

PUBLIC PRIVATE PARTNERSHIP PROJECTS: EURASIA TUNNEL

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Askin Kaan Kaptan¹, Suat Teker²

¹ Işık University, Institute of Social Sciences, Istanbul, Turkey.

askin.kaptan@isik.edu.tr, ORCID: 0000-0002-6473-9985

² Işık University, Maslak Campus, Istanbul, Turkey.

suat.teker@isikun.edu.tr, ORCID: 0000-0002-7981-3121

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ABSTRACT

Purpose- Governments perform and observe various services and investments via various methodologies in several sectors such as transportation, health, education for the prosperity of the citizens. Public-Private-Partnership (PPP) model is a commonly applied method by Turkish Government recently due to financing and operational advantages. The main purpose of the study is to understand the fundamentals of a PPP Project and compare international examples and principles with a case analysis of the Eurasia Tunnel.

Methodology- PPP fundamentals and the application process are defined in the study with exploratory research methodology. According to the recommended structures, process cycle and process applications, comparative case study methodology is used to determine the similarities between theoretical knowledge and practice.

Findings- As a result of the comparison study the similarities and detailed information are provided about the case study. Also, the additional benefits of the project mentioned in the case study is determined.

Conclusion- A successful PPP Project example and its fundamentals are determined according to the case study. With the help of additional benefits of the project, a reevaluation approach to be considered for PPP Projects for the future studies.

Keywords: PPP Project fundamentals, case study, Eurasia Tunnel, transportation.

JEL Codes: L32, R41, R42.

KAMU ÖZEL SEKTÖR İŞBİRLİĞİ PROJELERİ: AVRASYA TÜNELİ

ÖZET

Amaç- Hükümetler, vatandaşlarının refahı için ulaşım, sağlık, eğitim gibi sektörlerde çeşitli hizmet ve yatırım faaliyetlerini çeşitli metodolojiler ile ifa ve icra eder. Kamu Özel İşbirliği modeli finansal ve işletimsel avantajları nedeniyle Türkiye’de son zamanlarda çok tercih edilmektedir. Bu çalışmanın ana amacı, Kamu Özel İşbirliği (KÖİ) projelerinin temel ilkelerinin anlaşılması, uluslararası örnekler ve prensiplerin bir örnek olay analizi olarak Avrasya Tüneli ile karşılaştırmasının gerçekleştirilmesidir.

Yöntem- Kamu Özel İşbirliğinin temel ilkeleri ve uygulama süreçleri açıklayıcı araştırma modeli kullanılarak verilmiştir. Önerilen organizasyon yapıları, süreç döngüsü ve uygulama süreçleri, karşılaştırmalı örnek olay analizi modeli kullanılarak teorik bilgi ile pratik uygulamanın kıyaslaması yapılmıştır.

Bulgular- Karşılaştırma çalışması sonuçlarına göre tespit edilen benzerlikler ve örnek olay analizi ile ilgili detaylı bilgi paylaşılmıştır. Ayrıca örnek vaka analizinde proje ile ilgili tespit edilen ek faydalar da bu çalışmada belirtilmiştir.

Sonuç- Başarılı bir Kamu Özel İşbirliği projesi ve temel ilkeleri, örnek olay analizi ile belirlenmiştir. Projenin ek faydalarının tespiti vasıtasıyla yeniden değerlendirme yaklaşımı geliştirilmesi ve diğer KÖİ Projelerinin gelecek çalışmalarda kullanması değerlendirilecektir.

Anahtar Kelimeler: KÖİ Projelerinin temel ilkeleri, örnek olay analizi, Avrasya Tüneli, ulaşım.

JEL Kodları: L32, R41, R42.

1. INTRODUCTION

Public-Private-Partnership is defined as "a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance" in PPP Reference Guide (2017) according to World Bank.

Six core principles are listed as below in UNECE 2008, Section 2.1: Principles of Good Governance in PPPs:

- Efficiency as use of resources without waste, delay, corruption, or undue burden on future generations
- Accountability—the extent to which political actors are responsible to society for their actions
- Transparency—clarity and openness in decision-making
- Decency—development and implementation of rules without harming people
- Fairness—equal application of rules to all members of society
- Participation—involvement of all stakeholders

This study aims to have a better understanding of PPP model and the principles to be followed for a successful project supported with a case analysis study on Eurasia Tunnel.

