

THE INFRASTRUCTURE DEVELOPMENT SUCCESS MODEL FOR PUBLIC-
PRIVATE PARTNERSHIP IN UAE

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A thesis submitted in
fulfilment of the requirement for the award of the
Degree of Doctor of Philosophy in Technology Management

Faculty of Technology Management and Business
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JULY 2022

ACKNOWLEDGEMENT

I deeply and humbly thank Allah Almighty for giving me a chance to do this mission. I would like to express my heartfelt thanks to my supervisor. Associate Professor Ts. Dr. Goh Kai Chen, whose encouragement, guidance and continuous support allowed me to carry out this research work. My immense gratitude goes to my former supervisor Professor Dr. Ng Kim Soon for his invaluable contribution at every stage of this research. I would particularly like to thank my parents and my siblings, my brother, my wife, my family and friends for their valuable contributions at all stages of this research, for their spiritual support throughout my work and my whole life.



PTTA UTHM
PERPUSTAKAAN TUNKU TUN AMINAH

ABSTRACT

Public private partnerships (PPPs) have been used internationally as a strategy to develop infrastructure projects. In general, an expanded usage of the PPP strategy can be clarified in terms of its planned advantages such as exposure to private financing for program expansion; effective control and distribution of risk; simpler project targets; new concepts and flexibility; enhanced tendering preparation and incentives; and greater value for money (VfM) for public initiatives. In the last couple of decades, PPP has become a major approach in delivering infrastructure projects. The United Arab Emirates (UAE) in the Gulf Cooperation Council (GCC) countries was the largest market for public-private partnerships in the last decade. PPPs are currently used more and more for the rapid evolution of the UAE projects for infrastructure. However, the success factors for adopting a similar approach for infrastructure projects in the UAE are not widely understood. The objective of this research is to identify, assess and evaluate the impact of PPP formula factors and the development of infrastructure in UAE. A questionnaire survey was carried out among experts working in government institutions in Abu Dhabi in UAE. A total of 295 questionnaires were collected and found valid. Analysis of Moment Structural Equation Modelling (AMOS-SEM) model was developed based on 5 groups related to the important factors of formulation factors of PPP which are: Trust; Formulation of PPP; Transparency; Governance; and success of infrastructure development. The findings from the important Formulation factors of PPP through path analysis using structural model indicate that the critical Formulation factors of PPP have a significant effect on infrastructure development success. The implication of this research is that decision and policy makers can enhance and further strengthen PPP through focusing on trust, formulation of PPP and transparency to enhance the success of infrastructure development.

ABSTRAK

Perkongsian awam-swasta (PPP) telah digunakan di peringkat antarabangsa sebagai strategi untuk pembangunan projek infrastruktur. Secara umum, perkembangan penggunaan strategi PPP dapat meningkatkan kelebihan seperti pendedahan kepada pembiayaan swasta untuk pengembangan program; kawalan dan pengagihan risiko yang berkesan; sasaran projek yang lebih sederhana; konsep dan fleksibiliti baru; penyediaan tender dan insentif yang dipertingkatkan; dan membawa lebih penjimatan (VfM) kepada kewangan pihak kerajaan. Sejak kebelakangan ini, PPP telah menjadi pendekatan utama dalam melaksanakan projek infrastruktur bagi Emiriah Arab Bersatu (UAE) di Majlis Kerjasama negara-negara Teluk (GCC) adalah pasaran terbesar untuk perkongsian awam-swasta. PPP kini semakin banyak dilaksanakan dan memberi perkembangan untuk projek infrastruktur di UAE. Walau bagaimanapun, faktor kejayaan untuk menggunakan pendekatan serupa seperti PPP untuk projek infrastruktur di UAE masih berkurangan. Jadi, objektif kajian ini adalah untuk mengenalpasti faktor pembangunan kritis PPP dan pembangunan infrastruktur di UAE. Tinjauan soal selidik dilakukan di kalangan pakar yang bekerja di institusi kerajaan di Abu Dhabi di UAE. Sebanyak 295 borang soal selidik dikumpulkan dan didapati sah. Analisis model Moment Structural Equation Modeling (AMOS-SEM) dibangunkan berdasarkan lima kumpulan faktor berkaitan yang penting faktor pembangunan PPP iaitu: Kepercayaan; Pembangunan PPP; Ketelusan; Pemerintahan; dan kejayaan pembangunan infrastruktur. Hasil dapatan dari faktor-faktor pembangunan PPP yang penting melalui analisis menggunakan model struktur menunjukkan bahawa faktor-faktor pembangunan kritis PPP yang penting terhadap kejayaan pembangunan infrastruktur. Implikasi kajian ini ialah keputusan dan penggubal dasar dapat memningkatkan dan mengukuhkan lagi PPP melalui penumpuan kepercayaan, penggubalan PPP dan ketelusan untuk meningkatkan kejayaan pembangunan infrastruktur.

