

**Determining the Critical Success Factors for Public–
Private Partnerships in the United Arab Emirates
Construction Sector**

تحديد عوامل النجاح الحاسمة للشراكات بين القطاعين العام والخاص في صناعة
البناء والتشييد في دولة الإمارات العربية المتحدة

by

NAZAR AHMED MOHAMMED AHMED

Dissertation submitted in partial fulfilment

of the requirements for the degree of

MSc PROJECT MANAGEMENT

at

The British University in Dubai

December 2023

Declaration

I warrant that the content of this research is the direct result of my own work and that any use made in it of published or unpublished copyright material falls within the limits permitted by international copyright conventions.

I understand that a copy of my research will be deposited in the University Library for permanent retention.

I hereby agree that the material mentioned above, for which I am author and copyright holder, may be copied and distributed by The British University in Dubai for the purposes of research, private study, or education, and that The British University in Dubai may recover from purchasers the costs incurred in such copying and distribution, where appropriate.

I understand that The British University in Dubai may make a digital copy available in the institutional repository.

I understand that I may apply to the University to retain the right to withhold or restrict access to my thesis for a period that shall not normally exceed four calendar years from the congregation at which the degree is conferred; the length of the period is to be specified in the application, together with the precise reasons for making that application.



Nazar Ahmed Moh. Ahmed

Copyright and Information to Users

The author, whose copyright is declared on the title page of the work, has granted to The British University in Dubai the right to lend his/her research work to users of its library and to make partial or single copies for educational and research use.

The author has also granted permission to the University to keep or make a digital copy for similar use and for the purpose of preserving the work digitally.

Multiple copies of this work for scholarly purposes may be granted by either the author, the Registrar or the Dean of Education only.

Copying for financial gain shall only be allowed with the author's express permission.

Any use of this work in whole or in part shall respect the moral rights of the author to be acknowledged and to reflect in good faith and without detriment the meaning of the content, and the original authorship.

Abstract

Public–private partnerships (PPPs) have emerged as a strategic approach to foster economic growth and infrastructure development in various countries worldwide. In the context of the United Arab Emirates (UAE), a developing country with a rapidly growing construction sector, understanding the critical success factors (CSFs) influencing the performance of PPPs becomes imperative. This dissertation aims to investigate these CSFs. It endeavours to conduct a comprehensive analysis by comparing these identified factors with the existing literature on developed countries. The research design adopts a quantitative questionnaire filled by key expert participants from the public and private sectors. The findings reveal the universal CSFs that transcend geographical boundaries, such as loyalty or assurance. Additionally, the study uncovers UAE-specific CSFs, including the legal and regulatory framework, and so forth. The comparison between the explored factors and the literature from developed countries sheds light on the unique factors for the UAE. The research highlights the importance of a clear project objective and scope in the UAE context, while also underscoring the need for robust commercial groups, ... etc. Furthermore, the study proposes recommendations to enhance the achievement of PPPs' work in the UAE. However, the research acknowledges certain limitations, including a restricted sample size, time constraints, language barriers, and subjectivity. Despite these limitations, this dissertation contributes significantly to the understanding of CSFs for the success of PPPs and offers valuable insights to policymakers, practitioners, and researchers. The study's findings aid in shaping effective strategies for implementing successful PPP projects, and fostering sustainable economic development.

Keywords: Public–private partnerships, PPP, construction, critical success factors, developed countries, developing countries, United Arab Emirates.

خلاصة

برزت الشراكات بين القطاعين العام والخاص كنهج استراتيجي لتعزيز النمو الاقتصادي وتطوير البنية التحتية في مختلف البلدان حول العالم. وفي سياق دولة الإمارات العربية المتحدة، وهي دولة نامية ذات قطاع بناء سريع النمو، يصبح فهم عوامل النجاح الهامة التي تؤثر على أداء الشراكات بين القطاعين العام والخاص أمراً ضرورياً. تهدف هذه الأطروحة إلى إجراء تحليل شامل من خلال مقارنة هذه العوامل التي تم تحديدها مع البحوث والدراسات الموجودة مسبقاً حول البلدان المتقدمة. يعتمد تصميم البحث على استبيان كمي مملوء من قبل خبراء مشاركين من القطاعين العام والخاص. تكشف النتائج عن عوامل النجاح العالمية الهامة التي تتجاوز الحدود الجغرافية، مثل الولاء أو الضمان. كما تكشف أيضاً عن عوامل النجاح الهامة الخاصة بدولة الإمارات العربية المتحدة، بما في ذلك عامل الإطار القانوني والتنظيمي، وما إلى ذلك. تسلط المقارنة بين العوامل التي تم استكشافها والدراسات الواردة من الدول المتقدمة، الضوء على العوامل الفريدة لدولة الإمارات العربية المتحدة. كما يسلط البحث الضوء على أهمية وجود هدف واضح للمشروع ونطاقه في سياق دولة الإمارات العربية المتحدة، مع التأكيد أيضاً على الحاجة إلى مجموعات تجارية قوية، ... إلخ. علاوة على ذلك، تقترح الدراسة توصيات لتعزيز إنجاز عمل الشراكة بين القطاعين العام والخاص في دولة الإمارات العربية المتحدة. ومع ذلك، يعترف البحث ببعض القيود، بما في ذلك حجم العينة المحدود، والقيود الزمنية، والحواجز اللغوية. ولكن على الرغم من هذه القيود، تساهم هذه الأطروحة وبشكل كبير في فهم العوامل الهامة لنجاح الشراكات بين القطاعين العام والخاص وتقدم رؤى قيمة لصانعي السياسات والممارسين والباحثين. كما تساعد في صياغة استراتيجيات فعالة لتنفيذ مشاريع الشراكة الناجحة بين القطاعين العام والخاص، وتعزيز التنمية الاقتصادية المستدامة.

الكلمات المفتاحية: الشراكة بين القطاعين العام والخاص، البناء، عوامل النجاح الهامة، الدول المتقدمة، الدول النامية، الإمارات العربية المتحدة.

Acknowledgements

To begin, I want to convey my profound gratitude to Allah, the Almighty, for His unflinching support, which has enabled me to accomplish the goals I have set for myself throughout my life.

Throughout the process of finishing my thesis, Dr Khalid Almarri provided me with inexhaustible advice and support, and I would like to express my utmost gratitude to him for his efforts in this regard.

My heartfelt gratitude goes out to Engineer Wesam Alghazali for the continual encouragement and helpful direction that he has provided.

The distinguished faculty members at The British University in Dubai, particularly Dr Muhammad Waris, Dr Maria Papadaki, Dr Farzana Asad, and Dr Mohamed Haddoud have my utmost gratitude. I am really grateful to each of them. My development into an experienced researcher has been greatly aided by the devoted guidance that I have received from them.

My deepest gratitude goes out to all the hardworking professionals and scientists who were involved in the rigorous data collection and verification for this study.

During the time that I spent learning at The British University in Dubai, I want to articulate my deepest gratitude to my family as well as to everyone else who has been there for me, offering unflinching support and understanding.

In closing, I really want to convey my profound gratitude to the participants who wished to remain anonymous. Their support and efforts have been vital to the success of this initiative.

Please accept my sincere gratitude.

Nazar Ahmed Mohammed Ahmed

Table of Contents

Chapter 1: Introduction.....	1
1.1 Background and Rationale for the Research	1
1.2 Objective.....	3
1.3 Research Questions.....	3
1.4 The Study's Scope.....	4
1.4.1 Geographical Scope	4
1.4.2 Industry Scope	4
1.4.3 Timeframe	5
1.4.4 Key Components of Analysis	5
1.4.5 Limitations	5
1.5 Methodology.....	6
1.6 Significance of the Research	6
1.7 Brief Overview of the Dissertation Structure	7
Chapter 2: Literature Review	9
2.1 Introduction	9
2.2 Definition and Types of Private–Public Collaboration	10
2.2.1 Definition of PPP	10
2.2.2 Types of Public–Private Partnerships	12
2.3 Benefits and Challenges of PPPs in the Construction Sector	18
2.3.1 Benefits of PPPs in the Construction Industry.....	20
2.3.2 Challenges of PPPs in the Construction Industry	23
2.4 CSFs for PPPs in the Construction Industry.....	24
2.5 Overview of the United Arab Emirates' Construction Sector	33
2.6 CSFs in the UAE Construction Industry	35
2.7 Challenges and Opportunities for PPPs in the UAE.....	38
2.8 Comparative Analysis: Developed vs Developing Countries	40
Chapter 3: Research Methodology	46

