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# A CRITICAL APPRAISAL OF PUBLIC-PRIVATE-PARTNERSHIP AS A FINANCIAL MODEL AND CRITICAL SUCCESS FACTORS IN AVIATION SECTOR IN TURKEY

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## ABSTRACT

**Purpose-** Due to the complexity and high-tech nature of airport projects, their completion takes a substantial amount of time and cost, posing significant financial hurdles for governments. In recent decades, infrastructure finance challenges are increasingly being met through the Public-Private Partnership (PPP) model, which brings together public and private sectors to build and maintain public facilities. This study provides an overview of the PPP model and the major stakeholders in its implementation. In addition, the financial structuring of PPP projects and the financial instruments typically employed in PPP model is also highlighted. Besides, it is aimed to discuss the critical success factors of PPP model in airport projects in Turkey.

**Methodology-** In this study, the charactheristics of PPP model, its associated stakeholders and the financial structure of PPP projects are highlighted through a review of literature and it is aimed to determine and classify the critical success factors of PPP model in airport projects in Turkey.

**Findings-** PPP project contracts need to address the adequate sharing of risk, profit, and the costs associated with making new investments. In the study, the macro-level and project-level critical success factors are determined through a review of literature and classified into 7 subgroups.

**Conclusion-** In a general sense, a PPP project is considered successful if its objectives are met and its stakeholders are satisfied with the results. Besides, taking into consideration the significant EBITDA profitability of PPP airport projects in Turkey, the government's partnership in the SPV companies with a public minority share is proposed in order to make it possible for the public to get its share of the profit and to gain more control over these companies. In this model, since the government is involved in the project as an active actor with its legislative power and expertise, the resilience, transparency, and profitability of the project will increase, and both sides may benefit more from the PPP project.

Keywords: Public-private-partnership, aviation industry, critical success factors, airport investments JEL Codes: L93, R42, G20, H81

## **1. INTRODUCTION**

As one of the most essential components of transportation, airports connect markets on a local, national, and global scale. Consequently, investments in the extension or new airport infrastructures are crucial for economic growth. Given that airport projects are complicated and high-tech investments, their completion necessitates a considerable amount of time and capital, which causes significant financial challenges for governments.

Frequently, the Public-Private Partnership (PPP) model is recognized as an innovative and successful method for governments in funding the infrastructure development and management. In addition, recently non-aviation revenue of the airports has gained an important share in the total income of the airports and Common consensus holds that commercial operations at airports are best left to private companies. The commercial revenue potential and expensive infrastructure requirements of airports make PPP the optimal choice for airport administration.

After looking at the research on PPP, one may conclude that it entails public and private entities dividing up the expenses, risks, and benefits of a project equitably through contractual agreements. (Atin et al., 2022).

The most common and fundamental PPP model includes three participants: the government, the private sector, and financial institutions (Linh et al. 2018). The success of airport projects utilizing the PPP model is largely dependent on the efficient management of risk and allocation of risk to the PPP participants. The success of airport projects utilizing the PPP model is largely dependent on the principal actors cooperating effectively and efficiently.

As an alternate to the public acquisition, the number of public-private partnership initiatives has grown significantly in recent decades. 75% of European passenger traffic is handled by airports operated and/or financed by private players, according to the Airport Council International Inventory of privatized airports (ICAO, 2022), and currently 89% of air travel in Turkey originates from airports operated by PPP (DHMI, 2022).

This article provides an overview of the PPP model and the major stakeholders in its implementation. The financial structure of PPP projects and the financial instruments frequently utilized in the PPP model is also highlighted.

Besides, critical success factors for the PPP airport projects are determined through a review of literature and it is aimed to discuss the critical success factors of PPP model in airport projects in Turkey. Finally, a model for the implementation of airport PPP projects in Turkey is proposed in order to increase not only the profitability of the project but also its resilience and transparency for both the government and the private parties.

