbour&Marina	7	47.21 f,n,o		
	Custom House&Custom Gate	4	17.75 n		
	Industrial Facility&Urban I.	5	11.30 o		
	Health Facility	19	26.61		
Q15	Highway	10	32.15	14.866	<0.011*
	Airport	11	20.73 f		
	Harbour&Marina	7	44.00 f		
	Custom House&Custom Gate	4	11.75		
	Industrial Facility&Urban I.	5	32.10		
	Health Facility	19	27.95		
Q16	Highway	10	27.25	3.219	0.666
	Airport	11	34.36		
	Harbour&Marina	7	25.36		
	Custom House&Custom Gate	4	27.88		
	Industrial Facility&Urban I.	5	21.50		
	Health Facility	19	28.89		
Q17	Highway	10	30.60	5.862	0.320
	Airport	11	29.45		
	Harbour&Marina	7	38.79		
	Custom House&Custom Gate	4	17.75		
	Industrial Facility&Urban I.	5	23.10		
	Health Facility	19	26.74		
Q18	Highway	10	30.25	9.101	0.105
	Airport	11	19.59		
	Harbour&Marina	7	30.71		
	Custom House&Custom Gate	4	18.88		
	Industrial Facility&Urban I.	5	25.70		
	Health Facility	19	34.68		
Q19	Highway	10	30.75	11.332	<0.045*
	Airport	11	17.45 l		
	Harbour&Marina	7	25.07		
	Custom House&Custom Gate	4	28.50		
	Industrial Facility&Urban I.	5	24.30		
	Health Facility	19	36.08 l		
Q20	Highway	10	32.40	18.390	<0.002**
	Airport	11	20.73 l		
	Harbour&Marina	7	16.00		
	Custom House&Custom Gate	4	25.00		
	Industrial Facility&Urban I.	5	21.20		
	Health Facility	19	38.21 l		

Table 25 (Continued)

		N	Mean Rank	Kruskal Wallis Chi-Square	P Value
Q21	Highway	10	29.50	8.712	0.121
	Airport	11	24.59		
	Harbour&Marina	7	30.00		
	Custom House&Custom Gate	4	9.00		
	Industrial Facility&Urban I.	5	29.70		
	Health Facility	19	33.47		
Q22	Highway	10	28.45	4.618	0.464
	Airport	11	20.95		
	Harbour&Marina	7	34.14		
	Custom House&Custom Gate	4	23.50		
	Industrial Facility&Urban I.	5	32.40		
	Health Facility	19	30.84		
Q23	Highway	10	28.40	6.506	0.260
	Airport	11	25.00		
	Harbour&Marina	7	31.14		
	Custom House&Custom Gate	4	14.00		
	Industrial Facility&Urban I.	5	25.70		
	Health Facility	19	33.39		
Q24	Highway	10	33.05	11.635	-<0.040*
	Airport	11	20.18		
	Harbour&Marina	7	24.07		
	Custom House&Custom Gate	4	17.38 r		
	Industrial Facility&Urban I.	5	23.70		
	Health Facility	19	36.16 r		
Q25	Highway	10	36.00	10.216	0.069
	Airport	11	27.05		
	Harbour&Marina	7	30.64		
	Custom House&Custom Gate	4	7.00		
	Industrial Facility&Urban I.	5	25.90		
	Health Facility	19	29.82		
Q26	Highway	10	27.35	7.436	0.190
	Airport	11	21.41		
	Harbour&Marina	7	35.93		
	Custom House&Custom Gate	4	34.50		
	Industrial Facility&Urban I.	5	19.10		
	Health Facility	19	31.58		
Q27	Highway	10	34.30	8.920	0.112
	Airport	11	19.64		
	Harbour&Marina	7	31.64		
	Custom House&Custom Gate	4	15.50		
	Industrial Facility&Urban I.	5	28.80		
	Health Facility	19	32.08		
Q28	Highway	10	32.00	5.359	0.374
	Airport	11	24.45		
	Harbour&Marina	7	28.93		
	Custom House&Custom Gate	4	14.00		
	Industrial Facility&Urban I.	5	28.70		
	Health Facility	19	31.84		
Q29	Highway	10	36.05	8.517	0.130
	Airport	11	23.14		
	Harbour&Marina	7	30.86		
	Custom House&Custom Gate	4	28.75		
	Industrial Facility&Urban I.	5	13.60		
	Health Facility	19	30.63		
Q30	Highway	10	30.50	5.687	0.338
	Airport	11	25.23		
	Harbour&Marina	7	32.86		
	Custom House&Custom Gate	4	14.50		
	Industrial Facility&Urban I.	5	25.20		
	Health Facility	19	31.55		

* $p < 0.05$ ** $p < 0.01$

The main problems considered important while maintaining PPP projects by the participants in terms of the working sector are analyzed. The most important problem is “The lack of realistic data in the prepared pre-feasibility report” for the respondents from the public sector while “Inadequate and unreliable contract and tender documents in the eyes of creditors” is the most important one for the private sector participants (Table 26).

According to the results of Mann Whitney U test, there is a statistically significant difference between responses of the participants. The private sector participants appreciates the following problems as significantly more important when compared with the public sector: “The incompatible legal process with the project's needs”, “Tendering with general, unclear, open-ended specification and contract”, “The absence of as-built projects while realizing tenders”, “The late notification of the tender result to the participants”, “The insufficient knowledge in PPP legislation about the objection mechanism to the tender”, “The lack of regulations in the contract of project having 20-30 years duration to adopt the changing conditions”, “The high equity/loan ratio of project”, “The enforcement for the termination of contract even in little contradiction of contract by investor”, “Inadequate and unreliable contract and tender documents in the eyes of creditors”, “Short-term maturity period for credits of finance institutions”, “Not providing adequate financial support to the project by public (direct credit supply, demand guarantee, reasury guarantee, refinancing guarantee, etc.)”, “Not being made balanced distribution of financial risks in contract”, “The high cost of project financing” and “The continuation of design and construction phases of project at the same time”. However, the public sector evaluates the two problem as significantly important with respect to private sector. These are; “The lack of realistic data in the prepared pre-feasibility report” and “The lack of comparative economic and financial analysis, in order to realize project with PPP model instead of tradional methods. (Public Sector Comparator)” ($p<0.05$) (Table 27).

Table 26. The main problems encountered by the participants in carrying out PPP projects according to the working sector of them

		Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
Public	N	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
	Mean	1.81	3.05	1.76	1.71	1.43	2.71	1.52	1.14	2.86	3.05	1.29	2.81	2.62	3.14	1.86
	Std. Deviation	0.98	1.50	1.22	1.01	0.75	1.19	0.81	0.48	1.65	1.40	0.64	1.66	1.63	1.46	1.62
	Median	1	3	1	1	1	3	1	1	3	3	1	3	2	3	1
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	4	5	5	4	3	4	4	3	5	5	3	5	5	5	5
Private	N	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
	Mean	1.91	3.09	2.20	2.40	2.40	3.69	3.06	3.17	4.09	3.77	2.97	3.46	3.69	3.91	2.71
	Std. Deviation	1.17	1.36	1.18	1.31	1.48	1.39	1.49	1.48	1.20	1.37	1.64	1.22	1.16	1.04	1.43
	Median	1	3	2	2	2	4	4	3	5	4	3	4	4	4	3
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
Public	N	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
	Mean	4.05	3.95	3.38	3.90	2.57	2.71	2.38	4.38	4.24	3.57	2.33	3.33	2.67	3.14	3.33
	Std. Deviation	1.40	1.07	1.28	1.22	1.57	1.49	1.47	1.12	1.26	1.21	1.49	1.20	1.59	1.65	1.39
	Median	5	4	4	4	2	2	2	5	5	4	2	4	3	4	4
	Minimum	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Private	N	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
	Mean	3.69	3.80	4.00	4.03	3.57	3.63	3.06	3.31	3.34	3.51	3.23	3.66	2.97	2.97	3.69
	Std. Deviation	1.32	1.32	1.14	1.07	1.33	1.44	1.47	1.43	1.51	1.40	1.57	1.16	1.42	1.38	1.28
	Median	4	4	4	4	4	4	3	4	4	4	4	4	3	3	4
	Minimum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 27. Comparison of responses to main problems considered important by the participants in carrying out PPP projects according to the working sector of them

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
Q1	Public	32.17	675.50	290.50	0.169
	Private	26.30	920.50		
Q2	Public	28.88	606.50	359.50	0.887
	Private	28.27	989.50		
Q3	Public	23.38	491.00	260.00	0.057
	Private	31.57	1105.00		
Q4	Public	27.86	585.00	354.00	0.809
	Private	28.89	1011.00		
Q5	Public	22.00	462.00	231.00	**<0.018***
	Private	32.40	1134.00		
Q6	Public	22.50	472.50	241.50	**<0.029***
	Private	32.10	1123.50		
Q7	Public	24.02	504.50	273.50	0.102
	Private	31.19	1091.50		
Q8	Public	37.14	780.00	186.00	**<0.001****
	Private	23.31	816.00		
Q9	Public	35.43	744.00	222.00	**<0.010***
	Private	24.34	852.00		
Q10	Public	28.40	596.50	365.50	0.972
	Private	28.56	999.50		
Q11	Public	22.95	482.00	251.00	**<0.042***
	Private	31.83	1114.00		
Q12	Public	25.67	539.00	308.00	0.287
	Private	30.20	1057.00		
Q13	Public	26.71	561.00	330.00	0.511
	Private	29.57	1035.00		
Q14	Public	30.00	630.00	336.00	0.585
	Private	27.60	966.00		
Q15	Public	25.81	542.00	311.00	0.321
	Private	30.11	1054.00		

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
Q16	Public	28.17	591.50	360.50	0.897
	Private	28.70	1004.50		
Q17	Public	28.52	599.00	367.00	0.993
	Private	28.49	997.00		
Q18	Public	24.40	512.50	281.50	0.116
	Private	30.96	1083.50		
Q19	Public	23.29	489.00	258.00	**<0.048***
	Private	31.63	1107.00		
Q20	Public	22.29	468.00	237.00	**<0.015***
	Private	32.23	1128.00		
Q21	Public	20.93	439.50	208.50	**<0.006****
	Private	33.04	1156.50		
Q22	Public	18.74	393.50	162.50	**<0.001****
	Private	34.36	1202.50		
Q23	Public	15.76	331.00	100.00	**<0.001****
	Private	36.14	1265.00		
Q24	Public	21.05	442.00	211.00	**<0.006****
	Private	32.97	1154.00		
Q25	Public	22.79	478.50	247.50	**<0.035***
	Private	31.93	1117.50		
Q26	Public	18.31	384.50	153.50	**<0.001****
	Private	34.61	1211.50		
Q27	Public	24.76	520.00	289.00	0.167
	Private	30.74	1076.00		
Q28	Public	21.93	460.50	229.50	**<0.017***
	Private	32.44	1135.50		
Q29	Public	23.12	485.50	254.50	**<0.048***
	Private	31.73	1110.50		
Q30	Public	22.81	479.00	248.00	**<0.030***
	Private	31.91	1117.00		

* $p < 0.05$ ** $p < 0.01$

4.5 The Critical Success Factors for Improving PPP System in Turkey

The 30 questions were prepared with the aim of evaluating “critical success factors” for improving PPP system in Turkey and responses given by 56 participants are summarized in Table 28.

First of all the reliability analysis of these 30 questions were checked. According to these analysis, Cronbach’s Alpha was found as 0,827 (reliability % 82,7) and the all 30 questions are reliable.