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LIST OF SYMBOLS AND ABBREVIATIONS

UAE	-	United Arab Emirates
KSA	-	Kingdom of Saudi Arabia
OBOR	-	One Belt, One Road
PPP	-	Public-private partnership
GCC	-	Gulf Cooperation Council
MENA	-	Middle East and North Africa
IWPP	-	Independent Water and Power Projects
ADWEA	-	Abu Dhabi Water and Electricity Authority
BOT	-	Build, Operate, Transfer
BOO	-	Build, Own, Operate
SPSS	-	Statistical Package for the Social Sciences
AMOS	-	Analysis of Moment Structures
PFI	-	Private Finance Initiative
EFA	-	exploratory factor analysis
CFA	-	confirmatory factor analysis
MLE	-	Maximum Likelihood Estimator
VIF	-	Variance Inflation Factors
CR	-	Construct Validity
AVE	-	Average Variance Extracted

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CHAPTER 1

INTRODUCTION

1.1 Research Background

The country's economic growth is of paramount importance to both the government and its residents (Leigh & Blakely, 2016). It is a process that involves the use of current production and development so that people in the country will live prosperously. North (2012) stressed that economic growth includes a range of target activities and activities to improve the standard of living and well-being of the population in an area (e.g., country). These acts improve people's quality of life and can help to build local wealth. Panayotou (2016) added that since the world has become a global village, economic development is essential for itself and other neighbouring countries and associated countries. Countries with a vision to step up their GDP trade with countries in international trade to achieve that (Porter, 2011). If a country's economy is to develop, it will positively impact people's lives as people can spend more money on basic and advanced living. There are several ways to achieve economic development. For example, North (2012) argued that a country could diversify its economic activity and start developing alternative sectors to contribute to economic growth instead of relying only on one sector.

A recent example of this is the Kingdom of Saudi Arabia (KSA). Albassam (2015) highlighted that although KSA has rich oil and gas resources, the government has decided to shift the increased reliance on the oil and gas sector and focus on the tourism and manufacturing industry. Unlike KSA, Kohli *et al.* (2015) highlighted that the government of India is developing human resources of the country so that people

with technical skills can work not only in the local market but also abroad and serve other states. India's residents may send foreign remittances to India, which may enhance economic activities in the country. In the long-term, if there are enough economic activities in the country that Indians may not have to go abroad. Another way in which a country can develop itself is the development of infrastructure in the country.

Another scenario is in the context of China. A recent and very pertinent example of this is the One Belt, One Road (OBOR) initiative of China. Minghao (2016) analysed the benefits and implications of OBOR and suggested that this project was one of the essential tasks of recent times by developing roads and other associated infrastructure. OBOR would bring an economic revolution not only for China and partnering countries but also for its trade-partners (North America and Europe) will benefit from this. Delmon (2017) highlighted the case of public-private partnership and suggested another way through which the government may use public-private partnership projects to foster economic development in the country. This helps the government to manage economic growth while keeping an eye on its resources.

Public-Private Partnership (PPP) has long been practised, and the phenomenon is gaining momentum. Delmon (2017) highlighted PPP's key features and suggested that it is an agreement between a public-sector enterprise and a private-sector entity, which involves a long-term agreement between the two parties such that both combine their resources and work together on tasks. PPP initiatives benefit both government and private-sector businesses, and the Private Finance Initiative (PFI), which was initiated by the Conservative administration in the United Kingdom in the 1990s, is credited with launching PPPs in the UAE. In a recession, monetary measures restrained government spending by slowing development, but economic growth accelerated, and a new labor policy was implemented in 1997 (Osei-Kyei & Chan, 2015). A common interest in finance and fast development contributed to the introduction of private investment supporting PPP ventures in the United Kingdom, the United Arab Emirates, and several other countries.