# 2. PPP MODEL AND PRINCIPLE CHARACTERISTICS

World Bank (2017) defines the PPP model as an approach of delivering public goods and services in which the private sector accepts risk and management responsibilities, and the contracting parties undertake long-term obligations.

Long-term contracts (often between 10 and 50 years) between the government and private companies are the backbone of public-private partnerships (Yescombe, 2007). The formal links between the many parties involved in a PPP model project are spelled out in contracts, and the project itself is seen as a complex network of multi-stakeholder partnerships. The fundamental PPP model included the government, the private sector, and financial institutions as the three main players.

PPP models frequently engage the public sector as the initiator, proponent, and even major actor in securing funds for the project. According to Grimsey and Lewis (2017), the basic functions of the public are expressed as the identification/prioritization of projects (planning), project development (coordination), performance control and evaluation (supervision).

Second, the private sector is the primary focus and source of funding for PPPs. In PPPs, the public and private sectors combine their efforts to form a single entity known as a "project company" that is responsible for all aspects of the project from inception through operation. The project company in the PPP model is a limited liability entity called the Special Purpose Vehicle (SPV), which is also referred to as "the concession company" in some contexts. (Linh et al., 2018),

Linh et al. (2018) also state that commercial banks, development banks, credit institutions, and non-bank financial institutions all make up the third element of the PPP model. Public-private partnerships' finance structures may include a single financial institution or several.

The PPP model ensures that citizens get the best service and value from the public and private sectors by allocating risks and rewards in a mutually beneficial way (Grimsey and Lewis, 2004). Because of this, the private sector will play a crucial role in assuring the government's successful implementation of the initiative.

An analysis of the public-private partnership might also consider which side of the coin is more likely to benefit from the arrangement. Meanwhile, governments have to do everything they can to ensure that their spending is productive and that people are happy with the services they provide (Pu Ming Shu et al., 2016). Further, the government employs private sector funding for infrastructure investment, in addition to that used for project development, construction, and operation (Hart & Moore, 1991). Participation from the private sector has the potential to significantly increase investment efficiency and speed up the development of cutting-edge technologies, opening the door to different approaches. Better management, greater transparency, higher quality, and reduced expenses are common results (Savas, 2000). The PPP model also enables the government to recruit private sector finance to boost investment, minimize costs, and maximize return on investment across the asset's entire useful life (Yescombe, 2007).

Linh et al. (2018) highlight the consensus among academics that risk sharing is an important feature of the PPP model (constructional, market, financial, operational, legal risks etc.). The purpose of risk sharing and risk transfer in public-private partnerships is to place dangers with the party most capable of dealing with them. PPP also emphasizes output criteria and encourages the private sector's discretionary suggestions for cutting costs and maximizing project efficiency.

PPP has benefits for the governments such as providing long-term financing to the public, transferring certain risks to the private sector, and not allocating a budget for investment during the construction phase. Since the operator of the private sector company can only earn income when the construction is completed, on the one hand, it tries to make its investment in the fastest time and within the foreseen budget, on the other hand, it tries to realize the construction or operation-maintenance investments in a quality that will not cause any interruption, fines and high maintenance costs during the monitoring period. (Turkish Ministry of Development, 2018)

# **3. FUNDING OF PPP MODEL**

Deciding on the most appropriate structure from the financial source requires determining the optimal mix of equity and debt financing. Generally speaking, there are three types of project financing: equity contributions, loan contributions, and subordinated or mezzanine

contributions. Furthermore, the project's financial structure will be established to maximize financial benefits based on the features of various PPPs. In addition, the right financial instruments will be deployed at the right times throughout the entire project.

Equity funding is the basis of project company financing. All linked parties, including government agencies that proposed the project, contractors, operators, suppliers of materials, investors, can become shareholders in the project company (SPV). Capital contributions and other shareholder funds are used to finance the SPV by its Sponsors (Yescombe, 2007). It is common practice to limit equity investment to between 10 and 30 percent of the overall project investment in order to safeguard the interests of shareholders and lenders.