Table 28. The critical success factors for improving PPP system

CSFs		Mean	Std. Dev.	Var.	Sum	Frequency				
						5	4	3	2	1
S1	**The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis**	4.63	0.75	0.57	259	41	11	3	0	1
S2	**Public institutions should collaborate in the planning and coordination of investments to be realized with PPP model**	4.63	0.65	0.42	259	39	14	2	1	0
S3	**Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared**	4.63	0.73	0.53	259	40	13	2	0	1
S4	**Public institutions should identified principles for the assessment of PPP projects and should share them with the public and public institutions**	3.98	0.86	0.75	223	18	21	15	2	0
S5	**Public institutions that perform successful projects should share their experiences with other Public Institutions**	4.29	0.73	0.54	240	22	30	3	0	1
S6	**Comparative economic and financial analysis should be made for determining whether projects to be realized with traditional or PPP models**	4.38	0.82	0.68	245	29	22	3	1	1
S7	**PPP model should be included in the scope of the Public Procurement Law with 4734 No.**	1.79	1.19	1.41	100	2	4	10	4	36
S8	**A single framework PPP legislation should be prepared to cover the different laws of PPP**	4.04	1.24	1.53	226	28	13	8	3	4
S9	**All PPP projects and Operation Right Transfer Projects which will be realized under the applicable laws of Privatization Administration and other Public Institutions should be arranged through private law contracts**	3.34	1.54	2.37	187	17	15	6	6	12
S10	**When projects are developed, the views of all interested parties that will use and also be affected from that should be taken**	4.13	0.92	0.84	231	21	25	8	0	2
S11	**Institutional capacity of public institutions who work in the field of PPP should be increased**	4.34	0.86	0.74	243	29	20	5	1	1

Table 28 (Continued)

CSFs		Mean	Std. Dev.	Var.	Sum	Frequency				
						5	4	3	2	1
S12	**Competitions should be arranged for projects in order to obtain innovative design of large-scale PPP projects which also preferred by people to be affected from that**	3.52	1.10	1.20	197	12	17	17	8	2
S13	**Public institutions should make performance evaluation study for operational period of PPP projects**	4.11	0.89	0.79	230	21	23	10	1	1
S14	**Tenders should be done with the as-built project**	3.29	1.56	2.43	184	19	7	14	3	13
S15	**All institutions wishing to develop PPP projects should use experts and professional consultants on an international scale**	3.66	1.24	1.54	205	15	21	13	0	7
S16	**Under the specific rules projects should be developed and presented to the public by the private sector**	3.45	1.19	1.42	193	12	16	18	5	5
S17	**New PPP legislative work should include a greater number of investment model**	3.45	1.32	1.74	193	11	24	9	3	9
S18	**In addition to financial criteria (operation period, rent price etc.), performance criteria should be considered in tenders**	4.11	0.73	0.53	230	18	26	12	0	0
S19	**Legal support should be provided to the bureaucrats against the cases due to PPP tenders**	3.29	1.55	2.39	184	17	12	10	4	13
S20	**Rates of the bid bonds should be increased**	2.66	1.37	1.86	149	5	12	16	5	18
S21	**The tenderers should be asked for credit letter of intent**	3.36	1.30	1.69	188	10	21	13	3	9
S22	**Specifications and contracts in tender documents should be written clearly and detailed**	4.38	1.00	1.00	245	33	17	3	0	3
S23	**Specifications and contracts in tender documents should be written in English and Turkish**	4.29	0.99	0.97	240	32	12	9	2	1

Table 28 (Continued)

CSFs		Mean	Std. Dev.	Var.	Sum	Frequency				
						5	4	3	2	1
S24	**After the tender decision, contracts should not be signed until financial closing or should enter into force with financial closing**	4.02	1.15	1.33	225	25	16	9	3	3
S25	**Contracts should include necessary provisions for resolving disputes through negotiation before going to trial or arbitration**	4.00	0.71	0.51	224	12	34	8	2	0
S26	**Public institutions should use technical consultants in project preparation and planning processes**	3.95	0.90	0.82	221	15	28	9	3	1
S27	**Public institutions should use technical consultants during the investment process**	3.98	0.88	0.78	223	16	27	10	2	1
S28	**Under the scope of alternative financing methods, there should be an option in which public institution can be shareholder of investment companies**	3.41	1.42	2.03	191	13	22	7	3	11
S29	**Under the scope of alternative financing methods, project bonds should be used**	3.64	1.07	1.14	204	13	19	18	3	3
S30	**A central unit responsible for all PPP projects should be established**	3.50	1.67	2.80	196	26	6	8	2	14

The analysis of data in Table 28 shows that the most popular 3 responses obtained from the questionnaire are as follows respectively;

1. The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis.
2. Public institutions should collaborate in the planning and coordination of investments to be realized with PPP model.
3. Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared.

Meanwhile, the least important factor was evaluated as the “PPP model should be included in the scope of the Public Procurement Law with 4734 No”.

In addition to these 30 questions, the participants rating the 30. question as 4 or 5 are asked that Under which institution the Central PPP unit should be located and What should be the structure of it? In total 15 participants (6 participants from the public and 9 participants from the private sector) answered that a New Supreme Board should be established. In total 11 participants (Half of the participants from public sector and 8 participants from the private sector) answered that this unit should be independent supreme board having the authority of tendering and coordination. The remaining 4 participants (half of public sector participants and 1 private sector participant) responded that this unit should be independent supreme board having the authority of coordination. In total 13 participants (5 of them from public sector while remaining 8 from private sector) answered that The Ministry of Development should cover this central PPP unit. In total 8 participants (1 from public and 7 from private sector) responded that The Ministry of Development should have the authority of both tendering and coordination. In total 5 participants (4 from public and 1 from private sector) responded that The Ministry of Development should have only the authority of coordination. The remaining 4 respondents from the private sector answered that Privatization Administration should cover this unit and should have the authority of both tendering and coordination.

The critical success factors considered important by the participants in order to improve PPP system in Turkey were analyzed according to the criteria listed below:

1. Experience of participants in PPP construction projects at Turkey,
2. The position of participants in their institution/company,
3. The sizes of participants’ companies (private sector),
4. Experience of participants’ companies in PPP projects at Turkey (private sector),
5. The sector of participants that they are working.

Critical success factors considered important by the participants for improving PPP system were analyzed in 2 categories as participants with an experience of (1-10) years in PPP projects at Turkey and participants with an experience (10 & above) year.. When responses are analyzed according to the identified categories, the most important factor for the participants with an experience of (1–10) years is “The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis”. Participants with 10 & above years of experience considered “Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared” as the most important factor (Table 29).

When an assessment with Mann-Whitney U test was made to determine whether there is a difference between responses given among categories, for the statement “Legal support should be provided to the bureaucrats against the cases due to PPP tenders” (0,003<0,05) it is concluded that there is a significant difference between categories in terms of the responses provided. Participants with an experience 10 & above years consider this factor more important when compared to participants with an experience between 1-10 years (Table 30).

Table 29. The critical success factors considered important by the participants in order to improve PPP system according to their experience

		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15
1-10 Years	N	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
	Mean	4.51	4.54	4.56	4.00	4.26	4.28	1.87	3.85	3.33	4.08	4.33	3.49	4.00	3.10	3.72
	Std. Deviation	0.85	0.72	0.82	0.86	0.79	0.89	1.26	1.35	1.47	0.98	0.93	1.10	0.97	1.57	1.28
	Median	5	5	5	4	4	4	1	4	4	4	5	4	4	3	4
	Minimum	1.00	2	1	2	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5.00	5	5	5	5	5	5	5	5	5	5	5	5	5	5
10 - Above Years	N	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
	Mean	4.88	4.82	4.76	3.94	4.35	4.59	1.59	4.47	3.35	4.24	4.35	3.59	4.35	3.71	3.53
	Std. Deviation	0.33	0.39	0.44	0.90	0.61	0.62	1.00	0.80	1.73	0.75	0.70	1.12	0.61	1.49	1.18
	Median	5	5	5	4	4	5	1	5	4	4	4	4	4	4	4
	Minimum	4	4	4	2	3	3	1	3	1	3	3	1	3	1	1
	Maximum	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5

		S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	S26	S27	S28	S29	S30
1-10 Years	N	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
	Mean	3.44	3.41	4.05	2.90	2.56	3.23	4.28	4.36	4.03	4.03	4.03	3.97	3.44	3.46	3.33
	Std. Deviation	1.19	1.27	0.72	1.55	1.33	1.37	1.12	0.96	1.16	0.67	0.87	0.90	1.41	1.14	1.69
	Median	3	4	4	3	3	4	5	5	4	4	4	4	4	3	4
	Minimum	1	1	3	1	1	1	1	1	1	2	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
10- Above Years	N	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
	Mean	3.47	3.53	4.24	4.18	3.00	3.65	4.59	4.12	4.00	3.94	3.76	4.00	3.35	4.06	3.88
	Std. Deviation	1.23	1.46	0.75	1.13	1.37	1.11	0.62	1.05	1.17	0.83	0.97	0.87	1.50	0.75	1.62
	Median	4	4	4	5	3	4	5	4	4	4	4	4	4	4	5
	Minimum	1	1	3	2	1	1	3	2	1	2	2	2	1	3	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 30. Comparison of responses to critical success factors considered important by the participants in order to improve PPP system according to their experience

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
S1	1-10 Years	26.56	1036.00	256.00	0.082
	10 - Above Years	32.94	560.00		
S2	1-10 Years	26.83	1046.50	266.50	0.150
	10 - Above Years	32.32	549.50		
S3	1-10 Years	27.73	1081.50	301.50	0.498
	10 - Above Years	30.26	514.50		
S4	1-10 Years	28.74	1121.00	322.00	0.858
	10 - Above Years	27.94	475.00		
S5	1-10 Years	28.18	1099.00	319.00	0.802
	10 - Above Years	29.24	497.00		
S6	1-10 Years	26.86	1047.50	267.50	0.202
	10 - Above Years	32.26	548.50		
S7	1-10 Years	29.40	1146.50	296.50	0.465
	10 - Above Years	26.44	449.50		
S8	1-10 Years	26.36	1028.00	248.00	0.108
	10 - Above Years	33.41	568.00		
S9	1-10 Years	28.18	1099.00	319.00	0.818
	10 - Above Years	29.24	497.00		
S10	1-10 Years	28.04	1093.50	313.50	0.729
	10 - Above Years	29.56	502.50		
S11	1-10 Years	28.91	1127.50	315.50	0.752
	10 - Above Years	27.56	468.50		
S12	1-10 Years	28.00	1092.00	312.00	0.719
	10 - Above Years	29.65	504.00		
S13	1-10 Years	26.94	1050.50	270.50	0.245
	10 - Above Years	32.09	545.50		
S14	1-10 Years	26.60	1037.50	257.50	0.172
	10 - Above Years	32.85	558.50		
S15	1-10 Years	29.59	1154.00	289.00	0.428
	10 - Above Years	26.00	442.00		
S16	1-10 Years	28.37	1106.50	326.50	0.926
	10 - Above Years	28.79	489.50		
S17	1-10 Years	27.69	1080.00	300.00	0.555
	10 - Above Years	30.35	516.00		
S18	1-10 Years	27.32	1065.50	285.50	0.376
	10 - Above Years	31.21	530.50		
S19	1-10 Years	24.37	950.50	170.50	**<0.003****
	10 - Above Years	37.97	645.50		
S20	1-10 Years	26.91	1049.50	269.50	0.253
	10 - Above Years	32.15	546.50		
S21	1-10 Years	27.26	1063.00	283.00	0.369
	10 - Above Years	31.35	533.00		
S22	1-10 Years	27.59	1076.00	296.00	0.470
	10 - Above Years	30.59	520.00		
S23	1-10 Years	29.71	1158.50	284.50	0.349
	10 - Above Years	25.74	437.50		
S24	1-10 Years	28.67	1118.00	325.00	0.902
	10 - Above Years	28.12	478.00		
S25	1-10 Years	28.86	1125.50	317.50	0.775
	10 - Above Years	27.68	470.50		
S26	1-10 Years	29.88	1165.50	277.50	0.297
	10 - Above Years	25.32	430.50		
S27	1-10 Years	28.45	1109.50	329.50	0.969
	10 - Above Years	28.62	486.50		
S28	1-10 Years	28.79	1123.00	320.00	0.831
	10 - Above Years	27.82	473.00		
S29	1-10 Years	25.95	1012.00	232.00	0.064
	10 - Above Years	34.35	584.00		
S30	1-10 Years	26.86	1047.50	267.50	0.224
	10 - Above Years	32,26	548,50		

* $p < 0.05$ ** $p < 0.01$

Critical success factors considered important by the participants in order to improve PPP system are also analyzed according to the position of participants in their institution/company. When responses are analyzed according to identified categories, the most important factors for the participants at manager level are “The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis” and “Public institutions should collaborate in the planning and coordination of investments to be realized with PPP model”; the most important factor for the participants at other positions (civil engineer/expert) is “Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared” (Table 31).