3.1 Introduction	46
3.2 Questionnaire Design	47
3.3 Population and Sampling.....	49
3.4 Pilot Study	50
3.5 Definitions of Statistical Analysis	50
3.5.1 Mean Score Ranking.....	50
3.5.2 Reliability Test.....	50
3.6 Data Collection	51
3.7 Data Analysis.....	51
3.7.1 Comparison Between UAE Factors and Developed Countries' Literature.....	51
3.8 Ethical Considerations	52
3.9 Limitations.....	53
3.10 Conclusion	54
Chapter 4: Data Analysis.....	55
4.1 Descriptive Statistics	55
4.1.1 Respondent's General & Demographic Information.....	55
4.1.2 Reliability Test.....	62
4.1.3 KMO and Bartlett's Test	64
4.1.4 CSFs for PPPs in the Context of the UAE.....	64
4.2 Comparison Between UAE's Factors and Developing Countries	81
Chapter 5: Discussion	84
5.1 Legal and Regulatory Framework	85
5.2 Effective Risk Management and Risk Handling	85
5.3 Authorities' Cooperation.....	86
5.4 Well-Designed PPP Contract.....	87
5.5 Commitment from the Partners	87
5.6 Transparent Procurement Process	88
5.7 Project Technical Viability	89
5.8 Government Financing and Funding Systems.....	90

5.9 Feasible Analysis Statement.....	90
5.10 Robust Commercial Groups	91
5.11 Political Support	91
Chapter 6: Conclusions, Recommendations, and Limitations.....	92
6.1 Conclusions	92
6.2 Recommendations	92
6.2.1 Focus on Transparent Procurement Procedures.....	93
6.2.2 Public Endorsement and Governmental Support.....	93
6.2.3 Tackling Distinctive Factors in Developing Countries.....	93
6.2.4 Tailoring Strategies to Suit Individual Environments	93
6.2.5 Lifelong Learning and Flexibility	94
6.3 Limitations.....	94
6.4 Future Researcher	95
References	96
Appendix - Questionnaire.....	105

List of Tables

Table 1: PPPs' Broad Category -----	18
Table 2: CSFs for PPPs in the Construction Industry and Literature Sources -----	32
Table 3: CSFs in the UAE Construction Industry and Literature Sources -----	37
Table 4: Comparative Analysis: Developed vs Developing Countries -----	44
Table 5: Gender of Participants -----	55
Table 6: Designation of Participants -----	56
Table 7: Age of Participants -----	57
Table 8: Educational Level of Participants -----	58
Table 9: Number of Employees in the Participants' Organisations -----	59
Table 10: Years of Experience -----	61
Table 11: Frequency of the Companies' PPP Involvement -----	62
Table 12: CSF Reliability Statistics -----	63
Table 13: KMO and Bartlett's Test -----	64
Table 14: Score of the Factors -----	78
Table 15: Ranking of the Critical Success Factors -----	80

List of Figures

Figure 1: Scaled-Down Version of the Categorisation System for Public Procurement -----	12
Figure 2: The Common Phases of a BOT Project-----	14
Figure 3: An Example of a PFI Contract -----	15
Figure 4: Typical BOOT Project Structure -----	17
Figure 5: Cluster Overview for CSFs in PPPs -----	26
Figure 6: CSFs for PPPs in the Construction Sector -----	29
Figure 7: The Research Onion -----	46
Figure 8: The Gender of Participants -----	55
Figure 9: The Designation of Participants -----	56
Figure 10: The Age of Participants -----	57
Figure 11: The Education of Participants -----	58
Figure 12: The Number of Employees in the Organisation-----	60
Figure 13: The Years of Experience in Construction-----	61
Figure 14: The Frequency of the Companies' PPP Involvement-----	62
Figure 15: The Capability for Independent Funding-----	64
Figure 16: The Factor of Clear Project Objective and Scope-----	65
Figure 17: The Factor of Effective Risk Management and Risk Handling-----	66
Figure 18: The Factor of Government Financing and Funding Systems -----	66
Figure 19: The Factor of Stakeholder Engagement and Skilled Collaborators -----	67
Figure 20: The Factor of Loyalty or Assurance -----	68
Figure 21: The Factor of Legal and Regulatory Framework -----	68
Figure 22: The Factor of Technical Expertise, Innovation, and Qualified Employees -----	69

Figure 23: The Factor of a Well-Designed PPP Contract -----	70
Figure 24: The Factor of a Feasible Analysis Statement -----	71
Figure 25: The Factor of Political Support -----	71
Figure 26: The Factor of Stable Politics -----	72
Figure 27: The Factor of Suitable Amount of Fees and Taxes -----	73
Figure 28: The Factor of Authorities' Cooperation -----	73
Figure 29: The Factor of Skilled Consultants -----	74
Figure 30: The Factor of Project Technical Viability -----	75
Figure 31: The Factor of Commitment from the Partners -----	75
Figure 32: The Factor of Robust Commercial Groups -----	76
Figure 33: The Factor of Transparent Procurement Process -----	77
Figure 34: Score of the Factors -----	79
Figure 35: Ranking of the Critical Success Factors -----	81
Figure 36: Comparison of PPP Success Between Developed and Developing Countries -----	82
Figure 37: CSF Comparison Between the UAE and Developed Countries -----	83

Chapter 1: Introduction

1.1 Background and Rationale for the Research

PPPs are strategic alliances where the commercial and publicly sectors collaborate on a particular project, and they contribute their own talent and abilities. However, each sector takes on varying degrees of accountability and engagement to enhance the efficiency of delivering public works in a highly effective setting (Chan et al. 2010). Following Margaret Thatcher's conservative revolution, the PPPs formula initially appeared in the UK as one of the solutions to this problem. The government started looking at possibilities for co-producing public services with the business sector in the early 1990s. The Private Finance Initiative, or PFI as it was known in the UK, grew fast across industries and took on many shapes depending on the precise role that each project gave to both the private and public sectors (Allard 2008).

Colman (2000) argues that public infrastructure projects incur unavoidable economic-life and associated expenses; this serves as the rationale for using PPPs instead of the conventional procurement process, which often leads to increased project costs and delays in projects' completion. According to Li et al. (2005), the adoption of the PPP model in both developing and underdeveloped countries is motivated by the desire of averting any subpar provision of governmental amenities or infrastructure, whereby the unskilled public sector management of transportation infrastructure projects leads to subpar quality, delayed completion, and increased costs.

Li et al. (2005) state that PPPs are becoming more prevalent in the provision of public buildings and services in the UK, namely via the Private Finance Initiative (PFI). Although there have been occasional victims, several PPP/PFI projects have been successfully executed.

The outcome of a questionnaire survey conducted by Li et al. (2005) to investigate the relative significance of eighteen CSFs for PPPs/PFI in the UK. The factor analysis identified the following categories for eighteen critical success factors in PPP construction projects: successful acquisition, feasibility of project implementation, assurance from the government, favourable economic circumstances, and an accessible finance market.

In recent years, partnerships between the government and the private industry have become a popular strategy to deliver complex construction projects, bringing together the available resources and levels of competence from both the public and commercial sectors.

Geddes and Wagner (2011) observe that the government domain in the UAE has had subpar performance as a result of using the sector as a primary political tool to maintain public satisfaction. Consequently, the government field has remained burdened by substantial managerial and performance issues.

Nevertheless, despite the growing use of PPPs and their significant achievements in well-established democratic and economic systems, these agreements have encountered difficulties, particularly in developing countries. The government's lack of commitment has been the cause of such circumstances. The primary factor contributing to the difficulties identified by Kahwajian et al. (2014) is a dearth of openness on the part of the administration, stemming from institutionalised corruption.

Public–private partners are becoming more frequently used in many countries to finance projects, improve efficiency, boost productivity, and reduce unemployment rates. The public's interest in PPPs stems from its expected importance, since the style is well recognised for enhancing the calibre and durability of services, while also minimising costs and risks, which are crucial in project execution. According to Cui et al. (2018), there is an assumption

that the private industry's ability to complete projects within the designated timeframe and budget may be compared to that of the public sector.

The effectiveness of partnerships between the two sectors is influenced by a multitude of factors, which vary based on the specific context and characteristics of the project and the country in which it is implemented. Understanding these CSFs is crucial for achieving positive outcomes in PPP projects. While CSFs have been extensively studied in the construction industry, there is a need for in-depth research focusing on the UAE construction sector, particularly in the context of a comparative analysis between developed and developing countries.