Private companies are unable to fund the PPP project, hence financial institutions must invest and lend. According to Edward Farquharson et al. (2011), If a project loses money, the equity investors take on the loss first, followed by the lenders. As a result, equity investors seek a higher rate of return than loan investors to compensate for the greater risk they assume by requiring project income and assets. Equity capital is a nonreversible, long-term investment.

External loans to extend capital also contribute to the success of PPP projects, in addition to equity investments. PPPs use external debt to raise funds and are often financed through a combination of equity and debt (Akintoye et al., 2001). In PPP projects, 70 to 90% of the investment demand is met by loans (ESCAP, 2008). Major lenders include commercial banks, development banks, and sometimes the government of the host nation.

Since the SPV is a new borrower with no track record of creditworthiness, lenders will look to the project's cash flow rather than the sponsors' creditworthiness or the value of the project's assets to secure repayment.

According to the OECD, mezzanine capital fills the gap between equity and debt (OECD, 2015). Mezzanine contributions rank below senior debt but above equity. Mezzanine contributions allow the project firm to maintain a larger debt-to-equity ratio at a higher cost than senior loans.

The World Bank Group (2022a) explains that subordination occurs when one lender agrees to be paid only after all other lenders to the same borrower have been paid, whether on particular project income or in bankruptcy. Subordination is achieved through contract or corporate structure. Subordinated lenders keeping funds on trust for senior creditors is not enforceable in several jurisdictions. Shareholders, commercial lenders, institutional investors, and bilateral and multilateral organizations provide mezzanine financing for project-financed transactions. Mezzanine finance permits the SPV to keep a higher total leverage, but at a higher cost than premium loan.

Besides government's guarantee incentives are used as protective measures for finance providers in some cases. In order to pique the interest of potential financiers, public agencies may offer private parties minimum revenue guarantees on PPP Projects based on the predicted revenue streams of the project. Besides, Treasury Investment Guarantee or Debt Assumption Guarantee are other types of governmet guarantee mechanisms for PPP projects. (Presidency of the Republic of Turkey Investment Office, 2022)

# 4. CHALLENGES OF PPP MODEL IN AIRPORT PROJECTS

Identifying the challenges that are faced while initiating and running a PPP airport project is essential for ensuring the efficient investment and operation of airports, which hold a position of critical importance for the countries that they serve.

One of the most important things to think about when deciding who should own or manage an airport is the obligation of governments to safeguard the interests of consumers, including those of passengers and airlines, and to promote the long-term prosperity of the areas the airport serves.

The government has a long set of strategic goals that spans many domains, including macroeconomic, financial, and management objectives. Long-term consumer gains can only be achieved through a PPP or privatization process if goals like enhancing the customer experience and reducing operational and financial costs are effectively translated into ownership and regulatory structures.

Besides, within the long term macro-level planning responsibilities, the development of comprehensive transportation policy plans that are grounded on sound systemic reasoning is one of the most important issues for the governments for the success of the airport investments. Optimal use of the available transportation options can be achieved through careful planning of airport-city transportation connections, the integration of various transportation types into air transport, and the precise forecasting of traffic growth and demand. (Sengür, 2017)

Long-term concession agreements restrict the government's strategic control over an airport and, depending on the commercial structure, may limit responsiveness to the industry's frequent and rapid shifts.

The commercial architecture, transaction mechanism, and regulatory environment of the model should be protected by the government. These models should be selected only after a thorough and exhaustive business case process that takes into account all other models.

According to IATA (2018), when pursuing a PPP or privatization model, the transaction process and commercial structure design are crucial to ensure the agreement accomplishes its objectives. Proper communication and interaction with a wide range of stakeholders is key to delivering this process successfully.