With Mann-Whitney-U test, it is assessed whether there is a difference between identified categories according to the responses given by the participants. As a result of the analysis made, in responses to statement “A single framework PPP legislation should be prepared to cover the different laws of PPP” (0,045<0,05) is evaluated as significantly more important by managers while the statement “After the tender decision, contracts should not be signed until financial closing or should enter into force with finanical closing” (0,019<0,05) is appracited as significantly more important by the participants working at other positions (Table 32).

Table 31. The critical success factors considered important by the participants in order to improve PPP system according to position of them in their institution/company

		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15
Managers	N	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
	Mean	4.59	4.59	4.48	3.76	4.34	4.21	1.79	4.34	3.66	4.07	4.31	3.28	4.03	3.41	3.38
	Std. Deviation	0.91	0.91	0.91	0.91	0.86	0.98	1.21	1.04	1.54	0.92	0.89	1.19	0.98	1.45	1.32
	Median	5	5	5	4	4	4	1	5	4	4	4	3	4	3	4
	Minimum	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
The Others	N	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
	Mean	4.67	4.67	4.78	4.22	4.22	4.56	1.78	3.70	3.00	4.19	4.37	3.78	4.19	3.15	3.96
	Std. Deviation	0.55	0.55	0.42	0.75	0.58	0.58	1.19	1.35	1.49	0.92	0.84	0.93	0.79	1.68	1.09
	Median	5	5	5	4	4	5	1	4	4	4	5	4	4	3	4
	Minimum	3	3	4	3	3	3	1	1	1	1	2	2	2	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 31 (Continued)

		S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	S26	S27	S28	S29	S30
Managers	N	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
	Mean	3.28	3.55	3.97	3.45	2.79	3.31	4.48	4.31	3.69	3.93	4.00	3.97	3.41	3.90	3.66
	Std. Deviation	1.31	1.21	.78	1.50	1.26	1.26	0.63	0.93	1.23	0.84	0.85	0.82	1.43	0.94	1.56
	Median	3	4	4	4	3	3	5	5	4	4	4	4	4	4	4
	Minimum	1	1	3	1	1	1	3	2	1	2	2	2	1	2	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
The Others	N	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
	Mean	3.63	3.33	4.26	3.11	2.59	3.41	4.26	4.26	4.37	4.07	3.89	4.00	3.41	3.37	3.33
	Std. Deviation	1.04	1.44	.66	1.60	1.45	1.37	1.29	1.06	0.97	0.55	0.97	0.96	1.45	1.15	1.80
	Median	4	4	4	3	3	4	5	5	5	4	4	4	4	3	4
	Minimum	1	1	3	1	1	1	1	1	1	3	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 32. Comparison of responses to critical success factors considered important by the participants in order to improve PPP system according to position of them in their institution/company

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
S1	Managers	28.93	839.00	379.00	0.791
	The Others	28.04	757.00		
S2	Managers	26.34	764.00	329.00	0.203
	The Others	30.81	832.00		
S3	Managers	26.53	769.50	334.50	0.236
	The Others	30.61	826.50		
S4	Managers	24.67	715.50	280.50	0.054
	The Others	32.61	880.50		
S5	Managers	30.84	894.50	323.50	0.208
	The Others	25.98	701.50		
S6	Managers	26.03	755.00	320.00	0.190
	The Others	31.15	841.00		
S7	Managers	28.84	836.50	381.50	0.848
	The Others	28.13	759.50		
S8	Managers	32.41	940.00	278.00	**<0.045***
	The Others	24.30	656.00		
S9	Managers	32.19	933.50	284.50	0.070
	The Others	24.54	662.50		
S10	Managers	27.34	793.00	358.0	0.553
	The Others	29.74	803.00		
S11	Managers	27.90	809.00	374.00	0.751
	The Others	29.15	787.00		
S12	Managers	25.09	727.50	292.50	0.093
	The Others	32.17	868.50		
S13	Managers	27.57	799.50	364.50	0.636
	The Others	29.50	796.50		
S14	Managers	29.55	857.00	361.00	0.604
	The Others	27.37	739.00		
S15	Managers	24.79	719.00	284.00	0.065
	The Others	32.48	877.00		

		Mean Rank	sum of Ranks	Mann-Whitney U	P Value
S16	Managers	26.55	770.00	335.00	0.337
	The Others	30.59	826.00		
S17	Managers	29.21	847.00	371.00	0.724
	The Others	27.74	749.00		
S18	Managers	25.67	744.50	309.50	0.146
	The Others	31.54	851.50		
S19	Managers	30.17	875.00	343.00	0.413
	The Others	26.70	721.00		
S20	Managers	29.64	859.50	358.50	0.575
	The Others	27.28	736.50		
S21	Managers	27.40	794.50	359.50	0.585
	The Others	29.69	801.50		
S22	Managers	28.10	815.00	380.00	0.830
	The Others	28.93	781.00		
S23	Managers	28.45	825.00	390.00	0.978
	The Others	28.56	771.00		
S24	Managers	23.88	692.50	257.500	**<0.019***
	The Others	33.46	903.50		
S25	Managers	27.64	801.50	366.50	0.639
	The Others	29.43	794.50		
S26	Managers	29.19	846.50	371.50	0.722
	The Others	27.76	749.50		
S27	Managers	27.62	801.00	366.00	0.652
	The Others	29.44	795.00		
S28	Managers	28.64	830.50	387.50	0.945
	The Others	28.35	765.50		
S29	Managers	31.86	924.00	294.00	0.095
	The Others	24.89	672.00		
S30	Managers	29.74	862.50	355.50	0.529
	The Others	27.17	733.50		

* $p < 0.05$ ** $p < 0.01$

Critical success factors considered important by the participants (at manager level) in order to improve PPP system are also analyzed according to the size of private sector participants' companies. The most important factors for the participants working at small-medium sized companies are "Specifications and contracts in tender documents should be written clearly and detailed", "Specifications and contracts in tender documents should be written in English and Turkish" and "Public institutions should use technical consultants in project preparation and planning processes". The most important factors for the participants working at large scale companies are "The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis" and "Institutional capacity of public institutions who work in the field of PPP should be increased" (Table 33).

As a result of the Mann Whitney U test, there is a statistically significant difference between responses of the participants. "Public institutions should use technical consultants in project preparation and planning processes" (0,039<0.05) is considered significantly more important by the participants working at companies having less than 250 workers (Table 34).

Table 33. The critical success factors considered important by the participants in order to improve PPP system according to the size of participants' companies

		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15
0-250	N	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Mean	4.43	4.43	4.43	4.29	3.86	4.29	2.29	4.29	4.00	3.86	3.86	3.00	4.00	3.43	3.14
	Std. Deviation	1.51	1.13	1.51	0.76	1.35	1.50	1.89	1.50	1.00	1.35	1.46	1.73	1.53	1.81	2.04
	Median	5	5	5	4	4	5	1	5	4	4	4	3	5	4	4
	Minimum	1	2	1	3	1	1	1	1	2	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
250-Above	N	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	Mean	4.47	4.33	4.33	3.73	4.27	4.07	2.07	4.27	4.20	4.13	4.47	3.13	4.07	3.47	3.53
	Std. Deviation	0.74	0.62	0.72	1.03	0.70	0.88	1.16	1.03	1.01	0.74	0.74	1.13	0.80	1.41	1.30
	Median	5	4	4	4	4	4	2	5	5	4	5	3	4	3	4
	Minimum	3	3	3	2	3	2	1	2	2	3	3	2	3	1	1
	Maximum	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5

		S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	S26	S27	S28	S29	S30
0-250	N	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Mean	2.57	3.29	4.29	3.14	2.14	2.00	4.86	4.86	4.14	4.14	4.86	4.71	3.43	3.86	3.86
	Std. Deviation	1.62	1.38	0.49	1.57	1.46	1.15	0.38	0.38	0.90	0.69	0.38	0.76	1.72	0.90	1.57
	Median	3	4	4	4	1	2	5	5	4	4	5	5	4	4	5
	Minimum	1	1	4	1	1	1	4	4	3	3	4	3	1	3	1
	Maximum	5	5	5	5	4	4	5	5	5	5	5	5	5	5	5
250-above	N	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	Mean	3.47	3.67	3.93	2.47	2.53	3.07	4.33	4.20	3.80	3.67	4.07	4.00	3.67	4.20	3.93
	Std. Deviation	1.36	1.18	0.88	1.51	1.41	1.49	0.82	1.01	1.21	0.98	0.88	0.85	1.40	0.77	1.16
	Median	4	4	4	2	3	3	5	5	4	4	4	4	4	4	4
	Minimum	1	1	3	1	1	1	3	2	2	2	2	2	1	3	2
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 34. Comparison of responses to critical success factors considered important by the participants in order to improve PPP system according to the size of participants' companies

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
S1	0-250	13.00	91.00	42.00	0.490
	250-Above	10.80	162.00		
S2	0-250	13.29	93.00	40.00	0.407
	250-Above	10.67	160.00		
S3	0-250	13.86	97.00	36.00	0.267
	250-Above	10.40	156.00		
S4	0-250	13.79	96.50	36.50	0.267
	250-Above	10.43	156.50		
S5	0-250	10.57	74.00	46.00	0.680
	250-Above	11.93	179.00		
S6	0-250	13.86	97.00	36.00	0.267
	250-Above	10.40	156.00		
S7	0-250	11.43	80.00	52.00	1.000
	250-Above	11.53	173.00		
S8	0-250	12.21	85.50	47.50	0.731
	250-Above	11.17	167.50		
S9	0-250	10.36	72.50	44.50	0.581
	250-Above	12.03	180.50		
S10	0-250	11.29	79.00	51.00	0.945
	250-Above	11.60	174.00		
S11	0-250	9.79	68.50	40.50	0.407
	250-Above	12.30	184.50		
S12	0-250	11.00	77.00	49.00	0.837
	250-Above	11.73	176.00		
S13	0-250	12.43	87.00	46.00	0.680
	250-Above	11.07	166.00		
S14	0-250	11.71	82.00	51.00	0.945
	250-Above	11.40	171.00		
S15	0-250	11.29	79.00	51.00	0.945
	250-Above	11.60	174.00		

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
S16	0-250	9.00	63.00	35.00	0.237
	250-Above	12.67	190.00		
S17	0-250	10.36	72.50	44.50	0.581
	250-Above	12.03	180.50		
S18	0-250	13.29	93.00	40.00	0.407
	250-Above	10.67	160.00		
S19	0-250	13.36	93.50	39.50	0.368
	250-Above	10.63	159.50		
S20	0-250	10.36	72.50	44.50	0.581
	250-Above	12.03	180.50		
S21	0-250	8.43	59.00	31.00	0.142
	250-Above	12.93	194.00		
S22	0-250	14.14	99.00	34.00	0.210
	250-Above	10.27	154.00		
S23	0-250	14.21	99.50	33.50	0.185
	250-Above	10.23	153.50		
S24	0-250	12.57	88.00	45.00	0.630
	250-Above	11.00	165.00		
S25	0-250	13.57	95.00	38.00	0.332
	250-Above	10.53	158.00		
S26	0-250	15.64	109.50	23.50	**<0.039***
	250-Above	9.57	143.50		
S27	0-250	15.43	108.00	25.00	0.056
	250-Above	9.67	145.00		
S28	0-250	11.07	77.50	49.50	0.837
	250-Above	11.70	175.50		
S29	0-250	9.79	68.50	40.50	0.407
	250-Above	12.30	184.50		
S30	0-250	11.71	82.00	51.00	0.945
	250-Above	11.40	171.00		

* $p < 0.05$ ** $p < 0.01$

When the critical success factors considered important by the participants for improving PPP system are analyzed according to the experience of their companies in PPP projects at Turkey, the companies having 1-10 year experience evaluated "Specifications and contracts in tender documents should be written clearly and detailed" is the most important one while the companies having 11-above year experience evaluated "The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis" and "Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared" as the most important problem (Table 35).