After the Second World War, several western countries attempted to bring about macroeconomic stability and reconstruction by further government involvement in the economy by state production of goods and providing services to the population with the international influence of the Great Depression in the United States in 1929.

The intervention awarded popular labels like ‘Welfare State’ and ‘Keynesian State’ between the 1930s and 1980s.

Growing demand from society for better social policies and public resources for services such as health and education and the need for infrastructure investment to boost economic growth intensified the fiscal crisis of the 1980s. Increased unemployed and inflationary rates also characterized this era (Knai & Chan, 2015). In the Middle East and the developed western nations, the economic crisis has underscored the problems of State monopolies in infrastructure provision (Chou & Pramudawardhani, 2015). This called for a solution for such monopoly, and PPP emerged as a good way to make a strong partnership with companies worldwide.

One essential neo-liberal claim was that market-driven private competition policy tools were alternatives to government monopoly and improved productivity, decreased costs, and reduced service supply prices (Dalley & Barton, 2016). Neoliberal political actions included privatizing government functions and the legalization of private enterprises, and shifting activities from national to local and regional governments (Wibowo & Alfen, 2014). Several countries, including the United Kingdom, Korea, Portugal, France, Australia, Sweden, North Zealand, and Canada, have adopted neo-liberal policy instruments (Knai *et al.*, 2015). The neo-liberalism opened the gate for PPP in many countries.

Given that the privatization process has received numerous criticisms worldwide, particularly in developing countries, because in specific sectors, the delivery of infrastructure has become increasingly adopted with other policy instruments based on competition (Khan *et al.*, 2019). Such more open types of policy instruments are practised in many countries. They are marked by a private procurement mechanism that tends to maintain control of properties for infrastructure development and the provision on behalf of the public service (Osei-Kyei *et al.*, 2015). Traditional contracting, shared concessions, and PPPs are examples of these kinds of political instruments which follow privatizations as neoliberal ideas emerge.

Delmon (2017) highlighted the case of some under-developed countries and suggested that some governments do not have enough financial resources and are unable to spend money on all sectors of the economy. A suitable solution is to involve private sector investors in financing the projects and help in economic growth (Al-Jundi & Guellil, 2018). These projects are also beneficial for private-sector enterprises as PPP may help the private sector obtain support from the government to get favoured

access to raw materials or technology. The government may provide guarantees to some projects, which may help improve the project's overall credit rating or market reputation. There is strong evidence that governments at federal, state, and municipal levels continuously chose the PPP instrument as a policy tool because of its perceived benefits and a large number of projects' development. In the UAE, the PPP instrument is used to provide public infrastructure development services with private sector involvement in the phases of planning, construction, financing, and operation (AlGeelani *et al.*, 2020).

Effective infrastructure is an essential part of all nations' economies to achieve their full potential as a developed nation. Al-Saadi and Abdou (2016) indicate that the success of the critical sectors of every economy and the provision of adequate housing, water, energy, and transportation infrastructure is crucial in achieving an improved standard of living and also helping reduce poverty. The involvement of developing countries in the free market system and their active engagement in the global economy have led to better infrastructure to allow sustainable economic growth. There is a need for massive capital investments to develop the infrastructure that can not be effectively dealt with by such nations (Ameyawet & Chan, 2015). As a method of implementing capital programmes, PPPs have been widely established around the world, and they have become a practical approach in delivering infrastructure projects in the last few decades (Sinha *et al.*, 2019).

Increased use of the PPP approach can be explained in terms of planned benefit, e.g., private exposure for system expansion, improved risk management and allocation; clear project goals; new concepts and flexibility; increased tender planning and incentives; and enhanced value for money (VfM) (Al-Saadi & Abdou, 2016). Salisu *et al.* (2012) reported that the United Arab Emirates (UAE) has become Saudi Arabia's largest PPP sector in the Gulf region, with PPP development contracts over U.S.D 54.4 billion. Figure 1.1 show that both of these countries constitute roughly 36% and 30% of PPPs in the Gulf region. In 1998, the UAE was able to launch the IWPP system in Abu Dhabi, the USA's capital, which was considered the PPP headquarters in the GCC region.