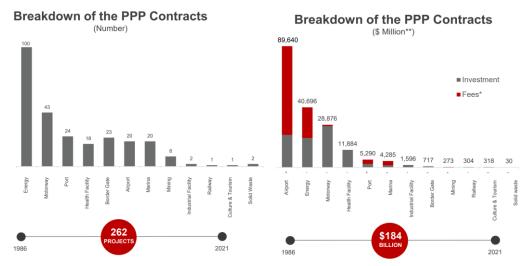
The biggest problem faced by the PPP model in terms of public policies is that the administration, while trying to implement infrastructure investment demands in the most effective and fastest way, is to expect customers to be willing to pay for this public service. In this perspective, these services usage fees must be at an acceptable level that can be met by users. (Grimsey and Lewis, 2017)

#### **5. PPP MODEL IN AIRPORT INVESTMENTS IN TURKEY**

In Turkey, build-operate-transfer (BOT) model, as well as lease-operate-transfer agreements, is used in the airport industry as an effective model which the authorities gained serious expertise.

According to the data shown in Figure 1., it is seen that the total of 20 PPP projects in airport industry, which were realized between 1986-2021, constitute nearly half of the total income generated from all PPP projects conducted in the same period. This makes airport investments the leader sector in implication of PPP model in Turkey.





Looking at the public-private partnership models used in Turkey's aviation industry, two models stand out. The build-operate-transfer model has been used predominantly at airports requiring new building or infrastructure investment, while the lease-operate-transfer method has been used at airports where investment is more limited or where no investment is needed. In most cases, the latter strategy is used after the BOT model contracts have expired and the primary investment has been completed. Currently, among the airports that are open to domestic and international passenger traffic, 5 airports/terminal facilities are operated in BOT model and 6 airports/terminal facilities are operated in lease-operate-transfer model.

# 6. CRITICAL SUCCESS FACTORS (CSF) OF PPP MODEL IN AIRPORT INVESTMENTS

From conceptual planning and structuring to implementation, including important concession terms to safeguard public value, IATA (2018) believes that a PPP project is best delivered by examining critical success elements for a successful program and transaction process.

The critical success factors (CSFs) of a project are the factors that contribute most to the project's ultimate success. According to Alias et al. (2014), Critical Success Factors are variables and qualities that, if not correctly managed, has the potential to greatly affect the outcome of a project. When not managed properly, the interplay between these factors might cause the project to be less efficient and successful.

The studies on CSFs of PPP projects dates back to 1990 – Tiong's study "BOT Projects: Risks and Securities". Besides, the studies of Qiao et al. (2001), Akintoye et al. (2001) and Li et al. (2005) followed Tiong's research and most accepted CFSs are determined.

Scholars studying this subject defined many critical success factors and their importance levels, as a result of research, personal opinions and structured interviews. Examining these studies, Osei-Kyei and Chan (2015) examined the 3 most important factors of PPPs between 1990-2013; appropriate risk-sharing, strong private companies' association, and political support. The most important CSFs were determined according to the data obtained by the researchers from PPP stakeholders and academics.

The research of Ayo-Vaughan et al. (2019) examines the critical success factors for PPPs in airport infrastructure in Lagos, Nigeria, using a case study on Murtala Mohammed Airport terminal. The top three CSFs stated in the research include a sufficient financial structure, a clear procurement procedure, adequate risk allocation/sharing and cost recovery.

According to Pagdadis (2012), there are two main types of elements that contribute to a successful public-private partnership in airport infrastructure provision: macro elements and factors unique to the project. According to the author, these considerations are often addressed in the framework of a functional PPP policy in the various countries and regions, and in the PPP agreement signed by the participants in the project. Prevailing environment (World Bank, 2015), viability from the financial standpoint (Pagdadis, 2012; World Bank, 2015); legislative and institutional structure that is both sound and effective (Monsalve, 2009; Pagdadis, 2012); appropriate risk allocation (Monsalve, 2009; World Bank, 2015) are all identified as important success factors in PPP in Airports (Pagdadis, 2012; World Bank, 2015).