In the comparison of responses given by the participants, As a result of the Mann-Whitney U test (Table 36), it was observed that the statements; “Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared” (0.019<0,05), “All PPP projects and Operation Right Transfer Projects which will be realized under the applicable laws of Privatization Administration and other Public Institutions should be arranged through private law contracts” (0,042<0,05) and “Under the scope of alternative financing methods, there should be an option in which public institution can be shareholder of investment companies”(0,047<0,05) are evaluated as significantly important by the companies having 11-above year experience when compared with the companies having 1-10 year experience:

Table 35. The critical success factors considered important by the participants in order to improve PPP system according to the experience of their companies in PPP projects at Turkey

		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15
1-10 Years	N	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
	Mean	4.15	4.15	4.00	3.69	3.92	3.92	2.38	3.92	3.77	3.77	4.00	2.85	3.77	3.46	3.08
	Std. Deviation	0.34	0.25	0.32	0.24	0.29	0.35	0.38	0.37	0.30	0.28	0.32	0.34	0.32	0.39	0.46
	Median	5	4	4	4	4	4	2	4	4	4	4	3	4	3	3
	Minimum	1	2	1	2	1	1	1	1	2	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
11-Above Years	N	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	Mean	4.89	4.67	4.89	4.22	4.44	4.44	1.78	4.78	4.67	4.44	4.67	3.44	4.44	3.44	3.89
	Std. Deviation	0.11	0.17	0.11	0.36	0.24	0.24	0.46	0.22	0.17	0.24	0.24	0.47	0.24	0.58	0.42
	Median	5	5	5	5	5	5	1	5	5	5	5	3	5	4	4
	Minimum	4	4	4	2	3	3	1	3	4	3	3	1	3	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 35 (Continued)

		S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	S26	S27	S28	S29	S30
1-10 Years	N	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
	Mean	3.15	3.15	3.85	2.46	2.08	2.69	4.38	4.31	3.92	3.54	4.31	4.15	3.15	4.00	3.62
	Std. Deviation	0.39	0.37	0.19	0.37	0.38	0.44	0.21	0.24	0.29	0.22	0.21	0.22	0.41	0.25	0.37
	Median	3	3	4	3	1	3	5	5	4	4	4	4	4	4	3
	Minimum	1	1	3	1	1	1	3	3	2	2	3	3	1	3	1
	Maximum	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5
11-Above Years	N	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	Mean	3.22	4.11	4.33	3.00	2.89	2.78	4.67	4.56	3.89	4.22	4.33	4.33	4.22	4.22	4.33
	Std. Deviation	0.55	0.26	0.29	0.60	0.45	0.43	0.24	0.34	0.42	0.32	0.33	0.33	0.43	0.22	0.37
	Median	3	4	5	3	3	3	5	5	4	4	5	5	5	4	5
	Minimum	1	3	3	1	1	1	3	2	2	2	2	2	1	3	2
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 36. Comparison of responses to critical success factors considered important by the participants in order to improve PPP system according to the experience of their companies i PPP projects at Turkey

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
S1	1-10 Years	9.81	127.50	36.50	0.074
	11-Above Years	13.94	125.50		
S2	1-10 Years	10.00	130.00	39.00	0.147
	11-Above Years	13.67	123.00		
S3	1-10 Years	9.12	118.50	27.50	**<0.019***
	11-Above Years	14.94	134.50		
S4	1-10 Years	9.88	128.50	37.50	0.141
	11-Above Years	13.83	124.50		
S5	1-10 Years	10.08	131.00	40.00	0.175
	11-Above Years	13.56	122.00		
S6	1-10 Years	10.50	136.50	45.50	0.349
	11-Above Years	12.94	116.50		
S7	1-10 Years	12.77	166.00	42.00	0.237
	11-Above Years	9.67	87.00		
S8	1-10 Years	9.62	125.00	34.00	0.057
	11-Above Years	14.22	128.00		
S9	1-10 Years	9.31	121.00	30.00	**<0.042***
	11-Above Years	14.67	132.00		
S10	1-10 Years	9.62	125.00	34.00	0.075
	11-Above Years	14.22	128.00		
S11	1-10 Years	9.77	127.00	36.00	0.096
	11-Above Years	14.00	126.00		
S12	1-10 Years	10.27	133.50	42.50	0.269
	11-Above Years	13.28	119.50		
S13	1-10 Years	9.92	129.00	38.00	0.147
	11-Above Years	13.78	124.00		
S14	1-10 Years	11.35	147.50	56.50	0.890
	11-Above Years	11.72	105.50		
S15	1-10 Years	10.23	133.00	42.00	0.254
	11-Above Years	13.33	120.00		

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
S16	1-10 Years	11.31	147.00	56.00	0.864
	11-Above Years	11.78	106.00		
S17	1-10 Years	9.62	125.00	34.00	0.090
	11-Above Years	14.22	128.00		
S18	1-10 Years	9.92	129.00	38.00	0.145
	11-Above Years	13.78	124.00		
S19	1-10 Years	10.58	137.50	46.50	0.407
	11-Above Years	12.83	115.50		
S20	1-10 Years	9.96	129.50	38.50	0.161
	11-Above Years	13.72	123.50		
S21	1-10 Years	11.38	148.00	57.00	0.918
	11-Above Years	11.67	105.00		
S22	1-10 Years	10.50	136.50	45.50	0.309
	11-Above Years	12.94	116.50		
S23	1-10 Years	10.54	137.00	46.00	0.330
	11-Above Years	12.89	116.00		
S24	1-10 Years	11.46	149.00	58.00	0.972
	11-Above Years	11.56	104.00		
S25	1-10 Years	9.35	121.50	30.50	0.047
	11-Above Years	14.61	131.50		
S26	1-10 Years	11.12	144.50	53.50	0.714
	11-Above Years	12.06	108.50		
S27	1-10 Years	10.69	139.00	48.00	0.449
	11-Above Years	12.67	114.00		
S28	1-10 Years	9.31	121.00	30.00	**<0.047***
	11-Above Years	14.67	132.00		
S29	1-10 Years	10.88	141.50	50.50	0.570
	11-Above Years	12.39	111.50		
S30	1-10 Years	10.12	131.50	40.50	0.194
	11-Above Years	1350	12150		

*p < 0.05 ** p < 0.01

The critical success factors considered important by the participants in order to improve PPP system in terms of the working sector are analyzed. The most important factors are “The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis” and “Public institutions should collaborate in the planning and coordination of investments to be realized with PPP model” for the respondents from the public sector while “Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared” “is the most important one for the private sector participants (Table 37).

According to the results of Mann Whitney U test, there is a statistically significant difference between responses of the participants. The private sector participants appreciates the following problems as significantly more important when compared with the public sector: “All PPP projects and Operation Right Transfer Projects which will be realized under the applicable laws of Privatization Administration and other Public Institutions should be arranged through private law contracts” and “Public institutions should use technical consultants in project preparation and planning processes”. However, the public sector participants evaluates the following statements as significantly more important when compared with the private sector: “The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis”, “Public institutions should collaborate in the planning and coordination of investments to be realized with PPP model”, “Comparative economic and financial analysis should be made for determining whether projects to be realized with traditional or PPP models”, “Institutional capacity of public institutions who work in the field of PPP should be increased”, “Competitions should be arranged for projects in order to obtain innovative design of large-scale PPP projects which also preferred by people to be affected from that”, “Legal support should be provided to the bureaucrats against the cases due to PPP tenders”, “Rates of the bid bonds should be increased” and “The tenderers should be asked for credit letter of intent” (Table 38) ($p<0,05$).

Table 37. The critical success factors considered important by the participants in order to improve PPP system according to the working sector of them

		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15
Public	N	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
	Mean	4.95	4.95	4.81	4.19	4.48	4.71	1.43	4.00	2.24	4.19	4.67	3.90	4.33	3.14	3.76
	Std. Deviation	0.22	0.22	0.40	0.75	0.60	0.46	0.81	1.22	1.51	1.03	0.48	1.00	0.73	1.74	1.14
	Median	5	5	5	4	5	5	1	4	2	4	5	4	4	3	4
	Minimum	4	4	4	3	3	4	1	1	1	1	4	2	3	1	1
	Maximum	5	5	5	5	5	5	3	5	5	5	5	5	5	5	5
Private	N	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
	Mean	4.43	4.43	4.51	3.86	4.17	4.17	2.00	4.06	4.00	4.09	4.14	3.29	3.97	3.37	3.60
	Std. Deviation	0.88	0.74	0.85	0.91	0.79	0.92	1.33	1.26	1.14	0.85	0.97	1.10	0.95	1.46	1.31
	Median	5	5	5	4	4	4	1	5	4	4	4	3	4	3	4
	Minimum	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

		S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	S26	S27	S28	S29	S30
Public	N	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
	Mean	3.52	3.10	4.33	4.00	3.38	4.00	4.33	4.24	4.14	3.95	3.52	3.81	3.24	3.62	3.10
	Std. Deviation	1.08	1.51	0.66	1.45	1.24	0.95	1.20	1.14	1.24	0.50	0.98	0.98	1.41	1.20	1.92
	Median	3	4	4	5	4	4	5	5	5	4	4	4	4	4	4
	Minimum	2	1	3	1	1	1	1	1	1	3	1	1	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Private	N	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
	Mean	3.40	3.66	3.97	2.86	2.29	2.97	4.40	4.31	3.94	4.03	4.20	4.09	3.51	3.66	3.74
	Std. Deviation	1.26	1.16	0.75	1.46	1.25	1.34	0.88	0.90	1.11	0.82	0.76	0.82	1.44	1.00	1.48
	Median	4	4	4	3	2	3	5	5	4	4	4	4	4	4	4
	Minimum	1	1	3	1	1	1	1	2	1	2	2	2	1	1	1
	Maximum	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

Table 38. Comparison of responses to critical success factors considered important by the participants in order to improve PPP system according to the working sector of them

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
S1	Public	34.76	730.00	236.00	**<0.004****
	Private	24.74	866.00		
S2	Public	35.74	750.50	215.50	**<0.001****
	Private	24.16	845.50		
S3	Public	31.45	660.50	305.50	0.184
	Private	26.73	935.50		
S4	Public	32.00	672.00	294.00	0.189
	Private	26.40	924.00		
S5	Public	32.33	679.00	287.00	0.124
	Private	26.20	917.00		
S6	Public	34.71	729.00	237.00	**<0.014***
	Private	24.77	867.00		
S7	Public	24.60	516.50	285.50	0.104
	Private	30.84	1079.50		
S8	Public	27.81	584.00	353.00	0.791
	Private	28.91	1012.00		
S9	Public	18.00	378.00	147.00	**<0.001****
	Private	34.80	1218.00		
S10	Public	30.57	642.00	324.00	0.426
	Private	27.26	954.00		
S11	Public	33.83	710.50	255.50	**<0.036***
	Private	25.30	885.50		
S12	Public	33.98	713.50	252.50	**<0.044***
	Private	25.21	882.50		
S13	Public	32.12	674.50	291.50	0.169
	Private	26.33	921.50		
S14	Public	27.45	576.50	345.50	0.700
	Private	29.13	1019.50		
S15	Public	29.48	619.00	347.00	0.717
	Private	27.91	977.00		

		Mean Rank	Sum of Ranks	Mann-Whitney U	P Value
S16	Public	28.74	603.50	362.500	0.930
	Private	28.36	992.50		
S17	Public	25.21	529.50	298.500	0.220
	Private	30.47	1066.50		
S18	Public	33.12	695.50	270.500	0.076
	Private	25.73	900.50		
S19	Public	36.43	765.00	201.000	**<0.004****
	Private	23.74	831.00		
S20	Public	36.83	773.50	192.500	**<0.002****
	Private	23.50	822.50		
S21	Public	36.52	767.00	199.000	**<0.003****
	Private	23.69	829.00		
S22	Public	29.24	614.00	352.000	0.765
	Private	28.06	982.00		
S23	Public	28.48	598.00	367.000	0.992
	Private	28.51	998.00		
S24	Public	31.00	651.00	315.000	0.345
	Private	27.00	945.00		
S25	Public	26.69	560.50	329.500	0.462
	Private	29.59	1035.50		
S26	Public	21.55	452.50	221.500	**<0.007****
	Private	32.67	1143.50		
S27	Public	26.05	547.00	316.000	0.347
	Private	29.97	1049.00		
S28	Public	25.93	544.50	313.500	0.340
	Private	30.04	1051.50		
S29	Public	28.98	608.50	357.500	0.860
	Private	28.21	987.50		
S30	Public	25.45	534.50	303.500	0.248
	Private	30.33	1061.50		

* $p < 0.05$ ** $p < 0.01$

4.6 Research Findings

The results of survey analysis can be summarized as below:

- At first, private sector participants were asked for the scoring their company to evaluate success in some main PPP project steps they have been involved at Turkey. According to the analysis results, participants in general find their companies as successful in these selected criteria. According to the scores they have given their company, the most successful area of the companies in carrying out PPP projects is the “Management of Operating Period” and it is followed by respectively “The Completion of Investment in the Period of

Contract", "Design Process Preparations", "Funding in Appropriate Conditions and Time", "The Profitability of the Projects".