2. FUNDAMENTALS OF PUBLIC PRIVATE PARTNERSHIP

An explanatory method is used to have a better understanding of the PPP Projects due to the lack of sources since the PPP applications are mostly used recently in Turkey. The right conditions to use PPP method, requirements of a successful PPP Project, application methods of PPP Projects, sectors that PPP Projects are used, advantages, disadvantages, and risks of PPP method and some international examples are being determined in this study.

PPP method is being used mostly in the conditions of insufficient funds and resources. Poor planning, project selection problems, weak management and inadequate maintenance due to lack of resources and know-how are the major reasons for PPP method selection. Latest development plans public and private sector investments will be addressed with a holistic approach for achieving high and stable growth performance, in this situation with the help of this model, mega projects will be completed in a shorter time without being a burden to the government's financials directly.

PPP method requires a strong legal framework, most PPP laws of the European region were adopted in the period 2007-2014. Definition of PPPs, creation, and operation of the national body(ies) responsible for promoting, procedures for the preparation and approval of PPP projects before they are tendered, tender process, form and content of PPP contracts, dispute resolution process between parties to the contract are major items defined in this framework in "Overview of the PPP Legal and Institutional Frameworks in the Western Balkans" according to EPEC. In compliance with the legal framework, PPP Project Organization Structure and compatible agreements to be executed. PPP Project cycle management is a supporting factor for the successful PPP project.

As it is stated by Turkish Directorate of Privatization Administration, with the help of Law numbered 3096 private sector is involved in the energy sector by a power plant projects as the first time. After the PPP models have been taken in the UK by establishing the "PFI-Private Finance Initiative" in the year 1992, a general law for Build-Operate-Transfer (BOT), the Law number 3996 is accepted in Turkey in the year 1994 for different infrastructure areas like transportation, energy and water supply and treatment.

PPP projects provide main advantages to the attending parties on public and private sides of the agreement. Appropriate risk sharing is the key item for both financial and operational aspects. These advantages are determined as time benefit through flexible approaches, quality increase in construction and infrastructure, new technology and innovation, cost control through different methods such as interim payments, key knowledge, and know-how transfer, operation in international standards.

On the other hand, PPP Projects are being criticized due to some reasons based on financial risk and transparency problems. Main disadvantages are listed as the financial risk remains with the government, leads to large windfall gains for the private companies, leads to declining service standards and staffing levels, decrease in capacity to design, finance, build and operate infrastructure, decrease in public sector employment, consultants add to the cost of PPPs.

According to the matter of course there are different PPP models applied and the commonly used models are listed as Build-Operate-Transfer, Design-Build-Finance-Operate, Corporatization, Build-Transfer-Operate, Lease, Build-Own-Operate.

The Build-Operate-Transfer (BOT) approach is especially used for transportation projects in Turkey. In this concept, the finance, design, construction, and operation are being undertaken by private organizations as a concessionaire. The payback mechanism is based on the revenue from toll collection from the users in the operation period. The facility is transferred to the government or related authority at the end of the concession period. Similar approaches can be derived by including or excluding some of the items of business such as adding the design of a new project in Design Build Finance Operate projects.

Energy, Healthcare, Transportation (Roadways, Railways, Ports, Airports), Urban Development and Infrastructure, Tourism are the leading sectors for PPP projects in Turkey and the international examples. Especially in transportation project investments and operations of airports, tunnels, bridges, and highways are being financed by consortiums of private and public funding.

3. A CASE ANALYSIS OF EURASIA TUNNEL PROJECT

The Eurasia Tunnel Project (Istanbul Strait Road Tube Crossing Project) connects the Asian and European sides of Istanbul via a highway tunnel crossing underneath the seafloor. Republic of Turkey Ministry of Transport and Infrastructure and the General Directorate of

Infrastructure Investments commissioned Eurasia Tunnel Operation Construction and Investment Inc. (ATAŞ) to carry out the design, construction and operation of the Eurasia Tunnel Project. After the completion of the operation period, the Eurasia Tunnel will be transferred to the public.

The Eurasia Tunnel Project commenced between traffic-dense Kazlıçeşme and Göztepe, covers a route of 14.6 kilometers including 5.4-kilometer tunnel section (consists a twin-deck tunnel beneath the seafloor, NATM, and Cut&Cover tunnels) built with special technology, connection tunnels and approach roads between Sarayburnu-Kazlıçeşme and Harem-Göztepe were expanded, and intersections, vehicle underpasses and pedestrian overpasses constructed. Summary info about the project is determined in Table 1.