1.2 Objective

This dissertation's major purpose is to determine and analyse the important success elements for collaborations between government and businesses in the UAE construction sector. Additionally, an examination of a comparison between these factors and the factors extracted from the existing literature related to developed countries is included in the research. By exploring these factors, the study aims to shed useful light on the primary factors that determine the success in PPPs projects and highlight the similarities, differences, and best practices between different country contexts.

1.3 Research Questions

The research questions that will be investigated are as follows:

- a) Which crucial success elements are most influential in determining whether public–private partnerships in the United Arab Emirates construction sector are successful?
- b) What distinguishes well-developed countries from the UAE with regard to these important success factors?

- c) What are the best practices and lessons learned from successful PPPs projects in different country contexts?
- d) What are the implications of these critical successful elements for improving the execution of PPP in the UAE construction sector, and the results of such partnerships?

1.4 The Study's Scope

The fundamental purpose of this research is to analyse the essential components of success (CSFs) for private–public collaboration (PPPs) operating within the construction industry in the UAE. The study will further extend its scope to include an examination of industrialised and developing nations side-by-side in order to compare and contrast the similarities, differences, and best practices in PPPs projects.

1.4.1 Geographical Scope

The primary focus of the study is on the UAE construction industry, specifically analysing public–private partnership projects implemented within the country. The comparison will include literature from selected developed countries with a well-established track record in PPPs, as well as selected developing countries that have recently embarked on PPPs initiatives in the construction sector.

1.4.2 Industry Scope

The study narrows its focus to the construction industry, encompassing various types of construction initiatives including power, transport, water supply, and social infrastructure. The CSFs and comparative analysis will be specifically tailored to the construction sector, considering its unique characteristics and challenges.

1.4.3 Timeframe

The study will concentrate mostly on recently completed and continuing PPP initiatives within the selected timeframe, ensuring relevance and applicability to the current state of the UAE construction industry.

1.4.4 Key Components of Analysis

The scope of the study includes an in-depth examination of critical success elements that affect whether PPPs ventures are successful or unsuccessful. It encompasses factors related to project planning, stakeholder engagement, contractual arrangements, risk management, financial considerations, regulatory frameworks, governance structures, etc. The investigation will consider quantitative data with the purpose of providing a complete grasp of the identified CSFs.

1.4.5 Limitations

While every effort will be made to offer assurance of the comprehensiveness and validity of the study, there are some limitations that should be taken into account. These may include constraints related to time, resources, data availability, and access to specific project information. The results of the research, as well as the implications that might be derived from it, should be understood while taking these limitations into consideration.

The research will provide valuable insights into the critical success factors specific to the UAE construction industry and their comparison with other developed and developing countries. The scope of the study aims to contribute to the existing knowledge base on PPPs in the construction industry and inform policymakers, practitioners, and industry professionals on effective strategies for successful PPPs implementation.

1.5 Methodology

For the sake of accomplishing the goals of the study and discovering solutions to the problems highlighted by the investigation, a combination of methods will be adopted. The study will involve a complete literature assessment to determine existing theories and frameworks related to CSFs in PPPs. Additionally, primary data will be collected through a questionnaire to gather insights from the relevant key stakeholders involved in PPPs projects in the UAE's construction industry.

1.6 Significance of the Research

This dissertation holds significant importance for the construction industry and policymakers involved in PPPs. The results of this research will give important new insights into the essential success elements that determine the results of PPPs initiatives, particularly in the UAE construction industry. The examination of the differences and similarities among developed and developing countries will shed light on the contextual differences and highlight transferable best practices.

The research outcomes will make a contribution to the corpus of knowledge that has already been acquired by filling a research gap in terms of understanding the essential components for achieving success specific to the UAE construction industry. The findings will also inform policymakers and industry professionals in their decision-making processes, making it possible for them to establish productive techniques for collaboration agreements between the public and commercial sectors that are carried out effectively.

This study attempts to improve our knowledge of the primary determinants of success by focusing on the crucial success elements in partnerships between the public and private sectors, and contributes to the sustainable expansion and further improvement in the construction sector in the UAE.

1.7 Brief Overview of the Dissertation Structure

The organisation of this research is as per the following:

Chapter 1: Introduction

This chapter starts with a brief overview of the study, which introduces the importance of PPPs. Research issues clearly define the nature of the problem, idea, and concept that will be learned via the use of the study's goals and questions in determining the relevance of the research. The scope of the investigation, the definitions of the important words, and the arrangement of the report are also presented in detail in the following sections.

Chapter 2: Literature Review

This chapter provides the definition of the dependent variable and independent variables for the subject of study, as well as the previous studies of the PPPs. This chapter will also clarify the theoretical structure and the study hypothesis.

Chapter 3: Research Methodology

This chapter details the methodology behind the study and instrumentation measurement, as well as the approach to the gathering of data that will be taken in this investigation to attain the research goals. It will also explain the techniques used in the data analysis.

Chapter 4: Data Analysis

After doing analyses on the survey data, conclusions will be created appropriately, and the findings will be reviewed and interpreted.

Chapter 5: Discussion

In this chapter, the study delves into the discoveries unveiled in the preceding chapter, conducting a thorough examination and juxtaposition with pertinent literature from earlier

studies. Subsequently, we draw comprehensive conclusions and present recommendations tailored to the insights gained.

Chapter 6: Conclusions, Recommendations, and Limitations

Following the conclusion of the literature research, the design framework, the administration of the questionnaire, and the analysis of the data, a series of findings and suggestions will be made, with a focus on exposing the limits of this study so that further research might expand upon them.

Chapter 2: Literature Review

2.1 Introduction

The literature review chapter examines recent findings from academic studies and publications on the key variables that contribute to success (CSFs) for PPPs in the construction sector, with an emphasis on the United Arab Emirates (UAE). This chapter intends to assess and integrate existing information and insights about government–business alliances/PPP in both developed and underdeveloped nations, providing a comparative analysis to identify the elements that contribute to their success or failure. PPPs have evolved as a major model for infrastructure development across the globe, notably in nations such as the UAE, where they have played a critical role in meeting the rising need for excellent infrastructure while also generating economic growth. The success of PPPs ventures, as opposed to that, is dependent on an array of linked aspects that must be carefully studied and controlled throughout the project lifespan. This chapter provides a comprehensive review of the relevant literature that is studied here to determine the CSFs that are very important for the effective deployment of PPPs in the UAE construction sector. It attempts to investigate the corpus of information pertaining to PPPs, which includes academic publications, research papers, industry reports, and case studies. The study will take into account both developed and developing country experiences and practices in order to give a thorough overview of the major success determinants. This literature review's conclusion will be an invaluable resource for stakeholders, policymakers, and industry experts participating in PPPs initiatives in the UAE. The chapter attempts to highlight areas of attention and give insights into tactics that may improve project delivery, help to manage risks, and maximise the benefits for all parties involved by evaluating the CSFs. Furthermore, comparing established and developing nations

will provide useful insights and best practices that may be applied to the UAE's specific environment.

Finally, the reason for doing the literature review is for the sake of adding to the existing corpus of information on PPPs in the UAE construction sector, therefore guiding future research and practical application. The chapter seeks to enhance evidence-based decision-making and encourage the creation of effective methods that may maximise the results of PPPs projects in the UAE and comparable environments by identifying and analysing the essential success elements.