As it is known the private sector is not paid until the start of operation period in PPP projects. Capital investment of the private partner is obtained by operating income over the concession period. These concession periods have broad range of risks and uncertainties such as operation cost overrun, high and frequent maintenance costs than expected and lower revenues with respect to initial estimations. These factors are directly related with the management performance of the company in operating period. The successful management of this phase depends on the detailed planning at initial phase with schedule and so quality and efficiency of operation. These results shows that the participants find their companies as successful in these areas with a score given 4 or 5 points comprising more than 75 % of participants. It is followed with the approximately 70 % given 4 or 5 points to the "The Completion of Investment in the Period of Contract" by participants. In PPP projects, timely completion is important because penalties may apply under the operation right transfers for late completion. Also, the lenders only defer payment of credit debt for a specified grace period which usually corresponds to construction duration in contract. If the delay occurs in a construction phase, then payment of credit debts will be an essential problem. Companies evaluate themselves as successful in average for the completion of investments in the contract duration. The step of "Design Process Preparations" is also evaluated as successful commonly with the 60 % participation given to 4 or 5 points. Design is located at the hearth of the PPP process. It is also the most complex part of the whole PPP process. Design teams should be planned and managed by successful coordination. PPP protects government against the financial problems since if unwanted results are obtained as a result of the poor design, these risk are mostly transferred to private sector contractors. Therefore, this 60 % is important indicator for companies.

"Funding in Appropriate Conditions and Time" is scored around 60 % rate with 4 or 5 points by private sector companies. PPP projects are usually financed with the

agreement of lenders and investors. Before or during the construction phase, contractors wants to receive loans from banks in a condition that after the construction is completed, the cash flow generated by the project will be used to repay their loans. Therefore, the project finance plan should be well optimized and incomes from the project should match with the loan payment amounts and intervals to the lenders. In addition, if the financial crisis occurs in the market, then many banks faces with difficulties for providing long term loans to the contractors. Although the 60 % rate seems to be a good value, the remaining 40 % rate shows substantial amount for consideration the importance of this problem. Finally, the latest score with 50 % 4 or 5 belongs to "The Profitability of the Projects". Companies will usually invest to the business unless it is more profitable than any other investment opportunities. Therefore, the profitability is the most important criteria for also the PPP projects. It depends on almost all above mentioned factors ("Management of Operating Period", "The Completion of Investment in the Period of Contract", "Design Process Preparations", "Funding in Appropriate Conditions and Time"). Financial crisis showing themselves from time to time are also other essential criteria that may affect the balance sheets of all the parties of PPP and also the profitability of projects. The 50 % rate shows that only half of the investors in private sector evaluates themselves as successful in Turkey.

- The public and private sector participants were asked for the select a project for the evaluation on importance of main problems faced while carrying out PPP projects. In addition to that, they were scored their institution/company to evaluate success in this selected PPP project for the steps they have been involved at Turkey. According to the analysis results, in average, the following parts of the projects were appreciated by the participants as maintained successfully for the selected projects: "The Management of Operating Period", "The Profitability of the Project", "Preparation of Tender Documents", "The Completion of Investment in the Period of Contract", "Project Planning-Prefeasibility Evaluation", "Project Planning-Prefeasibility Preparation" and "The Design Process Preparations". However, the steps of

"Legislative Preparedness" and "Funding at Appropriate Conditions and Time" were evaluated below the 50 % participation to 4 or 5 score which means most of the respondents did not appreciate themselves as successful.

Since the opinions of public sector were participated to the answers and the evaluation was more specifically done for the selected specific project, some scoring rates were changed when compared with the answers of first part questions. The significant changes can be seen in the statements of "The Profitability of the Project" and "The Funding at Appropriate Conditions and Time" which are respectively has 67 % (4 or 5 score) and 46 % (4 or 5 score). However, both of these issues are directly related with the realization time of projects. As it was mentioned, the global or local financial crisis negatively affects the PPPs through different transmission channels. This causes higher costs for international project finance institutions. The credit market capacity will be a big concern especially for larger PPP projects. Also the long term loans will not be obtained easily especially from foreign banks because in such a global crisis, many large banks reduce their PPP activity. Therefore, especially for this time concern and the scoring the only one project, the decrease in the evaluation of statement; "The Funding at Appropriate Conditions and Time" is observed easily which had 60 % rate (4 or 5 score) before. The "Profitability of the Project" is also affected from this issue. However, the effect of current economic condition during the financing of project will be limited to the "Profitability of The Project" when compared with the "The Funding at Appropriate Conditions and Time" because the profitability is a long term issue and mainly depends on the long-lasting operation period of projects which generates incomes to the investor companies. Since the some public sector respondents also responded this question because they have been involved or have knowledge in somehow, their opinions mainly causes increasing rate for the evaluation from 50 % (4 or 5 score) to 67 % (4 or 5 score). As it is expected, their perspective towards the profitability can not be like the private sector investors.

“The Management of Operating Period” is scored around 72 % (4 or 5 score) and evaluated as the most successful part of the projects which was similar with the results of the above mentioned first part. “Preparation of tender documents” is following with 64 % rate (4 or 5 score) and also appreciated as successful by the most of the respondents. Following feasibility evaluation, “Preparation of Tender documents” is the other important step before tendering stage. In order to develop all aspects of the PPP design (responsibilities, risk allocation, payment mechanism etc.), PPP contract should be prepared carefully. Also, selecting the tendering method and deciding on bid evaluation criteria are the important parts forming the tender documents. The end of this stage is an essential milestone in the project delivery phase of the PPP process. “The Completion of Investment in the Period of Contract” is rated as 61 % (4 or 5 score) and evaluated as successfully by the most of the respondents like in the first part.

“Project Planning-Prefeasibility Evaluation” and “Project Planning-Prefeasibility Preparation” are following each other with 61 % and 59 % participation to 4 or 5 score. After the selection of project main specification, the Public Authority and its consultants will carry out feasibility analyses including cost analysis, supply and demand analysis, and preliminary environmental evaluation about the potential impacts of the project. At these stages, the financial model is developed concurrently with the feasibility studies. These above mentioned studies, helps Public Authority to decide on yes or no decision for the selection among other project alternatives. “The Design Process Preparations” is scored with 50 % (4 or 5 score) which means half of the respondents evaluate their company/institution as successful in this area. As it was mentioned, this step comprises the hearth of the PPP projects for the prevention of problems to be occurred in construction and also in operation phases of the project. Therefore, although 50 % of the respondents evaluate themselves as successful, the remaining 50 % also should be in mind for further improvement in this step of the projects.

“Legislative Preparedness” can be described with one word as “the beginning”. The well prepared legal framework supporting PPP has many benefits for facilitating investments in complex PPP projects, providing proper controls, and best solution procedures for the resolution of contract disputes. The provisions in legal framework should provide that PPP project is well functioning and realizable. For instance; how the establishment of PPP company (Special Purpose Vehicle) will be provided, under which conditions public assets can be transferred to non-public companies are the some of the issues that should be included in provisions. Also, finance related provisions should be included which provide public sector to use money by subsidies or long-term commitments throughout the life of the PPP contract. The public and private sector participants, in general evaluated this issue with only 47 % participation to 4 or 5 score which means that from the initial phase of the PPP projects, in other words, the first step of project is needed to be improved.

- The importance of main problems in carrying out PPP projects was searched among pre-determined 30 questions and the most popular 3 problems are determined by participants as follows respectively;
    1. The lack of detailed preparation of public institute before tendering.
    2. Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost.
    3. Inadequate planning and prioritization of projects before presenting to the public.

  Meanwhile, the least important problem has been found to be:
    - Low bid bond criteria in the tender.

These results shows that detailed preparation of many PPP projects are not done by public institutions before the tendering stage. Before determining the implementation and financing model of the project, it is not investigated carefully that whether it would be appropriate to carry out a project with a traditional method or PPP model.

In addition to that, the help of some institutions are taken however these are usually limited with only opinions. Some ministries and institutions decide on going for tender before completing the preliminary studies in sufficient manner. As a result of this situation, tenders are being postponed or cancelled. This situation causes international investors to distrust the PPP system in Turkey. In addition, the project that could not be realized in time causes losses in local economy. Moreover, if the project will be open to interpretation issues due to the tendering without detailed development process, the firms try to participate almost every tender by thinking that "We can solve these issues after tendering with agreement". This causes systematic problems resulting with delay of projects, time, workforce and financial loses, and also leave bad impression on foreign investors and banks. Therefore it was expected that "The lack of detailed preparation of public institute before tendering" will be located among the most important problems.

"Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost" is another problem considered as important. Especially after 2008 global financial crisis, it is more evident that there is a liquidity problem in the world. In both developed and developing countries, public and private firms face with difficulty while providing finance to the projects. Each country has a lending limit which is determined by the credit rating set in international markets. The almost concurrently presentation of PPP projects having high investment needs in long term durations, limits the credit markets. Since the companies in tenders are faced with a looking finance at the same time in country, this causes an artificial demand in limited credit market and so the cost of credit can increase. Moreover, the funding could not be provided above the country limit, the strength and consistency of investment policy and market are damaged in the eyes of foreign investors. Therefore, in some projects, although the tender is completed, the investors could not find a finance. This causes cancellation or extension of some opened tenders in last years.

“Inadequate planning and prioritization of projects before presenting to the public” is also evaluated as an essential problem. In the same sector, the possibility of realization multiple projects preventing the development of each other is an important issue. This causes that the projects can not be transferred to the private sector with their real value, and limited finance conditions are used irrationally. For instance; the harbor & marina projects are transferred to the private sector with operation right transfers, however; at the same time, the public sector also declared that a new port construction investment will be launched in close distance. Otherwise, due to this inadequate planning and prioritization of projects, the private sector can not correctly calculate the risks of the project for compensation and so the resulted damage will actually harm the national economy and keep away the foreign investors

Summarizing the analysis of the answers given to the problems in carrying out PPP projects according to the categories which we classified the participants, we can reach the following results:

i. The most important problem for the participants with an experience of both (1-10 years) and (10 & above years) is “The lack of detailed preparation of public institute before tendering”. In addition to that “Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost” is evaluated as the most important one for the participants with an experience of (10 & above years).

   It is expected that most of the participants having at least 10 year experience in PPP sector have a chance to evaluate problems in sector from broader perspective when compared with the participants having less than 10 year experience. The financial processes are usually carried out by the most experienced professionals in the sector so they have to cope with this problem in projects. Therefore, the statement “Formation

of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost" is appreciated also as the most important problem by participants having 10 & above year experiences.

ii. The most important factor for both managers and other level employees (experts/civil engineers) is "The lack of detailed preparation of public institute before tendering".