Key success elements of PPP in airport projects, according to another study from Indonesia (Yusfida, 2022) are: 1) Project bankability 2) Fair and open bidding and nomination of a private investor with adequate capacity to meet the requirements 3) A favorable legislative structure that encourages investment 4) Appropriate level of user fees 5) Competent government officials.

Chourasia et al. (2021) studied CSFs for development of airports in PPP model in India, as a developing country. In this study, the relationships between the CSFs of PPP airports are explored. According to Chourasia et al. (2021), successful private participation in PPP airports requires policymakers to account for the effects of a cooperative environment and craft a supportive legislative framework, commercial viabilities, and solid economic policies.

In the recent past, it is seen that a few scholarly researches on PPP and CSF in relation to airports in Turkey has been carried out. Studies such as "Effectiveness and efficiency analysis of public-private cooperation projects in the context of new public management: Example of the General Directorate of State Airports Operations" (Su, 2017) and "Critical Success Factors for "Build Operate Transfer" (BOT) Projects: Lessons Learned from Airport Projects" were produced by Kashef (2011).

According to the recent research of Mohammed et al. (2019) related to the CSFs of PPP model for airport investments in Turkey, available financial markets, risk allocation and sharing, profitability, a suitable regulatory environment, and a private consortium are widely agreed upon as crucial to the success of airport construction projects. However, public-sector experts, in contrast to private-sector experts, ranked certain aspects higher in importance. Examples include a 1<sup>st</sup> place ranking for a positive legal framework by public sector experts and a 12<sup>th</sup> place ranking by private sector experts, both of which suggest that the private sector in Turkey may be less impacted by the country's legal framework than the public sector. Timeliness of completion, or "adherence of time," is another crucial factor for public sector projects but one that may not carry the same weight for the private investor. On the other hand, the private sector places a higher value on things like profit, output that meets specifications, and competitive tendering than does the public sector.

Besides, a very recent study of Atın et al. (2022) searches for the critical success factors of PPP model focusing on the airport implications of the model in Turkey. Atın et al. (2022) defined 20 critical success factors and conducted a survey in order to prioritize the success factors. The importance of the CFSs differentiate according to the viewpoint of the partner.

For example, from the government's perspective, Technical and financial feasibility play the biggest role in the success of a PPP project, which is followed by the tenders' competitiveness and transparency and the accuracy of the revenue estimations. The private sector side of the PPP Projects in Turkey considers in parallel with the government side and sees the most important CFS for a PPP investment as the technical and financial feasibility of the project. The private sector evaluates issues about the management and operation perspective so that "Efficiency in management" and "Safety of the operations." are the other two most important CFSs for the private sector.

Within this study, to highlight the factors that contribute to airport PPP projects' success, a comprehensive literature survey was conducted. For the study, a total of 20 critical success factors were taken into account and based on the components' features, they are grouped under macro-level and project-level groups and 7 sub-groups. (Table 1)

No	CSF Level	CSF Area	CSFs	Main Responsible Party
1	Macro Level Factors	Socio-economic	Stable social and economical environment	public
2			Favorable macroeconomic conditions	public
3		Legal	Appropriate legal regulation	public
4		Effective Procurement	Designing a resilient contract	public
5			Transparent procurement procedure	public
6			Competitive bidding process	public
7		Project Management	Effective design of the facilities	private
8			Completion of the investment within the planned cost and schedule	private
9			Safety of the operations	private
10			Effective and efficient operation	private
11			Eco-friendly operation	private
12	Project Level Factors	Operational	Monitoring the operations with performance indices	public
13		Financial	Successful Technical and Financial Feasibility	public-private
14			Realistic cost/benefit assesment	public-private
15			Value for Money	public-private
16			Increase in non-aero revenues	public-private
17			Government Guarantee	public
18			Strong private consortium	private
19			Trust and communication between the parties	public-private
20		Partnership	Adequate risk allocation	public