2.2 Definition and Types of Private–Public Collaboration

2.2.1 Definition of PPP

According to Farlam (2005), PPPs refers to a kind of deal that may be made amongst organisations that are government-run and individuals or companies in which the latter group assumes a significant percentage of the project's financial, technical, and operational risk. It is described by Makofane (2013) as an agreement involving a commercial company and a state agency, whereby the latter makes use of public resources to carry out institutional duties in accordance with predetermined output standards. In this arrangement, the private partner, who also benefits from government money or user fees, assumes a substantial percentage of the project risk. In general, the PPPs approach is a sort of cooperation combining the public domain and private companies. The primary objective of this type of collaboration is to offer government services that have traditionally been delivered only by government entities according to Liu and Yamamoto (2009). According to Steane and Carroll (2000), a partnership is defined as collaborative endeavours that depend on the member actors' consent to affirm their economic and social goals in order to achieve some beneficial result. According

to them, the PPPs model is asserted as a representation involving both of the sectors in some way, in terms of contact and cooperation. According to Roman and Professor (2015), a PPPs is typically thought of as an arrangement between any number of governments or public organisations and a number of partners from the private market or from the non-profit sector for the sake of assisting in the execution of essential facilities or funding, developing, constructing, running and/or retaining a particular project to the advantage of the population as a whole. According to the United States Department. of Transportation, a partnership between a governmental agency (either national, regional, or municipal) and an independent enterprise is when they enter into a contract that opens the door for more participation from the business community in the development, functioning, and finance of infrastructure improvements. It is possible that a significant portion of the public sector's creation, building, monetary, and safety hazards will be transferred to the private sector via the use of PPPs (Auzzir et al. 2014). The PPPs defined by Allard (2008) as a "marriage" of public and private sector activities, has been used for more than twenty years as a "third way" to enhance the level of facilities that are typically delivered by government agencies and facilitate the most efficient use of governmental funds. Their application has moved beyond the transportation industry to cutting-edge initiatives in health, education, and other fields from the UK all the way to European countries and even farther afield. He stated that relying only on PPPs for the financing of private projects carries with it the potential that the benefits of PPPs are unlikely to be achieved and that, over the medium and long terms, in reality, the cost of providing governmental amenities would go up, and their quality would decline.

The analysis of many PPPs definitions from various perspectives shows certain similar characteristics. First and foremost, PPPs always involves collaboration and teamwork. Second, partnerships between public and private organisations are constant. These private

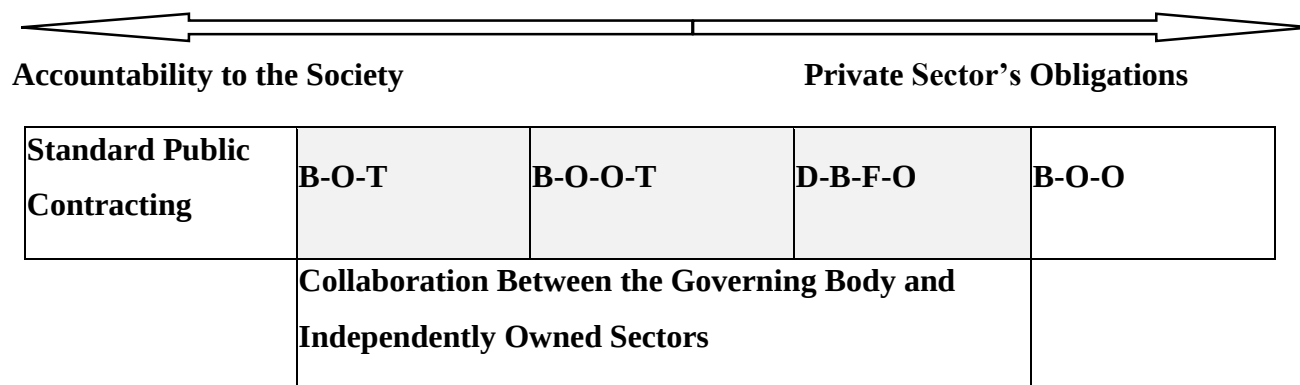
organisations might be corporations, non-profits, development organisations, or international organisations. Third, a PPPs involves commitment since a partnership is set up for a protracted period of time. Finally, PPPs produce a certain range of products or services (Khanom 2010).

2.2.2 Types of Public–Private Partnerships

PPPs may be broken down into a wide variety of subcategories around the globe. Most of them function in ways that are comparable, and the name varies based on the nation in which it is employed; nevertheless, in other instances, there are significant changes in the method that is taken (Cheung 2014). According to Akbiyikli and Eaton (2005), Figure. 1 displays several procurement methods, including various PPPs strategies. On one end of the scale, the public sector is still in charge of funding, building, running, and maintaining assets, as well as taking on any related risk. Furthermore, the business world is in charge of all of these duties. The great majority of public–private partnerships lie somewhere in the middle of the range, with risks and duties being divided up according to each party's capacity and strength.

Figure 1

Scaled-Down Version of the Categorisation System for Public Procurement



Note. Adapted from the European Commission 2003

The following are some of the numerous varieties of PPPs that are often discussed in the literature.

2.2.2.1 Build, Operate and Transfer (BOT). A sort of construction support is known as the Build, Operate, and Transfer (BOT) approach. In this configuration, a private entity is in charge of all aspects of the project, including the designing, finance, and building of the infrastructure. Even if the assets have been formally transferred, the construction endeavour remains to be managed by private companies even after it is transferred to the care of the governing body, for as long as it takes to pay off any debt that has accrued and produce a satisfactory return. BOTs have a propensity for being very sophisticated from both a technical and a financial point of view, necessitating the assistance of high-level specialists and consultants, and driving up the costs incurred by users while in operation (Nsasira et al. 2013). According to Khanom (2010), the project is typically developed, funded, and managed via the non-governmental sectors over the whole of the concession term under BOT financial arrangements. The infrastructure's operation (such as toll roads and energy production) generates money for the private sector partner. The government acquires legal ownership of the project after the conclusion of the concession term. When a concession is of the Build-Operate-Transfer (BOT) kind, before handing over ownership of the facility to the government, the operator of the concession is responsible for making any required investments and overseeing its management for a particular duration of time. Under a BOT approach, a concessionary can be responsible for a significant portion of the risks related to operations and finances.

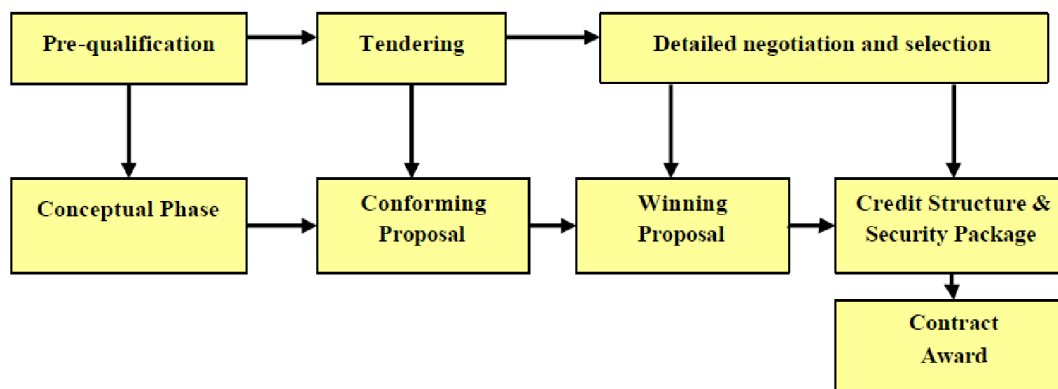
However, according to the BOT approach, the governing body is responsible for a number of uncertain obligations, including those that are explicitly stated and might result from loan guarantees, subordinate loans, and defaults by sub-sovereign governments, public

entities, or private organisations using funding that is not warranted (Quium 2011). BOT mandates that parties to contracts adopt the axiom that the entity under the command of the hazard that is most analogous should be the one to take responsibility for it. Hence, the primary purpose of the BOT structure is to identify these risks and provide a mechanism for their assignment and management (Walker & Smith 1995).

The steps that are involved in a typical BOT project are indicated in Fig. 2 below.

Figure 2

The Common Phases of a BOT Project



Note. Tiong and Alum's study from 1997 was cited in Akbiyikli and Eaton's work in 2005