As it was mentioned above, this problem is evaluated as the most important one when analyzed among all participants. The tendering preparations of public institutes is not enough and whether manager or not almost all professionals in this sector have to face with this problem while coping with this process. Therefore it is an expected result that "The lack of detailed preparation of public institute before tendering" is the most important problem for both managers and others (experts/civil engineers).

iii. The most important factor for the participants working at small-medium sized companies is "The lack of detailed preparation of public institute before tendering while "Inadequate and unreliable contract and tender documents in the eyes of creditors" is the most important one for the participants' at large-scale companies. Also, there is a statistically significant difference between two responses of the participants. These are "The incompatible legal process with the project's needs" and "Low bid bond criteria in the tender". Both of these problems are considered significantly more important by the participants working at large-scale companies.

Since the project development processes are not successfully carried out and so lots of issues requiring interpretation are located in tender

documents especially contracts, many addendums are declared. These causes many changes in tender documents and this issue is interpreted as public institution was not well prepared from the perspective of banks. Also, risks usually are not shared optimally between public and private sector and most of them are undertaken by public sector. As a result of that risk premium and cost of projects increases on the eyes of creditors. When the large-scale companies are thought, taking into account their participation to PPP projects requiring huge investments, it is not surprise that the evaluation of “Inadequate and unreliable contract and tender documents in the eyes of creditors” is the most important one. “Low bid bond criteria in the tender” is also an essential problem for larger investors. Due to the low bind bond criteria, some investors offers lower prices than the average amount that is compatible for the successfully completion of project and win the tender. Also, some investors offer a bid almost every project and if several ones are won, their equity capital will not be enough for the finance of all projects at the same time. “The incompatible legal process with the project's needs” is also crucial problem especially for large-scale companies. The most of the huge projects are won by them and so the following legal issues about faced problems have to be solved. The EU screening report dated 5.4.2006 is in line with this issue and reports that there is a need for more and detailed provisions in the PPP sector which improves the legal framework and transparency when compared with the EU procurement legislation.

iv. The companies having 1-10 year experience evaluated “The lack of cooperation in project planning and coordination among the public institutions” is the most important one while the companies having 11-above year experience evaluated “The lack of detailed preparation of public institute before tendering” as the most important problem.

Most of the time, the public institutions realizing PPP tenders only consider laws carrying their institution name and do not conform with the norms and hierarchies in legal system of Turkey. Therefore, coordination and cooperation could not be provided although there are provisions about these requirements. “The lack of cooperation in project planning and coordination among the public institutions” is also related with the statement “The lack of detailed preparation of public institute before tendering”. However, it is an expected result, the evaluation of this issue as the most important one by the companies having 1-10 year experience. These companies usually cannot win tenders as much as the more experienced ones. Thus, they are faced with the problems up to the tendering phase which directly shows the coordination and cooperation problem between public institutions.

v. The most important factor in Build-Operate-Transfer (BOT) type projects is “The lack of detailed preparation of public institute before tendering” while in Build-Operate (BO) type projects is “Inadequate planning and prioritization of projects before presenting to the public”. “Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost” is evaluated as the most important one for the Operation Right Transfer (ORT) (Concession Agreement-CA) projects. Finally, “The lack of cooperation in project planning and coordination among the public institutions” is appreciated as the most important problem in Build-Lease-Transfer (BLT) type projects. In addition, “The lack of cooperation in project planning and coordination among the public institutions”, “The incompatible legal process with the project's needs” and “The late notification of the tender result to the participants” are evaluated as more important in BLT type projects more than BO and CA projects. “The problem of municipal plan between investor and municipality during the project design work” is evaluated as more

important in BOT and BO projects than CA type projects. “Insufficient number of investors participating tender”, “The insufficient knowledge in PPP legislation about the objection mechanism to the tender” and “Not providing adequate financial support to the project by public (direct credit supply, demand guarantee, treasury guarantee, refinancing guarantee, etc.)” are appreciated as more important in BLT type projects than BO type projects. “The low interest of international investors for participating tender” is evaluated as more important in BOT and CA type projects than BO projects. “Many changes in original tender documents with the addendums” is evaluated as more important in BOT type projects than BO projects. “The high cost of project financing” is appreciated as more important in BOT and CA projects than BO type projects.

The Operation Right Transfer contracts usually requires huge amount of money at tendering phases. The private sector gains an exclusive right to operate, maintain and carry out investment in a public utility for pre-determined number of years. Privatization of electric distribution, water distribution, communication, and highway & bridges are some of the examples conducted in Turkey. Therefore, it is an expected result that “Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost” is evaluated as the most important one for the Operation Right Transfer (ORT) projects.

vi. The most important problem for the highway projects is “The lack of detailed preparation of public institute before tendering”. In airport projects, the participants appreciated “Inadequate planning and prioritization of projects before presenting to the public” and “Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost” as

the most important problems. “The high cost of project financing” is evaluated as the most important one for the Harbour & Marina and the Custom Facility & Custom Gate projects. In Industrial Facility and Urban Infrastructure Projects the most important problem is “Inadequate planning and prioritization of projects before presenting to the public” while in Health Facility Projects “Inadequate and unreliable contract and tender documents in the eyes of creditors” is evaluated as the most essential one.

As a result of the analysis made, in responses to statements “Inadequate planning and prioritization of projects before presenting to the public”, “Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost”, “The lack of cooperation in project planning and coordination among the public institutions” and “Not taking the opinions of citizens, companies ,other stakeholders and non-governmental organizations to be affected from the project” are evaluated as more important in Highway projects than Custom Facility & Gate projects. “Inadequate planning and prioritization of projects before presenting to the public” is appreciated as more essential in Airport projects than Custom Facility & Gate projects. In health facility projects when compared with the Custom projects there are significant differences between these problems: “Inadequate planning and prioritization of projects before presenting to the public”, “The lack of cooperation in project planning and coordination among the public institutions”, “The incompatible legal process with the project's needs”, “Insufficient number of investors participating tender” and “Inadequate and unreliable contract and tender documents in the eyes of creditors”. When compared with the Custom projects, “The lack of detailed preparation of public institute before tendering”, “The lack of realistic data in the prepared pre-feasibility report”, “The lack of comparative economic and financial

analysis, in order to realize project with PPP model instead of tradional methods. (Public Sector Comparator)" and "Insufficient number of investors participating tender" are appreciated as significantly important in Harbor & Marina Projects. "The problem of municipal plan between investor and municipality during the project design work" and "The low interest of international investors for participating tender" are evaluated as more important in Harbor & Marina projects than Health Facility projects. In Harbor & Marina projects; "Insufficient number of investors participating tender", "The low interest of international investors for participating tender" and "The lack of adequate evaluation of performance and quality criteria in addition to operation period or monetary criteria in the tender" are significantly important when compared with the airport projects. "Insufficient number of investors participating tender" are more important problem in Ind. Fac. & Urban Inf. Projects than Custom projects. "The low interest of international investors for participating tender" are significantly important in Harbor & Marina projects when compared with the Ind. Fac. & Urban Inf. projects. "The late notification of the tender result to the participants" and "The insufficient knowledge in PPP legislation about the objection mechanism to the tender" are evaluated as more crucial in Health Facility projects when compared with Airport projects.

"The high cost of project financing" is evaluated as the most important one for the Harbour & Marina and the Custom Facility & Custom Gate projects. The reason of this evaluation is easily understandable because of the higher investment need of these projects in both concession contracts and other PPP models. They are also the special project types attracting the specific public groups. Therefore the evaluation of project finance on operation period requires more detailed study and vision when compared with the other type projects.

vii. The most important problem is “The lack of realistic data in the prepared pre-feasibility report” for the respondents from the public sector while “Inadequate and unreliable contract and tender documents in the eyes of creditors” is the most important one for the private sector participants. In addition to that the private sector participants appreciates the following problems as significantly more important when compared with the public sector: “The incompatible legal process with the project's needs”, “Tendering with general, unclear, open-ended specification and contract”, “The absence of as-built projects while realizing tenders”, “The late notification of the tender result to the participants”, “The insufficient knowledge in PPP legislation about the objection mechanism to the tender”, “The lack of regulations in the contract of project having 20-30 years duration to adopt the changing conditions”, “The high equity/loan ratio of project”, “The enforcement for the termination of contract even in little contradiction of contract by investor”, “Inadequate and unreliable contract and tender documents in the eyes of creditors”, “Short-term maturity period for credits of finance institutions”, “Not providing adequate financial support to the project by public (direct credit supply, demand guarantee, treasury guarantee, refinancing guarantee, etc.)”, “Not being made balanced distribution of financial risks in contract”, “The high cost of project financing” and “The continuation of design and construction phases of project at the same time”. However, the public sector evaluates the two problem as significantly important with respect to private sector. These are; “The lack of realistic data in the prepared pre-feasibility report” and “The lack of comparative economic and financial analysis, in order to realize project with PPP model instead of tradional methods. (Public Sector Comparator)”.

The statement “The lack of realistic data in the prepared pre-feasibility report” shows us that they are not prepared in an international scale with objective nature and causes slowing down of projects instead of speeding

up. Also, the problems arising after tenders may cause cancelling of them or facing with problematic projects. The identification of this problem from the participants of public sector is also very important point from the self-criticism perspective.

- The 30 questions were prepared with the aim of identifying "critical success factors" for improving PPP system in Turkey and responses given by participants shows that the most popular 3 responses obtained from the questionnaire are as follows respectively;

    - The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis.
    - Public institutions should collaborate in the planning and coordination of investments to be realized with PPP model.
    - Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared.

  Meanwhile, the least important problem has been found to be:

    - "PPP model should be included in the scope of the Public Procurement Law with 4734 No".

- In addition to these 30 questions, the participants rating the 30. Question ("A central unit responsible for all PPP projects should be established") as 4 or 5 are asked that "Under which institution the Central PPP unit should be located" and "What should be the structure of it"? Most of the respondents said that a New Supreme Board should be established and this unit should be independent having the authority of tendering and coordination.

According to the previously carried studies, interpretation of the experienced people of the sector with interviews and the findings obtained in evaluation of problems part is in line with the expectations. As it was mentioned above, the most important problems faced during the realization of PPP projects are mainly depends on the initial phase of projects starting from the decision process up to the tendering phase. Projects are not handled with detailed planning and prioritization before opening to tender by public institutes. These proposed most important critical success factors are directly corresponded to this problem. Before presenting to the large-scale PPP projects to the market, sectorial master plans should be carried out and according to these plans, prioritization of these projects should be done which has the highest benefit to the public considering cost. Otherwise, in the same sector, if there is a possibility of constructing similar projects having potential to prevent development of each other, the projects can not be transferred to private sector in real value and this results with the irrational usage of public resources. As a result of the detailed preparatory work before the tender, complete and right information should be given to private sector, otherwise if project risks could not be calculated properly by them and this situation will actually harm the national economy and the views of foreign investors. The presentation of large-scale projects to the market at the same time, pointed out that adequate coordination is not found between relevant public institutions.

PPP as it is accepted in the international area is a complex model requiring high expertise. If its management can not be provided successfully, results with high risk of financial burden to the public sector for many years. Therefore, there is a need for guiding public institutions by the New Supreme Board having specialized in the field of PPP and coordinating qualifications. This situation is determined by the answers of participants also.

As a result of the survey on BOT projects in China, Qiao et al. (2001) determined appropriate project identification, competitive tendering system and reasonable risk allocation among the important CSFs. These results shows similarity with our

evaluations and can be included under the statement of “Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared.

In 2002, Jefferies et al. identified critical success factors for the large infrastructure projects procured under the BOOT concept. “A carefully prepared Environmental Impact Statement”, “the efficiency of approval process”, “selecting the right project tendering method with comprehensive feasibility study” and “Financial capability and credibility” are among the identified important critical success factors. These are all directly related with the results of our study. They can be evaluated under all three most important CSFs.