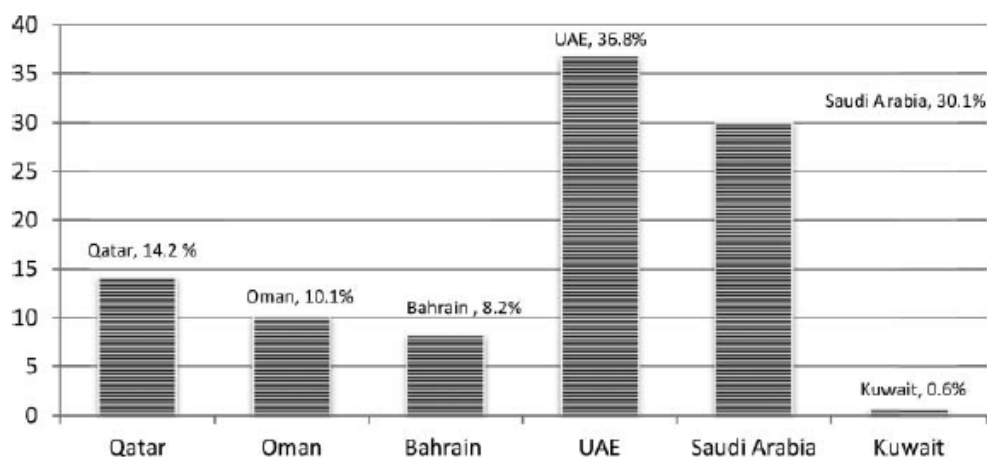


Figure 1:1: PPP deals in GCC by country (Gavin, 2011)

The initiative “Taweelah A-2” and the PPP implementation have effectively spanned the Abu Dhabi Water and Electricity Authority (ADWEA) (Dubai Chronicle, 2011) through the survey concerning the Gulf construction companies. Moreover, following Taweelah’s A-2 project experience, the UAE government has begun to extend the PPP to IWPP and social and economic infrastructure sectors such as schools, health care, airports and environment, and affordable housing. According to Atalla *et al.* (2012), the UAE government Strategy 2011-2013 hoped to promote the private sector more actively in building national employee skills and creating an institutional structure for PPPs. Nevertheless, the essential formulation variables of the PPP are considered vital to the success of any project.

In addition, as shown in Table 1.2, previous experience in implementing PPP project delivery methods in the United Arab Emirates is limited in comparison to other nations and areas around the world. Furthermore, due to the growing population of the United Arab Emirates and the growing need for infrastructure development, as well as restricted budgetary resources, alternative project delivery techniques such as PPPs are being implemented (AlGeelani *et al.*, 2020).

Table 1.2: PPP in the UAE (AlGeelani et al., 2020)

Country	Project State	Total	
		Number of projects	Cost (USDm) ²
United States	Total planned and funded since 1985	469	151 926
	Funded by 10/09	356	52 308
Canada	Total planned and funded since 1985	158	43 531
	Funded by 10/09	84	23 114
Latin	Total planned and funded since 1985	513	171 222
	Funded by 10/09	253	82 393
Europe	Total planned and funded since 1985	965	602 215
	Funded by 10/09	642	302 903
Africa and Middle East	Total planned and funded since 1985	148	52 717
	Funded by 10/09	66	29 151
Asia and Far East	Total planned and funded since 1985	605	256 591
	Funded by 10/09	346	154 969
World	Total planned and funded since 1985	2 858	1 278 202
	Funded by 10/09	1 747	644 838

In terms of the Abu Dhabi infrastructure plan of 2030, there are four portions to the plans. The first section addresses the key problems that shape the urban form: the environment, land use, transportation, public open space, and the capital city's expression. These plans take into account the city's larger context within the Emirate, Nation, and area, as well as the broad strategic movements required to balance the opposing forces that shape the city (Plan Abu Dhabi 2030, 2018).