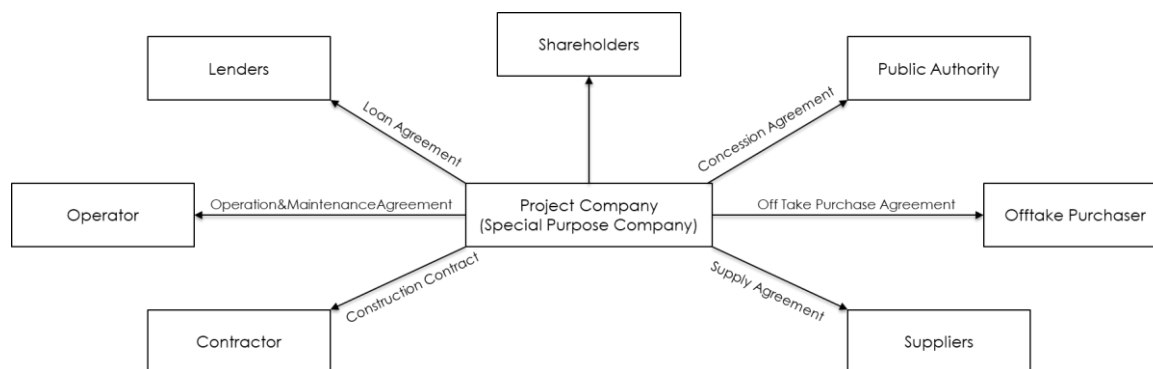
Table 1: Eurasia Tunnel Project Overview

Project Owner	Republic of Turkey Ministry of Transportation and Infrastructure
Investor / Concessioner	Yapı Merkezi & SK EC
Project Model	Build – Operate - Transfer
Total Investment	1,245 Billion \$
Traffic Capacity	120,000 vehicle/day
Concession Period	29 Years
Construction Period	47 Months 3 Days
Operation Period	25 Years 28 Days

PPP Project Life Cycle method offered by PPP Knowledge Lab. Starts with the decision making of PPP method, setting up the legal and institutional framework and the planning PPP program. Project pre-feasibility and feasibility studies are completed in 2003 and 2005 respectively after the completion of Istanbul Transportation Master Plan Study is completed in 1997 for the Eurasia Tunnel.

Structuring the PPP transaction, designing the PPP Contract, Marketing, and tender process the PPP are the next steps to be followed. Eurasia Tunnel project traffic studies, economic and financial analysis, Environment and Social Impacts analysis, Financial agreements are being held following the year 2011 which the contract is signed. The project is considered as a “pioneer project” not only technically but also in respect of its environmental and social policy (including studies and analysis of air quality, sound propagation, land acquisition, archeogeophysical studies, vegetation and natural habitat) with the implementation of a comprehensive Environmental and Social Impact Assessment process in accordance with the Equator Principles and international guidelines. Also, the applied organization structure, the agreements between the parties involved led the other PPP Projects in Turkey especially in the transportation sector.

Figure 1: Recommended PPP Organization Structure and the Agreements



In terms of financing, with a maturity of 18 years, the 960 million USD international loan package is the one with the longest maturity in Turkey in Build-Operate-Transfer Infrastructure Projects until today.

Eurasia Tunnel is designed and constructed based on geological and geophysical condition analysis of the Bosphorus via TBM (Tunnel Boring Machine) Technology with world rank specifications (such as 1st cutter head power, 2nd highest excavation pressure, 6th largest excavation diameter). Segment lining durability over 100 years, fire resistance, earthquake resistance (provided by seismic joints), international safety standards applied such as NFPA are the features verify the new technology, innovation and quality increase in construction items listed in PPP advantages part above. Furthermore, with 14 million hours of man work hour the project has no major accidents or fatalities are faced since almost 100 thousand hours of health and safety training is applied. Construction period is completed 8 months prior then the contractual date to provide time benefit for project, public, and the administration.

Operation of the Eurasia Tunnel is being done in compliance with the international standards and best practices determined by PIARC (World Road Association) and European Union Directives. Traffic and safety management is being done with an intervention time below 2 minutes by safety equipped site patrollers in full coordination with emergency services. The tunnel is equipped with high technology automatic incident detection capable cameras, high capacity ventilation and drainage systems to ensure sustainable operation and the maintenance is being applied according to the standards.