In 2003, Akintoye et al. reported the important points for achieving best value in private finance initiative (PFI) projects and also the associated problems with it in UK. His research was based on 68 interviews working with PFI projects including contractors, public sector clients, consultants and management organizations of facilities. The result of the analysis showed that “unclear client priorities and objectives”, “Provision of incomprehensive up-front project information by clients”, “Demands of clients being “wish list”, instead of sensible”, “Slow negotiations”, “Less open communication with the client especially on the pricing of specific risks”, “Lack of transparency in PFI risk allocation and evaluation”, “Uncertainty of project funding”, “Level of commitment of the public sector to each project is difficult to predict” are among the most important problems which was similar to the our analysis results. On the other hand, “Establishment of teams of experts in PFI for managing risks in all phases of the project up to tender”, “Improving clients’ expertise”, “Involving operating companies at the initial design phase”, “Provision of sufficient time for preparing bids”, “Risk-transfer issues should be spelled out, opened to challenge and dialogue” are found among the most important success factors contributing to the achievement of best value in PFI projects. These are also directly related with the 3 most important success factors of our research study.

In 2005, Zhang identified, analyzed and categorized many CSFs for PPPs in general. At the initial phase, a literature review was conducted and the CSFs were identified from the both public and private sector's perspectives. Then, through case studies from different countries some projects were reviewed and experiences were obtained from both successful and failed projects from the United Kingdom, United States, China, India, Malaysia, the Philippines, Sri Lanka and Thailand. As a result of the research, among the determined CSFs and related Success Sub factors (SSFs) for PPP projects the followings are located "Favorable economic system"; "The suitability of project for privatization"; "Promising economy", "Long-term demand for the products/services offered by the project", "Effective project organization structure", and "Appropriate risk allocation via reliable contractual arrangements". These results are supported with our study in which mainly the prioritization of large-scale projects is suggested by the detailed analysis and also in coordination with the other public institutions. The importance of this issue from the economic perspective is also explained above which was mentioned as "Favorable economic system" and "Promising economy" in the study of Zhang. The collaboration and coordination of public institutions while preparing projects with detailed pre-work studies before tendering are also directly points the issues "The suitability of project for privatization", "Long-term demand for the products/services offered by the project", "Effective project organization structure", and "Appropriate risk allocation via reliable contractual arrangements".

In 2005, Li et al. designed a questionnaire survey in order to evaluate importance of CSFs and classified them into five main groups: effective procurement, project implementability, government guarantee, favorable economic conditions, and available financial market. All of these findings are covered with our study results.

In 2007, Wang et al. established a critical success factors model for infrastructure PPP projects in China due to the low success rate of them. Then, as a result of the questionnaire survey and statistical analysis, among the most important CSFs; "Demand for project product or service", "Consistency with the public interest",

“Prosperous potential of economic development”, “Efficient project team”, “Reasonable project organizational structure”, “Reasonable risk-sharing mechanism”, “Financial system and policy for PPP projects”, “Effective supervision mechanism”, “Rational risk-sharing” and “Communication and coordination” are determined. These results also shows the importance of detailed study of the public sector before tendering. All these factors are needed to be handled under the pre-work done by institutions.

In 2008, Jacobson and Choi analyzed and compared main factors contributing to the success of PPPs and public works projects. In America, based on a specific project, ten success factors were determined that are suitable for the project according to the results of the survey. These were: developing a shared vision, commitment to the vision and its potential for meeting realistic business and public goals, open communication through regular intensive meetings with a mechanism to resolve challenges, and a willingness to collaborate to attain the shared vision, respect with those you work with, community outreach giving the city what community wants, political support, expert advice, risk awareness, clear roles and responsibilities. Except the “political support” statement, the all other nine factors are similar and covered with the findings of our research.

In 2011, Cheung and Chan reviewed the three types of projects including water and waste water, power and energy and transportation delivered by PPP method in China. Interview was carried out with the 38 experienced professional in the sector. According to the results: government intervention, public credit, financing risk, poor public decision-making process, subjective project evaluation method, completion risk, government corruption, imperfect law and supervision system, and inability of concessionaire were the crucial risk factors for all three types of projects. Cheung and Chan (2011) also emphasized that the most of the risks of PPP projects in China are fundamentally related to the government which directly declared the similar result with our study result. The importance of public sector from the initiation of project is also reported by our study when the three factors are reviewed.

In 2013, Tang et al. researched and categorized the critical factors that affects the efficiency of PPP during early briefing stages of the project in Australia. A questionnaire survey was prepared and distributed to the public and private sectors for evaluation of the potential of these factors to improve the PPP briefing stage. According to the analysis of results, among the most critical factors; Identification of client/owner requirements, Clear goals and objectives, Clear and precise briefing documents, Thorough understanding of client/owner requirements, Clear end-user requirements, Proper priority settings, Open and effective communication, Openness and trust, Clarity of roles of stakeholders, Holding workshops for stakeholders, Experience of the client, Knowledge of client's responsibility are found. These are shows the importance of prioritization of projects, collaboration and coordination among public institutions, and detailed pre-work studies before tendering projects by public which were concluded as the most important three success factors in our study.

If the answers given to the questionnaire on important critical success factors that are important for improving PPP system in Turkey are analyzed according to categorization of participants, we can reach the following results:

i. The most important factor for the participants with an experience of (1–10) years is "The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis". Participants with 10 & above years of experience considered "Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared" as the most important factor .For the statement "Legal support should be provided to the bureaucrats against the cases due to PPP tenders" it is concluded that there is a significant difference between categories in terms of the responses provided. Participants with an experience 10 & above years consider this factor more important when compared to participants with an experience between 1-10 years.

When the long duration of realization including operation time of PPP projects are thought, the bureaucrats sometimes face with cases after tendering stages. This situation causes bureaucrats stay in backward and give delayed decisions during the realization of projects. Taking into account the monetary value and complex tender procedures of the projects it is a debated issue to provide legal support to the bureaucrats. Since the participants having 10 & above year experience face with this issue more commonly than the other ones, it is an expected situation that this factor is evaluated more importantly by them.

ii. The most important factors for the participants at manager level are "The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis" and "Public institutions should collaborate in the planning and coordination of investments to be realized with PPP model"; the most important factor for the participants at other positions (civil engineer/expert) is "Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared". As a result of the analysis made, in responses to statement "A single framework PPP legislation should be prepared to cover the different laws of PPP" is evaluated as significantly more important by managers while the statement "After the tender decision, contracts should not be signed until financial closing or should enter into force with financial closing" is appreciated as significantly more important by the participants working at other positions.

The need for a single legal framework for PPP is evaluated significantly more important by managers when compard with the other level employees. As it was mentioned, the reason of this situation probably arises from the evaluation of issues from the borader perspective and the part of project that is dealth with. "After the tender decision, contracts

should not be signed until financial closing or should enter into force with financial closing" is also an important issue regarding PPP by all participants. However, since the lower level employees usually have to cope with this issue and taking into account the looking perspective, it is normal that the evaluation of this factor is the significantly important for them.

iii. The most important factors for the participants working at small-medium sized companies are "Specifications and contracts in tender documents should be written clearly and detailed", "Specifications and contracts in tender documents should be written in English and Turkish" and "Public institutions should use technical consultants in project preparation and planning processes". The most important factors for the participants working at large scale companies are "The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis" and "Institutional capacity of public institutions who work in the field of PPP should be increased". In addition, "Public institutions should use technical consultants in project preparation and planning processes" is considered significantly more important by the participants working at small medium sized companies.

iv. The companies having 1-10 year experience evaluated "Specifications and contracts in tender documents should be written clearly and detailed" is the most important one while the companies having 11-above year experience evaluated "The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis" and "Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared" as the most important problem. It was observed that the statements; "Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility

studies should be prepared", "All PPP projects and Operation Right Transfer Projects which will be realized under the applicable laws of Privatization Administration and other Public Institutions should be arranged through private law contracts" and "Under the scope of alternative financing methods, there should be an option in which public institution can be shareholder of investment companies" are evaluated as significantly important by the companies having 11-above year experience when compared with the companies having 1-10 year experience:

v. The most important factors are "The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis" and "Public institutions should collaborate in the planning and coordination of investments to be realized with PPP model" for the respondents from the public sector while "Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared" "is the most important one for the private sector participants. The private sector participants appreciates the following problems as significantly more important when compared with the public sector: "All PPP projects and Operation Right Transfer Projects which will be realized under the applicable laws of Privatization Administration and other Public Institutions should be arranged through private law contracts" and "Public institutions should use technical consultants in project preparation and planning processes". However, the public sector participants evaluates the following statements as significantly more important when compared with the private sector: "The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis", "Public institutions should collaborate in the planning and coordination of investments to be realized with PPP model", "Comparative economic and financial analysis should be made for determining whether projects to be realized with traditional or

PPP models", "Institutional capacity of public institutions who work in the field of PPP should be increased", "Competitions should be arranged for projects in order to obtain innovative design of large-scale PPP projects which also preferred by people to be affected from that", "Legal support should be provided to the bureaucrats against the cases due to PPP tenders", "Rates of the bid bonds should be increased" and "The tenderers should be asked for credit letter of intent"

CHAPTER 5

CONCLUSION

Public-private partnerships have become increasingly popular for the delivery of public sector services with the growing economic development of Turkey. The problems during the realization of PPP projects in Turkey and the crucial success factors upon these problems for improving PPP system in Turkey should be identified under the light of the ideas of the experienced professionals in the sector from public and private sector participants so that the possible problems would be prevented before arising. In addition, the identified problems and related success factors will provide an opportunity for developing a new PPP system by receiving the opinions of industry professionals from both public and private sector.

In this thesis a multi directional approach was followed on the evaluation of PPP sector in the Turkish construction sector. According to the researches conducted in various countries, results of the survey applied to PPP sector professionals in Turkey and interview results with the pioneers of sector, it was aimed to determine the critical problems faced during the realization of PPP projects and the critical solution factors for improving PPP system in Turkey.

Before analyzing the importance of main problems faced during the realization of PPP projects, the private sector participants were asked for the scoring their company to evaluate success in some PPP project steps they have been involved at Turkey. According to the scores they have given their company, the most successful area of the companies in carrying out PPP projects is the “Management of Operating Period”.

Operating cost overrun, lower income, with respect to initial target, higher and frequent maintenance cost than expected are located among the important risks that can be faced during the operation period of projects. The successfully management of this phase, mainly depends on detailed planning at initial phase of the project and also the quality and efficiency of operation. According to 75 % (4 or 5 score) of participants, it can be said that investor companies in Turkey are successful in these areas. In addition to the this questionnaire, taking into account the steps they have been involved, both the public and private sector participants were asked for scoring their institution/company to evaluate success in selected PPP project which would be evaluated for problems. According to the analysis results, the “The Management of Operating Period” of the projects was again appreciated by the participants as the most successful part of the projects which scored around 72 % (4 or 5 score) .

According to the reviewing studies in literature and interview results with the pioneers of sector, the importance of main problems in carrying out PPP projects was searched among pre-determined 30 questions and the most popular 3 problems are determined by participants as follows respectively;

1. The lack of detailed preparation of public institute before tendering.
2. Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost.
3. Inadequate planning and prioritization of projects before presenting to the public.

Meanwhile, “Low bid bond criteria in the tender” is selected by the participants as the least important factor.

These results indicates that detailed preparation of most of the PPP projects are not done by public institutions before the tendering stage. Before determining the project's implementation and financing model, it is not examined carefully that

would it be appropriate to carry out a project with the traditional method or the PPP model. Moreover, although the help of some public institutions are received, these would be only limited with the opinions of them. As a result of the inadequate preparation, tenders are cancelled or postponed to the later. In addition to this, international investors can not be brave for participating PPP projects in Turkey considering these risks. Interpretative issues located in tender documents or process due to this lack of preparation, projects would face with delay and financial losses. That is why "The lack of detailed preparation of public institute before tendering" will be selected as the most important problem.

Financing PPP projects is difficult for both public and private sides especially after 2008 financial crisis. These projects require huge investments and therefore it is not easy providing enough credit for banks. Nevertheless, the presentation of PPP projects at the same time, causes the downturn in the financial market and additional high cost since the companies look for finance at the same time and so artificial demand in market causes increasing cost of credit. In addition to that, the investor winning the tender could not find required finance and this also causes extension or cancellation of tenders in last years. This does not leave good impression on foreign investors also. Therefore, "Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost" is another problem considered as important.