Patterns originating from the Framework Structural Plans, the nuts and bolts that give the Plans their substance - precincts, densities, and building heights - are discussed in the second part. These patterns give particular measurements for the vision presented in the frameworks and elaborate on the consequences of adopting this urban shape (Plan Abu Dhabi 2030, 2018).

The third part identifies priority areas that need further investigation because of their importance to the proposed urban structural framework. These sections are given in greater depth to ensure that there are no major conflicts between the numerous mechanisms that make the city function and their representation in the plan. The new CBD and surrounding islands, the Capital District at a crucial crossroads on the

mainland, the Grand Mosque District on the southeast part of Abu Dhabi Island, and Lulu Island are the four focal regions (Plan Abu Dhabi 2030, 2018).

The final segment looks at prototypes of Emirati community building blocks. These studies are the DNA of the urban structure of these communities since they evaluate the many assumptions implicit in the larger-sized plans. They are based on a pattern that was formed by examining the needs of Emirati communities at various scales and under various conditions. The fine granularity is provided by the construction blocks, which complement the larger-scale movements (Plan Abu Dhabi 2030, 2018).

The growth of PPPs worldwide has led to a study of success drivers in these PPP projects. These drivers include trust (Brabers, 2018), transparency (Van Grembergen & De Haes, 2018), and PPP formulation (Ameyaw & Chan, 2015). Various research methods such as case studies and questionnaires were used to examine PPP's success factors for multiple sectors and countries. Studies have listed success factors in several ways (Ernest & Chan, 2013). However, the factors that lead to PPP projects' success in countries that take this approach, such as the UAE, are relatively new and little known. The government needs to find enough monetary support to develop and maintain the necessary infrastructure to support growing populations are primarily increasing. The private sector has historically engaged in addressing the public sector infrastructure issues implemented in conjunction with the banner of privatization and then Public-Private Partnerships (PPP) (Almarri *et al.*, 2017).

1.2 Problem Statement

United Arab Emirates (UAE) occupies an important position in the Middle Eastern region of Asia. It is a federal sovereign state in Western Asia and is in the situation at the southeast end of the Arabian Peninsula at the Arabian Gulf. The country has its borders with Oman (on the Eastern side) and Saudi Arabia (on the Southern side). UAE also shares maritime borders with Iran (on the North) and Qatar (West). UAE is a federation of seven emirates, which include Abu Dhabi, Ajman, Dubai, Fujairah, Ras Al-Khaimah, Sharjah, and Umm al-Quwain. An absolute monarch governs each of

these emirates, yet these emirates join together to become UAE, where Federal Supreme Council manages it.

Like many other countries of the world, the UAE government is also trying to benefit from PPP. It has developed a separate department that is responsible for taking care of the PPP issues. UAE government (2018) has set out a plan for creating a sustainable and competitive economy by working on knowledge, expertise, and diversity. To do so, it has decided to integrate the government and private sector's efforts and pool funds, human capital, and technologies so that the targets are to be achieved. Additionally, the UAE government highlighted many other advantages that can be obtained from PPP projects. These advantages include attracting investment in these projects from local, regional, and foreign investors. Additionally, these projects may also help the UAE government savings as the private sector enterprises involved in these projects use competitive bidding for these projects and may use this channel to reap such benefits. This would also lead to more job creation and an increase in the level of income for UAE residents.

In 2017, the UAE Cabinet issued a resolution, which set out a detailed procedure through which federal and private sector enterprises can develop PPP together. This also extended number of services that are categorised as PPP projects. In addition to this, the government of Dubai enacted Law Number 22 of 2015, which focuses on the set-up of a regulatory framework for governing PPP projects. This law's main thrust was to foster investment in PPP by encouraging private sector entities to invest in diverse projects and contribute to the economic development of emirates. The law sets out that both public and private sector entities may initiate the action of such tasks. The contract between the parties should set out the project's conditions, including the feasibility study of the project and planning the economic benefit that may arise from the project, which could be in the form of financial services of the project, technological advancements, and social benefits. The possible options or PPP forms - which can be used in this regard to include service contracts, management contracts, leasing contracts, concession contracts, and the PPP development - can be categorised into three forms, which are: Build, Operate, Transfer (BOT), Build, Own, Operate, Transfer (BOOT), and Build, Own, Operate (BOO).