Eurasia Tunnel Project decreases the travel time between Kazlıçeşme and Göztepe from 100 minutes to 15 minutes. This exceptional feature also brings some additional benefits. The time benefit of the users is determined as 23 million hours annually. Addition to the time benefit equal to 30.000 tons of fuel save / year and 18.000 tons of CO₂ emission save / year are calculated. The total annual additional benefit of the project equals to \$ 267.5 M with the addition of \$ 1.5 M accident damage risk expense saves. Eurasia Tunnel project is still in its ramp-up period and the traffic volume continues to increase from the commencement date. Project to realize its financial goals when the project reaches its revenue guarantee and capacity in the near future according to the studies and projections as well to conclude the criticism towards the project.

Table 2: Additional Benefits of Eurasia Tunnel Project

Employment	1800 staff, 60 subcontractors
Health and Safety	14M Manhour 100K HSE Training No Major Accidents
Time Benefit	23 million hour save: \$ 200M
Environmental Benefits	30.000 tons fuel save: \$ 60M 18.000 tons CO ₂ emission save: \$ 5M
Accident / Damage Risk Expense Save	109 million vehicle x kilometer accident rate save: \$ 1.5 M

5. CONCLUSION AND RECOMMENDATIONS

PPP model is commonly selected in situations of lack of funds and resources to realize a project. In this study PPP fundamentals, project life cycle, advantages, and disadvantages are given in an explanatory method to have a better understanding with a case analysis project of Eurasia Tunnel. Eurasia Tunnel is an example that demonstrates the PPP project cycle items and fundamentals are followed for the success of the project. It is determined that the project has additional benefits for the public not only toll revenues for the financial model of the private side. Thus, a revaluation method to be considered to analyze other PPP projects in future studies.

REFERENCES

- Ababutain, A.Y., Bullen, G.R. (2003), "Multicriteria Decision-Making Model for Selection of Build–Operate–Transfer Toll Road Proposals in the Public Sector", *Transportation Research Record* 1848 Paper No. 03-2264
- Bettignies, J.E., Ross, T.W., (2010), "Public-Private Partnerships: Economic and International Dimensions", *Public Administration Review*, Vol. 67, No. 3 (May - Jun., 2007), pp. 545-558
- CHEN, Z., & DUHAMEL, M. (Eds.). (2010). *Industrial Organization in Canada: Empirical Evidence and Policy Challenges*. McGill-Queen's University Press
- Farquharson, E., Mästle, C.T., Yescombe, E. R., Encinas, J. (2011). *How to Engage with the Private Sector in Public-Private Partnerships in Emerging Markets*. Washington, DC: World Bank.
- Grimsey, D., Lewis, M.K. (2004), "The Governance of Contractual Relationships in Public–Private Partnerships", *The Journal of Corporate Citizenship*, No. 15, *Towards Better Governance and Accountability: Exploring the Relationships between the Public, Private and the Community* (Autumn 2004), pp. 91-109
- Hodge, G.A., Greve, C., (2007), "Public-Private Partnerships: An International Performance Review", *Public Administration Review*, Vol. 67, No. 3 (May - Jun., 2007), pp. 545-558
- Hodge, G.A., Greve, C., (2007), "On Public–Private Partnership Performance: A Contemporary Review", *Public Works Management & Policy* 2017, Vol. 22(1) 55–78
- Mazouz, B., Facal, J., Viola, J.M., (2008), "Public-Private Partnership: Elements for a Project-Based Management Typology", *Project Management Journal*, Vol. 39, No. 2, 98–110
- PPP Knowledge Lab (2019). <https://pppknowledgelab.org>
- PPPLRC (2019). PUBLIC-PRIVATE-PARTNERSHIP LEGAL RESOURCE CENTER, <https://ppp.worldbank.org>
- PPIAF (2019). Private Infrastructure Advisory Facility, <https://ppiaf.org/>
- Republic of Turkey Ministry of Treasury and Finance, Privatization Administration, <https://www.oib.gov.tr/>
- Siemiatycki, M., (2006), "Implications of Private–Public Partnerships on the Development of Urban Public Transit Infrastructure The Case of Vancouver, Canada", *Journal of Planning Education and Research* 26:137-151
- Yescombe, E.R. (2007). *Public-Private Partnerships: Principles of Policy and Finance*. Oxford: Butterworth-Heinemann.