"Inadequate planning and prioritization of projects before presenting to the public" is also evaluated among the most important three problems in PPP sector. For instance, as it was mentioned, the harbor & marina projects are transferred to the private sector with operation right transfer, however; at the same time, the public sector also declared that a new port construction investment will be launched in close distance. As a result, since the risks of project can not be calculated correctly without future projection, the national economy is harmed and foreign investors keep away from projects.

The 30 questions were prepared with the aim of identifying “critical success factors” for improving PPP system in Turkey and responses given by participants shows that the most popular 3 responses obtained from the questionnaire are as follows respectively;

1. The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis.
2. Public institutions should collaborate in the planning and coordination of investments to be realized with PPP model.
3. Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared.

“PPP model should be included in the scope of the Public Procurement Law with 4734 No” was selected as the least important one by the same group.

According to the previously carried out researches and interviews with experienced professionals in the sector, the results are similar with expectations. The priority solution for improving PPP system has located in public sector’s hand. Projects should be handled with detailed planning and prioritization before opening to tender by public institutes. Sectorial master plans including cost-benefit analysis should be carried before presenting to the large-scale PPP projects to the market. In addition, objective feasibility studies should be done on an international scale. Expression of risks with numerical values and analyzing their effects in accordance with international standards is also an important issue to be handled. Monte Carlo simulation technique used in debt management at “Undersecretariat of Treasury” is an example that would be followed about this issue. Moreover, the public institutions should collaborate in planning and coordination of the investments. At this stage, the establishment of central PPP unit responsible for this coordination has a crucial importance.

PPP as it is accepted in the international area is a complex model requiring high expertise. In accordance with the researches, questionnaires and interviews, it can be said that if its management can not be provided successfully from the “beginning” of projects with a comprehensive legal framework, the following negative results will always carry high risks of national economy and the loss of prestige on the eyes of foreign investors. Therefore, taking into account the above research result, there is a need for guiding public institutions by the New Supreme Board having specialized in the field of PPP and holding coordinating qualifications. The example to such institutions are found in the world. The United Kingdom is an example for these type institutions in which the most common and successful studies are carried out without interruption even in the period of successive governments. Under the light of the private sector contribution and international experiences, this establishment should have the authority and experience in order to coordinate PPP projects and provide necessary guidance. In this research, the general evaluation was done about the problems and corresponding solutions in PPP sector at Turkey. A further study should be carried out for detailing these problems and solutions by sub categorization. In addition, further research can be focused on case studies of various PPP projects that were completed in Turkey. Thus, both public and private sectors learn lessons from the results of these researches which verify and enrich the applicability and reliability of the CSFs identified in this study.

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APPENDIX A

THE FINAL QUESTIONNAIRE

A) GENERAL INFORMATION ABOUT PARTICIPANTS

1. The name of your institution/company:
2. The email address:
3. Years of experience in construction industry:
4. Years of experience in PPP projects:
5. What is the sector that you are working?

   □ Public (Central Administration) □ Private (Investor)
6. What is the no of workers in your company? (only for private sector)

B) THE EXPERIENCE OF YOUR COMPANY WITH THE PPP PROJECTS (only for private sector)

1. Years of experience in PPP projects at Turkey:
2. Please score your company in average for the success about the conducted or completed PPP projects in Turkey: (1-very unsuccessful 5 – very successful)
   a. Funding in Appropriate Conditions and Time

      □1 □2 □3 □4 □5
   b. Design Process Preparations

      □1 □2 □3 □4 □5
   c. The Completion of Investment in the Period of Contract

      □1 □2 □3 □4 □5
   d. Profitability of the Project

      □1 □2 □3 □4 □5

e. Management of Operating Period

□1 □2 □3 □4 □5

C) THE INFORMATION ABOUT THE PROJECT TO BE EVALUATED

1. What is the type of selected PPP project?

□ Build-Operate-Transfer

□ Build-Operate

□ Operation Right Transfer

□ Build-Lease-Transfer

2. What is the sector of selected PPP project?

□ Highway

□ Airport

□ Harbour & Marina

□ Custom Facility & Custom Gate

□ Industrial Facility & Urban Infrastructure

□ Health Facility

3. Please score your institution/company in average for the success about the conducted or completed PPP projects in Turkey:
(1-very unsuccessful 5 – very successful)

a. Legislative Preparedness

□1 □2 □3 □4 □5

b. Project Planning – Prefeasibility Preparation

□1 □2 □3 □4 □5

c. Project Planning – Prefeasibility Evaluation

□1 □2 □3 □4 □5

d. Preparation of Tender Documents

□1 □2 □3 □4 □5

e. Funding in Appropriate Conditions and Time

□1 □2 □3 □4 □5

f. Design Process Preparations

□1 □2 □3 □4 □5

g. The Completion of Investment in the Period of Contract

□1 □2 □3 □4 □5

h. Profitability of the Project

□1 □2 □3 □4 □5

i. Management of Operating Period

□1 □2 □3 □4 □5

D) THE MAIN PROBLEMS ENCOUNTERED IN CARRYING OUT PPP PROJECT

Please give your opinions about the importance of problems for the selected PPP project in previous part. (1-less important 5 – most important)

- Inadequate planning and prioritization of projects before presenting to the public in the sector of selected project

  □1 □2 □3 □4 □5

- Formation of additional high cost and downturn in the financial market as a result of simultaneously presentation of projects having huge investment cost in the sector of selected project

  □1 □2 □3 □4 □5

- The lack of cooperation in project planning and coordination among the public institutions

  □1 □2 □3 □4 □5

- The lack of detailed preparation of public institute before tendering

  □1 □2 □3 □4 □5

- The incompatible legal process with the project's needs

  □1 □2 □3 □4 □5

- Tendering with general, unclear, open-ended specification and contract

  □1 □2 □3 □4 □5

- The problem of municipal plan between investor and municipality during the project design work

  □1 □2 □3 □4 □5

- The lack of realistic data in the prepared pre-feasibility report

  □1 □2 □3 □4 □5

- The lack of comparative economic and financial analysis, in order to realize project with PPP model instead of tradional methods. (Public Sector Comparator)

  □1 □2 □3 □4 □5

- Not taking the opinions of citizens, companies ,other stakeholders and non-governmental organizations to be affected from the project

  □1 □2 □3 □4 □5

- The absence of as-built projects while realizing tenders

  □1 □2 □3 □4 □5

- Insufficient usage of consultants during the preparation of tender files for project

  □1 □2 □3 □4 □5

- Insufficient number of investors participating tender

  □1 □2 □3 □4 □5

- The low interest of international investors for participating tender

  □1 □2 □3 □4 □5

- The lack of adequate evaluation of performance and quality criteria in addition to operation period or monetary criteria in the tender

  □1 □2 □3 □4 □5

- Low bid bond criteria in the tender

  □1 □2 □3 □4 □5

- Many changes in original tender documents with the addendums

  □1 □2 □3 □4 □5

- Postponement of tender date

  □1 □2 □3 □4 □5

- The late notification of the tender result to the participants

  □1 □2 □3 □4 □5

- The insufficient knowledge in PPP legislation about the objection mechanism to the tender

  □1 □2 □3 □4 □5

- The lack of regulations in the contract of project having 20-30 years duration to adopt the changing conditions

  □1 □2 □3 □4 □5

- The high equity/loan ratio of project

  □1 □2 □3 □4 □5

- The enforcement for the termination of contract even in little contradiction of contract by investor

  □1 □2 □3 □4 □5

- Inadequate and unreliable contract and tender documents in the eyes of creditors

  □1 □2 □3 □4 □5

- Short-term maturity period for credits of finance institutions

  □1 □2 □3 □4 □5

- Not providing adequate financial support to the project by public (direct credit supply, demand guarantee, treasury guarantee, refinancing guarantee, etc.)

  □1 □2 □3 □4 □5

- Because of the foreign partners of Turkish banks, providing long-term financing to the projects in limited amount

  □1 □2 □3 □4 □5
- Not being made balanced distribution of financial risks in contract

  □1 □2 □3 □4 □5
- The high cost of project financing

  □1 □2 □3 □4 □5
- The continuation of design and construction phases of project at the same time

  □1 □2 □3 □4 □5

E) THE CRITICAL SUCCESS FACTORS TO IMPROVE THE STRUCTURE OF THE PPP SYSTEM

Please give your opinions about the importance of factors for improving the PPP system in Turkey. (1-less important 5 – most important)

- The large-scale PPP projects should be tendered with prioritization by feasibility and requirement analysis

  □1 □2 □3 □4 □5
- Public institutions should collaborate in the planning and coordination of investments to be realized with PPP model

  □1 □2 □3 □4 □5
- Detailed pre-work has to be done before the tendering of projects by public institutions and realistic and detailed project feasibility studies should be prepared

  □1 □2 □3 □4 □5
- Public institutions should be identified principles for the assessment of PPP projects and should share them with the public and public institutions

  □1 □2 □3 □4 □5

- Public institutions that perform successful projects should share their experiences with other Public Institutions

  □1 □2 □3 □4 □5

- Comparative economic and financial analysis should be made for determining whether projects to be realized with traditional or PPP models

  □1 □2 □3 □4 □5

- PPP model should be included in the scope of the Public Procurement Law with 4734 No.

  □1 □2 □3 □4 □5

- A single framework PPP legislation should be prepared to cover the different laws of PPP

  □1 □2 □3 □4 □5

- All PPP projects and Operation Right Transfer Projects which will be realized under the applicable laws of Privatization Administration and other Public Institutions should be arranged through private law contracts

  □1 □2 □3 □4 □5

- When projects are developed, the views of all interested parties that will use and also be affected from that should be taken

  □1 □2 □3 □4 □5

- Institutional capacity of public institutions who work in the field of PPP should be increased

  □1 □2 □3 □4 □5

- Competitions should be arranged for projects in order to obtain innovative design of large-scale PPP projects which also preferred by people to be affected from that

  □1 □2 □3 □4 □5

- Public institutions should make performance evaluation study for operational period of PPP projects

  □1 □2 □3 □4 □5

- Tenders should be done with the as-built project

  □1 □2 □3 □4 □5

- All institutions wishing to develop PPP projects should use experts and professional consultants on an international scale

  □1 □2 □3 □4 □5

- Under the specific rules projects should be developed and presented to the public by the private sector

  □1 □2 □3 □4 □5

- New PPP legislative work should include a greater number of investment model

  □1 □2 □3 □4 □5

- In addition to financial criteria (operation period, rent price etc.), performance criteria should be considered in tenders

  □1 □2 □3 □4 □5

- Legal support should be provided to the bureaucrats against the cases due to PPP tenders

  □1 □2 □3 □4 □5

- Rates of the bid bonds should be increased

  □1 □2 □3 □4 □5

- The tenderers should be asked for credit letter of intent

  □1 □2 □3 □4 □5

- Specifications and contracts in tender documents should be written clearly and detailed

  □1 □2 □3 □4 □5

- Specifications and contracts in tender documents should be written in English and Turkish

  □1 □2 □3 □4 □5

- After the tender decision, contracts should not be signed until financial closing or should enter into force with financial closing

  □1 □2 □3 □4 □5

- Contracts should include necessary provisions for resolving disputes through negotiation before going to trial or arbitration

  □1 □2 □3 □4 □5

- Public institutions should use technical consultants in project preparation and planning processes

  □1 □2 □3 □4 □5

- Public institutions should use technical consultants during the investment process

  □1 □2 □3 □4 □5

- Under the scope of alternative financing methods, there should be an option in which public institution can be shareholder of investment companies

  □1 □2 □3 □4 □5

- Under the scope of alternative financing methods, project bonds should be used

  □1 □2 □3 □4 □5

- A central unit responsible for all PPP projects should be established

  □1 □2 □3 □4 □5

- Under which institution the central PPP unit should be located?

  □Ministry of Development

  □ Ministry of Finance

  □ Undersecretariat of Treasury

  □ Privatization Administration

  □ A New Supreme Board

- What should be the structure of central PPP unit?

  □ Independent supreme board having the authority of tendering and coordination

  □ Independent supreme board having the authority of coordination

  □ Public institution having the authority of tendering and coordination

  □ Public institution having the authority of coordination