Table 1: Critical Success Factors for PPP in Airport Projects (Literature review and author's compilation)

# 7. MODEL PROPOSITION FOR PPP AIRPORTS IN TURKEY

In Turkey, airport PPP projects are selected according to the revenue generation potential of the airport. The top 5 airports/terminals with the highest air traffic [İstanbul Airport (airport), Sabiha Gökçen Airport (terminal), Antalya Airport (terminal), İzmir Adnan Menderes Airport (terminal), Esenboğa Airport (terminal)] (DHMİ, 2022) are operated with the public-private partnership model.

A recent study on these airports before COVID-19 (Topdemir, 2018) states that when the top 5 PPP model airports with the highest air traffic are analyzed in terms of existing and forecasted air traffic within their concession periods, it can be concluded that the private sector gains a significant share of the total revenue generated, since the aviation sector grew much more than expected.

Although, the COVID-19 pandemic severely affected the aviation sector, the recovery of Turkish airports were faster than the other airports in the region and the 2019 financial figures have been already met by the end of 2022 and the air traffic in Turkey is expected to continue to grow. (DHMI, 2022)

In the proposed model, taking the capacity and potential of the airports into account, in order to increase the public revenue as well as the trust between the parties, the involvement of the government as a partner with a minority share in the SPV company is proposed. At this point, it is assumed that there is no legal obstacle for the public sector to be a partner to the SPV companies.

Within this framework, following proposition is made:

"Involvement of public in the SPV companies with a minority share will increase the success of the PPP Project"

Pa: Involvement of public in the SPV companies with a minority share will increase political support on the Project.

Pb: Involvement of public in the SPV companies with a minority share will increase the revenues on both public and private sector.

Pc : Involvement of public in the SPV companies with a minority share will increase the trust between the parties and create a better investment environment.

Pd : Involvement of public in the SPV companies with a minority share will the private sector's willingness by offering a more fair risk sharing mechanism

# 8. DISCUSSIONS AND IMPLICATIONS

Providing quality public services through a PPP approach is a major challenge for governments around the world due to rising demand and the need to close massive infrastructure gaps. Researchers from both the developed and developing nations have studied the challenges and opportunities of policy implementation. This research, therefore, seeks to examine and discover CSFs for airport investments within case of Turkey. The first step of this study was a comprehensive literature review to identify the most prevalent and consequential CSFs influencing PPP projects. To sum up, it can be concluded that a project is considered successful if its objectives are met and its stakeholders are satisfied with the results.

The government has public roles in PPP model such as protection of passenger, employee rights, securing the quality of service and operations, and knowledge transfer. The private sector's contribution to the PPP project will be to manage airport operations, which will boost productivity and revenue.

PPP project contracts need to address the adequate sharing of risk, profit, and the costs associated with making new investments, as well as operations and maintenance. In Turkey, passenger guarantee is given in most PPP projects so that the risks of the investors are shared with the government. Here, force majeure issues are critical in the PPP contracts in terms of securing a balanced risk sharing for both sides of the contract. It is important to distinguish between the global economical problems and act of god in force majeure since passenger guarantee given by the government can result in large payment responsibilities. Government should back up the terminal operator if the country experiences force majeure like an earthquake, a pandemic, or a war but in case of an economic turbulence, the private sector is obligated to bear the risks.

Finally, in this study, considering the significant EBITDA profitability that is achieved at the end of the PPP projects implemented in the top 5 airports with the highest air traffic in Turkey, the government's partnership in the SPV companies with a public minority share is proposed in order to make it possible for the public to get its share of the profit and to gain more control over these companies. In this model, the government takes an active role in the project by using its legislative power and expertise. This makes the project more stable, transparent, and profitable, and both sides may get more out of the PPP project.

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