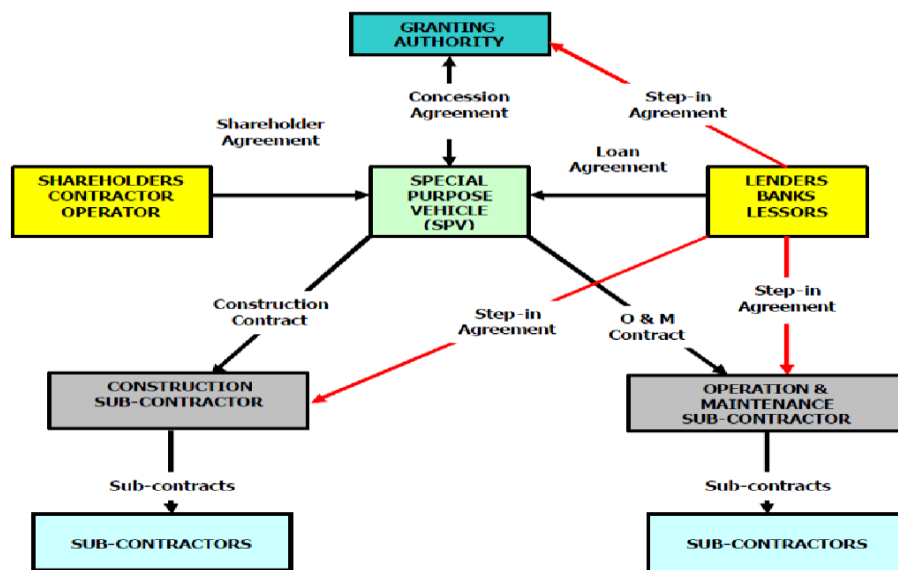
2.2.2.2 DBFO: Design, Build, Finance, and Operate. Design, Build, Finance, and Operate (DBFO) is a contract a contract that is awarded in accordance with the tenets of the Private Financing Initiative and stipulates that the same provider will be responsible for the design and building of an asset, as well as the subsequent maintenance of that asset over an extended duration, often between twenty-five to thirty years (Hall et al. 2003). These types of PPPs, such as the DBFO model, provide a diverse array of chances for various social actors to circumvent institutional limitations in the provision of government facilities (Liu & Yamamoto 2009). This PPPs variant is the most complicated. A single contract covering the

finance, planning, building, operation, and/or maintenance of a specific project is provided to an enterprise or not-for-profit entity. Upcoming revenue sources are used to make use of the project's initial funding either whole or part investment. Although it is not always the case, it is rather typical that under such agreements, the private partner is solely responsible for generating money. In many (but not all) instances, the private partner effectively ends up "owning" the project (far more often for foreign than domestic PPPs) via long-term leases (Roman 2015).

Figure 3 illustrates the overarching mechanism as well as the contractual framework of the PFI project.

Figure 3

An Example of a PFI Contract

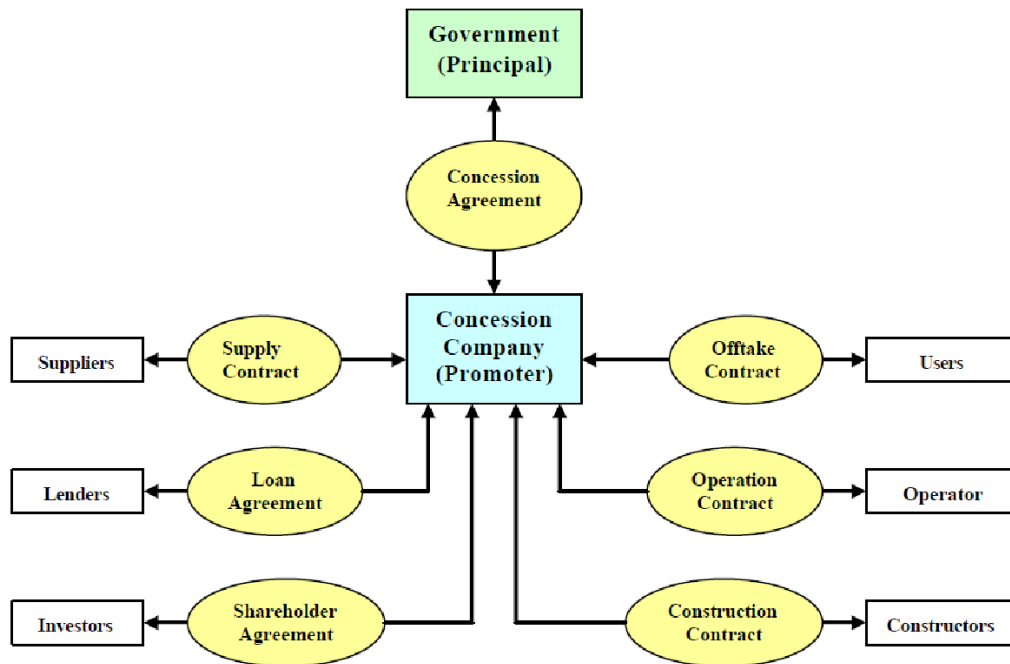


Note. Source: Akbiyikli & Eaton 2005

2.2.2.3 BOOT: Build, Own, Operate, and Transfer. In the case of projects of the Build, Own, Operate, and Transfer (BOOT) type, a developer who is not publicly traded is the party accountable for the funding, building, and running of a facility over a certain period of

time. After the conclusion of the allotted time period, the facility is handed back over to the government (Hall et al. 2003). In the context of a Design, Build, Own, and Operate contract, the private partners are the ones who are accountable for the development, constructing, and ongoing management of an investment asset, in addition to its financing. For the provision of services, private partners in such a PPPs get money from either the government (at regular intervals) or user charges, or both, depending on the particular arrangement. According to Roehrich et al. (2014), there are numerous possible variations of PPPs schemes because of the many ways in which public- and private-sector players share the possession of property as well as risk accountability. According to Chiu and Bosher (2005), when it comes to a project of the BOOT kind, the developer's company is obligated to provide its own financing, commonly on a basis of either no redress or restricted recourse, in order to acquire a new asset or to rebuild or improve an existing asset. A BOOT project may also include the construction of a new asset. The scope of this particular sort of cooperation is often restricted to treatment assets and does not include any activities farther downstream. Customers will be charged a retail tax or tariff to be collected by the public sector, which will then pay a bulk tax to the private partner. The PPPs typically has an operational duration that ranges from fifteen to twenty years.

Figure. 4 provides an illustration of the usual organisational layout of a BOOT project.

Figure 4:*Typical BOOT Project Structure*

Note. Source: McCarthy & Tiong 1991, cited in Akbiyikli & Eaton 2005

2.2.2.4 Build–Own–Operate (BOO). The BOOT and BOO concessions are highly comparable to one another in many ways. When a BOO concession deal comes to an end, the ownership often does not go back to the government, as is customary in other types of concession arrangements. Nataraj and Geethanjali (2007) define the BOO as the capacity of the government to let a private company finance, construct, run, and maintain a project while the government preserves the rights to the construction work itself. There is no legal need for the private company to hand over control of its properties to the governing body. According to Batjargal and Zhang (2022), BOO is a structure that is comparable to BOT agreements; however, with BOO, the private sector partners maintain ownership of the facility after the

contract has expired. Therefore, under this PPP model, the entire burden is borne by the contractors.

Table 1

PPPs' Broad Category

Broad category	Main variants	Ownership of capital assets	Responsibility of investment	Assumption of risk	Duration of contract (years)
Supply and management contract	Outsourcing	Public	Public	Public	1-3
	Maintenance management	Public	Public/Private	Private/Public	3-5
	Operational management	Public	Public	Public	3-5
Turnkey		Public	Public	Private/Public	1-3
Affermage/Lease	Affermage	Public	Public	Private/Public	5-20
	Lease	Public	Public	Private/Public	5-20
Concessions	Franchise	Public/Private	Private/Public	Private/Public	3-10
	BOT	Public/Public	Private/Public	Private/Public	15-30
Private ownership of assets and PFI type	BOO/DBFO	Private	Private	Private	Indefinite
	PFI	Private/Public	Private	Private/Public	10-20
	Divestiture	Private	Private	Private	Indefinite

Note. Source: UNESCAP

2.3 Benefits and Challenges of PPPs in the Construction Sector

Because of limited resources, the ability of the public sector to offer vital development projects has decreased. As a result, the majority of developing nations are turning to the private sector for assistance in delivering the necessary infrastructure projects (Ngoma et al. 2014). It is common knowledge that PPPs are not the silver bullet for the provision of each

and every service. Proceeding with PPPs without first doing an in-depth analysis of how well they fit the requirements of a given situation presents certain dangers. However, when the collaborations across the public and business organisations, also known as PPPs, are implemented within the proper settings, the general public may reap considerable advantages (Ngoma et al. 2014). Almarri and Blackwell (2014) highlighted that when it comes to the procurement of public works projects, developing nations now have a model to look up to in the form of the successful implementation of PPPs, or collaboration among the public and commercial sectors' contracts throughout the world, particularly in places like the UK and the United States. Less developed nations are becoming more interested in international collaboration between the public and private sectors because of the benefits that have been shown, including the passing on of hazards and the accessibility of funding.