The UAE government has started PPP projects in different fields, including PPP in education, infrastructure, waste management, and service. As part of these projects, the government has invited the private sector to support the government in

different projects. For instance, in the case of PPP in the education sector, the UAE government invited the private sector for professional services for curriculum design. Likewise, the Abu Dhabi government also invited 3rd party contractors for kindergarten and primary schools for educational and administrative supervision. The underlying purpose of this is to increase the quality of the educational services offered in these schools.

Likewise, the UAE also initiated projects in the area of infrastructure development. These projects focused on mobilizing the private sector and using their expertise and financial resources to reduce the carbon footprint. The existing and anticipated PPP infrastructure projects include four utility projects which are: scale renewable photovoltaic solar technology; Abu Dhabi's Masdar solar and wind projects; Dubai's Roads and Transport Authority projects and Route 2020 project. Consequently, UAE is working on PPP in waste management, and as a part of this project, Bee'ah, a Sharjah-based private company, will recycle waste and offer environmental solutions to the government. Likewise, another private sector entity is, the Masdar, will partner with Bee'ah for the development of a state-of-the-art plant for the conversion of waste into energy. The main aim of this project is to achieve a zero-waste-to-landfill target by 2020.

The formulation of the Public-Private Partnership Projects has not been an easy task and involves various complex aspects, which is essential to be evaluated before and after the project's formations. One of the most critical problems during the process of tendering is often criticized in the projects' formation is the biased tendering processes or favouring the political parties member, etc. It is significant to understand the effectiveness and efficiency of the tendering process. However, significant issues in the tendering process may include a lack of transparency (Liu, Wang & Wilkinson, 2016), which has not been empirically investigated in the context of the UAE.

Moreover, the private sector's capabilities for the formulation of the PPP also play a key role. Because of the private sector's capabilities, the projects can be completed successfully, while lack of capabilities can lead to hurdles. The private sector requires processes that are transparent and trustworthy (Muleya *et al.*, 2020). On the other hand, the government structure also plays a significant role in the PPP formulation as the inappropriate government structure can create problems for the PPP. Bradford (2003) argued that governance is one of the critical challenges in PPP. The involvement of a private-sector entity in the project may lead to the loss of control in

different activities. There are chances that private-sector entity manipulates things for their benefit. This may create a problem for the public-sector entity and may jeopardise economic growth-related challenges. Likewise, both public and private sector entities have to trust each other in PPP, which requires investigation in the context of the UAE.

Corporate governance has its own set of practices that are either directly or indirectly related to the tasks that an organization is tasked with. The success of the PPP is dependent on effective governance and the involvement of stakeholders. State or commercial entities, as well as other foreign investors, may be among these stakeholders (Kirchner, 2018). The concept of governance has been a long debate over the previous few years. The researcher must illuminate the strategies and approaches that could improve governance. It could be as a result of the government's or other stakeholders' involvement. The development of a country's economy is dependent on the good governance of the enterprise, project, or country. Governance is a system in the public sector that involves how the government makes decisions and how political stability influences these decisions (Grindle, 2017), which shows that governance might be a serious issue for PPP and the success of projects carried out by organizations, and this makes it an important factor to be investigated in the infrastructure firms in the UAE.

A violation of trust by any party could result in a lot of friction among stakeholders, as well as obstacles, which could lead to infrastructure development concerns. Moreover, Olusola Babatunde *et al.* (2012) added that PPP might also involve transparency concerning different activities so that stakeholders may get an idea of what is going on in the project. This requires an analysis of the situation so that problems can be resolved. Osei-Kyei and Chan (2017) highlighted that despite the comprehensive coverage of studies on critical success factors, the success criteria for PPP projects in developing and developed economies had received little or no attention in the mainstream literature.

Several issues have arisen as the formulation and development of PPP have advanced. With regard to the United Arab Emirates, the PPP phenomenon has not yet evolved sufficiently, necessitating extensive research in this area. First and foremost, a framework for determining how PPP should be developed is urgently needed. This framework's creation and evaluation will serve as a guide for stakeholders in any future PPP ventures. They might profit from the knowledge because it will help them prepare for the issues that come with PPP creation. In the UAE, one must also test,

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