Contracts based on PPPs have matured into reliable tools for the procurement of governmental projects. These contracts take into account factors such as the allocation of risks, privately owned finance, effectiveness, standard of care creativity, and expertise. To make it possible for PPPs to be successful and offer the advantages that were promised, the conditions for its achievement must be met. It is vital that the obstacles that are confronting the implementation of PPP be brought to light and investigated in order to enhance the results of these efforts and allow governments to maintain their initiatives. Athias (2010) argues that, as a result of the fact that the profit-making industry has a responsibility to be creative in order to generate the greatest possible profit while preserving a predetermined standard of support to the publicly traded, advantageous strategies are extremely common in PPPs agreements. This is due to the fact that the selection rules depend on the most accurate beliefs of a return on investment and do not always depend on feasible rules. As PPPs contracts are awarded on the

basis of the most optimistic projections of the profit on investment, just general engagement in binding agreements is not sufficient for obtaining the intended objectives of PPPs initiatives. According to Rahman et al. (2014) in Malaysia, during the course of a ten years' period, a number of PPPs initiatives were successfully carried out. These projects include the Northern to Southern Highway, the energy stations at Paka and Pasir Gudang, and the Penang Bridge, in addition to extra bridges. On the other hand, there are an abundance of situations that were unsuccessful, such as the attempt to privatise the national sewerage system in Malaysia and the initiative to build a bus station for the Batu Pahat Municipal Council.

2.3.1 Benefits of PPPs in the Construction Industry

PPPs provide a variety of advantages, according to Allard and Trabant (2007), including superior quality, lower costs, timely shipping, the transfer of hazards, improved independent handling of ordinarily challenging projects, and entrepreneurial thinking in maintaining plans. In a 2014 study, Otairu et al. stated that in the partnership between the public and commercial sectors (PPPs), the infrastructure procurement approach is a useful instrument for the acquisition of public infrastructure in situations when the public sector is restricted by budgetary limitations. It is an appropriate technique for providing infrastructure for nations that are limited by the amount of tax revenue available with which to build infrastructure in order to support economic development. Cheung et al. (2010, cited in Rahman et al. 2014) argue that the government benefits from risk transfer since the public sector builds and provides the service using its capital assets. As an illustration of risk sharing, the contractors must take on the risk associated with the construction process in any building project. Similar to how the risk connected with design work is shifted to the designer, the government forbids official authorisation for the risk involved with land.

PPPs have the capacity to facilitate the integration of lifecycle costs into the design and construction of infrastructure projects, often leading to the delivery of a project of superior quality. PPPs also promotes the private-sector provision of original and creative ideas for enhancing infrastructure quality. The private sector's ability to access readily accessible private funding sources has a positive impact on how quickly PPPs projects are completed. PPPs projects were built more quickly than conventional projects because of the efficiency with which the project was delivered (Pius 2011). The ability to conserve resources in a variety of different ways is one of the primary benefits that the PPPs strategy offers. According to the opinion expressed by Cumming (2007), the governmental entity has the ability to concentrate on its fundamental advantages and does not have to depend on its own resources for initiatives that are unknown to it. According to Ayman and Hosny (2012), partnerships among the government and the commercial sector have emerged as a viable strategic option for promoting the environmental friendliness of building projects, both from the point of view of sustainability and as a result of the success of such partnerships. The growing acknowledgment of lean principles and their apparent effectiveness prompted the need for a focus on using the expertise and skills of project participants to build sustainable construction by improving values and getting rid of waste. Long-term value for money, improved service delivery, enhanced local economic development and benefits, cost and schedule certainty, effective risk-sharing, risk transfer, innovation and technology, the provision of high-quality services, and increased flexibility in service provision were all advantages of PPPs in the South African construction industry (Mashele 2012). PPPs are becoming more popular as a means of progress since governments and other relevant administrative organisations are desperately in need of employing smart infrastructure to improve the quality of life of residents. It has been observed that many governments lack the

finances or resources necessary to even safeguard the public's health in pandemic conditions. This supports the idea that PPPs is a sound method for creating social infrastructure. However, it is evident that the "private sector" sometimes requires government help and financial relief in lockdown circumstances, as in the COVID-19 pandemic emergency throughout the globe; as a result, reciprocal advantages do arise in such collaborations (Jayasena et al. 2020).

Because joint utility has the potential to raise the notion of higher value for what is being paid, which is the foundational tenet of the PPPs concept, governments should investigate the possibility of putting PPPs projects out for tender in the spirit of joint utility. According to Tvarnø (2014), a strategic alliance is formed with the intention of entering into a commercial agreement that will result in more activity, increased cooperation, and enhanced opportunities for each of the parties involved. As a result, the private sector was able to satisfy the needs of customers by developing new kinds of contracts, one of which was partnership. When compared to typical procurement arrangements, PPPs offers several advantages to both the government and the public. Belachew and Shyamasundar (2013) mentioned that the advantages to government agencies involve better management, lowering the risk, enhanced innovation, and service quality that contribute as support is provided according to a defined service level contract, and so forth. The advantages to people include the simple utilisation of assistance, improved service quality, and so forth, by optimising the utilisation of company skills, distributing risk to the party ablest to manage or absorb it, providing benefit to a large number of people, concentrating on production and benefits, and other factors, with PPPs initiatives also reducing the cost of projects, and so on.

2.3.2 Challenges of PPPs in the Construction Industry

In several nations, a number of projects using the PPPs procedure have not been successful in reaching their goals. The performance of both the governmental and the business community will determine the outcome of a project that involves collaboration between public and private entities, which may either be successful or unsuccessful. Therefore, in order to create successful initiatives, it is of the utmost importance to properly identify and study the roles that both of the sectors play, as well as their performance. In addition, in order to make public–private partnership initiatives effective, it is crucial to gain knowledge from previously unsuccessful ventures (Rahman et al. 2014). According to Nataraj and Geethanjali (2007), a comprehensive assessment of public–private partnerships and private business operations finds a number of barriers to PPPs in the region of focus, notably in significant countries like India: the authority's supporting rules and system of regulations have a flaw; the market currently lacks adequate instruments and the ability to satisfy the long-lasting loans and equity requirements of infrastructure's investments; a dearth of financially viable development projects; and a shortage of government agencies and personnel equipped to oversee the PPPs procedure. A study conducted by Okedare and Olanrewaju (2021) reveals the problems that arise with PPPs structures, especially in the BOT model, when it comes to the supply of hostel housing in Nigeria. The study highly ranked the lack of long-term funding and a high rate of corruption. Insecurity was placed last, followed by insufficient funds and a reluctance to change. Dechev (2015) identified a number of issues that can arise during the implementation of PPPs, such as a lack of objective analysis; insufficient knowledge to access the true capacity; a lack of public access to documents for selection; insufficient control over the relationship between resource input and quality; a lack of trustworthy risk transfer processes; and the absence of a precise description of the control that is used for risk management.

Paanakker and Raynaers (2020) emphasised the fact that PPPs provide an uncommon situation in which public and private values or moral standards interact and compete with one another. The principles and moral standards upheld by the private sector are not the same as those upheld by the public sector. As a result, there may be difficulties associated with having the public and entrepreneurs working together.

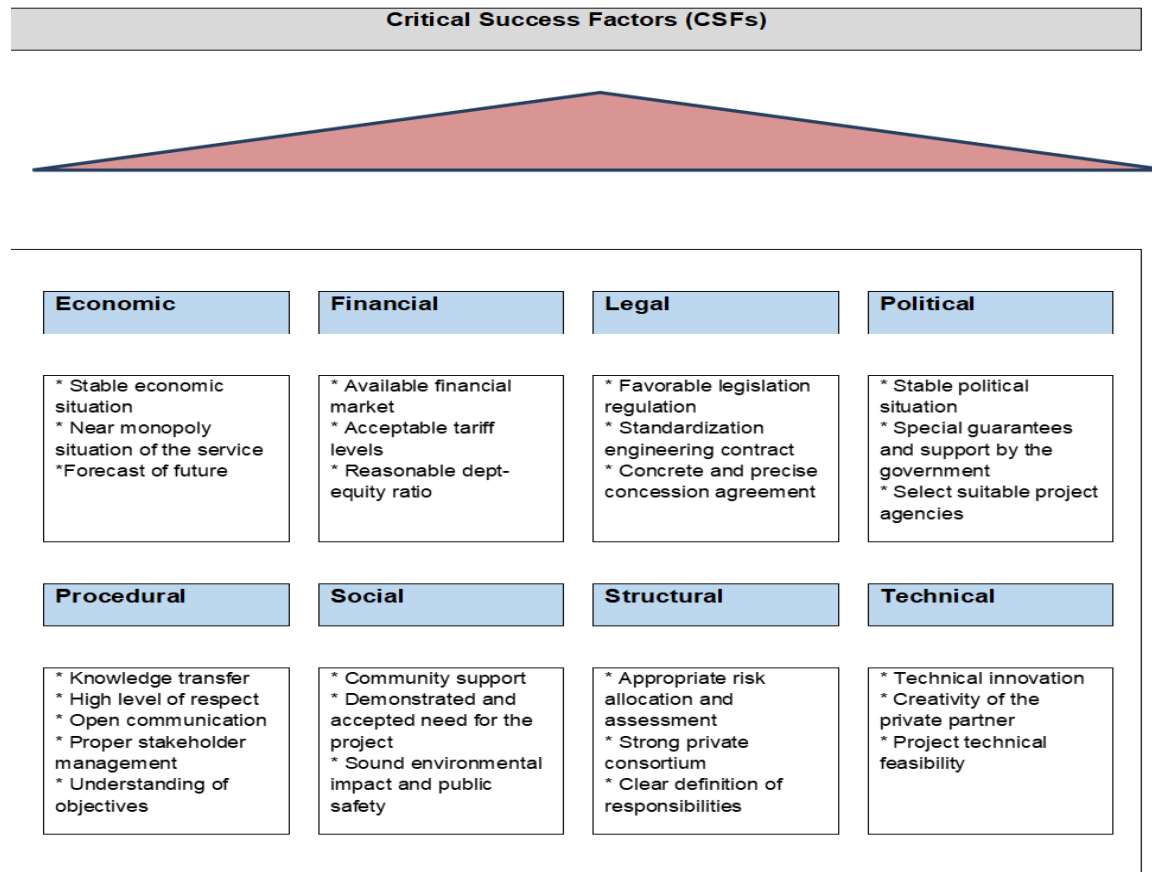
Despite the notable advancements in the governmental and legal environment, there is still lacks improvements in transactional know-how and PPPs finance facilities, which are important problems. Additionally, it is essential to provide a compelling motivation to the implementing organisations in order to foster a greater number of financially viable PPPs initiatives, which will help investors (Rashed 2013).

2.4 CSFs for PPPs in the Construction Industry

The term critical success factors were coined by Rockart (1982) to refer to "those few key areas of activity in which favorable results are absolutely necessary for a manager to reach his goals". As stated by Rowhinson (1999, cited in Emmanuel 2013), crucial success elements are the underlying concerns as these are necessary for cooperation to function effectively and successfully, and are built into every project. Based on the results of many studies (Emmanuel 2013), distinct CSFs for PPPs projects can be found in nations all over the world, including the UK, Australia, Hong Kong, China, Singapore, Lebanon, Malaysia, and Kuwait, in addition to Nigeria. Among the crucial elements required for PPPs to be implemented successfully are a regulatory framework that is both clear and solid, a detailed feasibility assessment, and adequate risk distribution. The implication for public policy is that the government should create a strong foundation for legislation and regulation for public–private partnerships, and the implication for public policy is that upcoming PPPs initiatives need to be awarded to a

concessionaire with a strong coalition and suitable knowledge of finance (Emmanuel 2013).

According to the findings of a questionnaire survey that was carried out by Deng (2021), there are nine top achievements variables that might impact the ability of PPPs to be able to attain sustainability. These factors include the following: capability for independent funding, governmental finance, loyalty or assurance, adequacy of the legislative structure, accessibility of the banking system, execution of a feasible analysis statement, efficiency of handling risks, investing in projects, and price. To get better knowledge of the critical aspects that contribute to the effective implementation of PPPs in Indonesia's drinking water system. Nabila and Reza (2021) listed five CSFs: lengthy financing, skilled collaborators, solid loyalty from the contractual body and the federal and state governments, demonstrable support from politicians, and the creation of an integrated PPPs headquarters in Indonesia. The specificity and concreteness of the lease, the ability to fairly distribute the sharing of hazards, the technological viability of the undertaking, the loyalty of collaborators, the attraction of the financing packaging, an explicit statement of duties, the existence of a solid confidential connection, and a genuine commitment are the eight critical success factors observed by Aerts et al. (2014) as being of higher significance in port PPPs. It was determined that those eight elements were the most important out of the many CSFs, which were organised and grouped according to the kind of value or objective that was being pursued. Figure 5 provides a summary of the CSFs organised in a clustered format.

Figure 5*Cluster Overview for CSFs in PPPs*

Note. Source: Aerts et al. 2014

Stable politics, a concise and comprehensive agreement, the presence of strong fiscal policies, the consistency with which services are delivered, the assessment and distribution of hazards, a suitable regulatory structure, knowledge of the business community, revenue for the private industry, and a suitable fee or tax for a project are among the key characteristics of PPPs initiatives (El-Sawalhi & Mansour 2014). Shi et al. (2016) stated that there are eight essential elements of achievement for water-related endeavours, namely, revenue generation, the performance of assets, equitable distribution of hazards, favourable contracting procedures, internal authority cooperation, skilled consultants, governance of corporations,

and regulatory oversight, which were identified in an investigation of four water-related contracting undertakings in China via the Transfer Operate Transfer system. According to Ameyaw et al. (2017), 17 CSFs are either major or large, indicating that the set of choices has a great deal of value for the company's investment decisions. Acknowledgement as well as encouragement from the community for the role of entrepreneurs in utilities provision, a governmental water body that is dependable and knowledgeable, the appropriate financial ability of the local or subnational legitimacy, dedication to politics from the ruling party with regards to PPPs for water delivery, a well-designed PPPs contract, and the availability of supportive legislative and regulatory structures for water projects are among the top eight CSFs. According to research by Surachman et al. (2020), the success of PPPs water projects in Indonesia depends on an external component of favourable stakeholder support. First, all members of society are considered stakeholders, whether they are users, customers, or impacted communities. As everyone knows, the governing body serves as the venture ownership and the other firm serves as the sponsor, making the fact that they do not constitute the primary stakeholder in a PPPs notable. The second CSF is the variable related to government preparation, whereby making government policy to assist the growth of PPPs entails providing the project with support and guarantees from the government, as well as making sure that all rules are observed and put into practice. The third success element comes out of the initiative's package themselves, which includes the project's technical viability and the regulations and legislation that serve as the development's framework, and the project's financial sustainability. According to Dahiru and Muhammad's (2015) study in Nigeria, strong private consortiums, stable politics, safeguards to protect from risky politics, the effective distribution of risks and collaboration, solid governance, and a supportive legal framework are the most crucial success elements for completing PPPs projects. Other crucial success

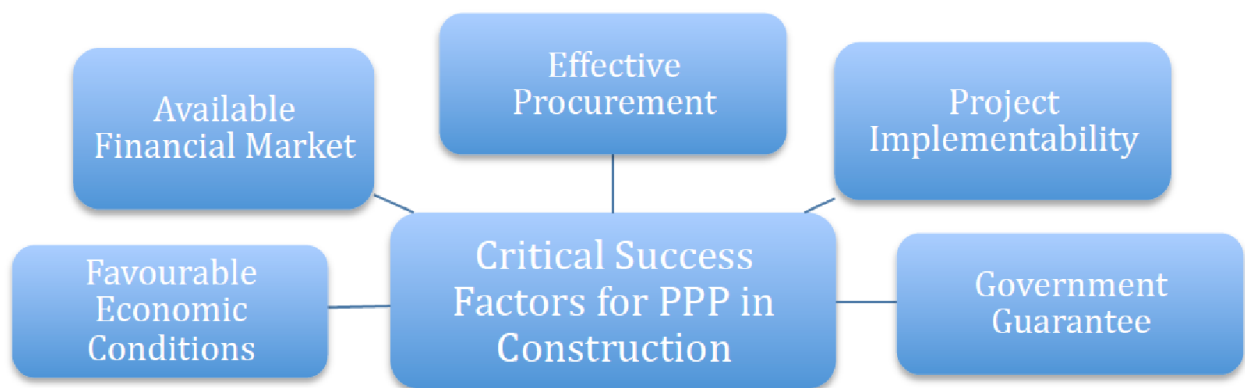
elements include the engagement of the government in providing essential guarantees, the sincerity of the parties involved in the partnership, and political backing for long-term financing. It was determined that the economic sustainability of a PPPs project was the single most crucial factor in deciding the project's ultimate achievement in Nigeria. According to Dada and Oladokun (2008), crucial factors include the "effective distribution of risk through dependable contractual agreements", "robust financial package", "advantageous investment climate", and "a dependable consortium of concessionaires with formidable technical expertise". These factors are listed in descending order of how critically important they are to the project's success. According to the findings of a study that compared the PPPs practice trends of the UK and the UAE, which was carried out by Almarri and Abu-Hijleh (2017), there was a significant amount of overlap between the two countries in terms of the important success elements. Out of the total of eighteen criteria that are vital to the success of adopting PPPs, both nations identified the same nine aspects as being the most important ones. These variables included a commitment from both public and private partners, adequate risk distribution, a politically supported procurement procedure, a dedicated and capable government authority, a robust commercial group, a transparent procurement process, an in-depth cost–benefit analysis, and effective governance. The following components are both necessary for the project's execution to succeed and, in the absence of them, would make it fail: the existence of trading partners' suitable economic circumstances, and the existence of confidence, credibility, and inspiration, as well as useful management and adherence with safeguarding the environment norms are among these factors, which also include transparency, a viable and efficient bidding process, businesses viability, an income that is in line with the hazards assurance from government agencies, shared risk, solid government regulations, the existence of marketplaces, beneficial financial circumstances, the existence of

confidence, credibility, and inspiration (Forrer 2010, cited in Mulyani 2021). According to the findings that were presented by Ahmed and Bin Sipan (2019), a total of six essential PPPs succeeds prerequisites for providing suitable housing in Nigeria. These elements include, among others, the presence of qualified employees, access to alternative funding sources, a favourable investment climate, transparent interaction, and openness in the procurement procedure. Hardcastle (2005) did a factor analysis on the important success determinants for PPPs by speaking with the leaders and executives of companies who participated in the UK's PFI projects. These organisations had been surveyed since they were part of PFI projects. The investigation revealed that the most significant aspects may be divided into five distinct categories.

The five CSF categories that have been discovered are shown in Figure. 6 below.

Figure 6

CSFs for PPPs in the Construction Sector



Note. Source: Hardcastle 2005

The process of purchasing goods or services should always adhere to the principles of openness and healthy competition. By making the institutions, methods, and choices involved in the procurement process accessible to either the general public or designated

representatives, transparency in the process may be assured. This encourages monitoring, evaluating, and commenting on, as well as exerting influence on the aforementioned processes and choices by the stakeholders. In order to gather information for the Butterworth Outer Ring Road (BORR) project in Malaysia, a thorough interview and well-structured questionnaires were employed to extract customer perceptions from the public sector, as a result, the five most important CSFs for the Malaysian BORR expressway have been determined to be an efficient communication structure, excellent project governance, the accountability and loyalty of each sector, a competitive bidding procedure, and the capability of delegating power (Ghazali et al. 2017). Rather than just centralising and regulating the process, developing the internal expertise of different departments to oversee the purchasing process of PPPs projects and facilitating coordination throughout the procedure will assist to ease the roadblocks in the project administration (Helmy 2011).

According to Hardcastle (2005), the viability of PPPs projects is largely dependent on the existence of a favourable legislative framework that makes it possible for the projects to be implemented without placing excessive constitutional restrictions on the participation of the private sector.

Given that the majority of respondents in the research conducted by Emmanuel (2013) rank government guarantee as the most important CSF, this conclusion also implies that if PPPs projects are implemented in any concession project, most of the individual investors in Nigeria would prefer to have the government's assurances of the anticipated revenues that may result from such projects. In a similar vein, private investors should have assurances about the policies of the government regarding infrastructure projects before undertaking such initiatives.

For the initiative to be successful, a dedicated government is necessary to provide a guarantee against certain dangers. It is the responsibility of both the local administrations as well as the federal government to provide the necessary assistance for the West Semarang Project (Adiyanti 2021). Government assurances are essential for making PPPs ventures viable. The public provides guarantees to the individual entity by safeguarding the monies engaged either via sovereignty assurances or by securing the project's cash flows, such as by the execution of an agreement. This encourages the individual partner to invest further funds into the undertaking, thus raising its likelihood of success. Additionally, it encourages the private sector to spend more money in public projects, which allows for the development of more worthwhile initiatives for the community (Almarri & Abu-Hijleh 2017).

According to Hardcastle (2005), the government must have sound economic policy in order to maintain a stable and expanding economic environment. Such an atmosphere is favourable for new ventures and offers confidence about the likelihood of good outcomes.

Table 2 provides an overview of important success elements together with the literature references for each aspect. This research identifies the important success characteristics, all of which are crucial for the success of PPPs in the construction industry.

Table 2*CSFs for PPPs in the Construction Industry and Literature Sources*

No.	CSFs	References
1.	Regulatory framework and legislative structure	Emmanuel (2013), Deng et al. (2021), El-Sawalhi & Mansour (2014), Shi et al. (2016), Surachman et al. (2020), Dahiru & Muhammad (2015), Almarri & Abu-Hijleh (2017), Mulyani (2021), Hardcastle (2005)
2.	Feasibility assessment/cost benefit analysis	Emmanuel (2013), Deng et al. (2021), Almarri & Abu-Hijleh (2017), Mulyani (2021)
3.	Risk distribution	Emmanuel (2013), Deng et al. (2021), Aerts et al. (2014), El-Sawalhi & Mansour (2014), Shi et al. (2016), Dahiru & Muhammad (2015), Dada & Oladokun (2008), Almarri & Abu-Hijleh (2017), Mulyani (2021)
4.	Capability for independent funding and robust commercial groups	Deng et al. (2021), Almarri & Abu-Hijleh (2017), Mulyani (2021)
5.	Governmental finance	Deng et al. (2021), Adiyanti & Fathurrahman (2021), Aerts et al. (2014), El-Sawalhi & Mansour (2014), Ameyaw et al. (2017), Mulyani (2021)
6.	Loyalty or assurance	Deng et al. (2021), Adiyanti & Fathurrahman (2021), Aerts et al. (2014), Mulyani (2021), Ahmed & Bin Sipan (2019)
7.	Accessibility of the banking system	Deng et al. (2021), Ahmed & Bin Sipan (2019)
8.	Investing in projects and price	Deng et al. (2021), Mulyani (2021), Ahmed & Bin Sipan (2019), Hardcastle (2005)

9.	Skilled collaborators	Adiyanti & Fathurrahman (2021), El-Sawalhi & Mansour (2014), Shi et al (2016), Ahmed & Bin Sipan (2019)
10.	Politicians' support (stable politics)	Adiyanti & Fathurrahman (2021), El-Sawalhi & Mansour (2014), Ameyaw et al. (2017), Dahiru & Muhammad (2015), Almarri & Abu-Hijleh (2017)
11.	Technological viability	Aerts et al. (2014), Surachman et al. (2020)
12.	Explicit statement of duties (scope)	Aerts et al. (2014), El-Sawalhi & Mansour (2014), Ameyaw et al. (2017)
13.	Genuine commitment	Aerts et al. (2014), Almarri & Abu-Hijleh (2017)
14.	Suitable amount of fee or tax	El-Sawalhi & Mansour (2014)
15.	Stakeholder support	Surachman et al. (2020)
16.	Transparent procurement process	Almarri & Abu-Hijleh (2017), Mulyani (2021), Ahmed & Bin Sipan (2019), Hardcastle (2005), Ghazali et al. (2017), Helmy (2011)

2.5 Overview of the United Arab Emirates' Construction Sector

The construction sector is very important to the economy of the UAE and serves as a primary factor in the country's overall expansion and improvement. The construction sector is particularly susceptible to changes in interest rates and other loan terms because of its reliance on consumer spending. Because of the discovery of oil, the UAE has seen a sharp rising in the amount of construction projects undertaken over the course of the previous two decades. There is a clear and substantial link between the profits made from oil and the money spent on building. The construction business, on the other hand, is subject to cyclicity due to a number of factors, including economic and political situations, which generate fluctuations in the amount of construction works (Shawa 1995). The UAE has seen a remarkable transition

over the course of the last several decades as a result of enormous building projects that have reshaped its urban environment and established the nation as a worldwide centre for both commerce and tourism. The construction business in the UAE is growing swiftly and attracting a lot of outside investment. To ensure the expected outcomes and an excellent standing globally, the sector has implemented the best practices. The Burj Khalifa, the highest tower in the world, is only one of the ambitious architectural projects the UAE is renowned for (Shamsi 2019). The construction sector makes a substantial contribution to the gross domestic product (GDP) of the UAE, which in turn encourages major investments on both the national and international levels. It is widely recognised that the successful completion of construction projects has a beneficial effect on the UAE's socio-economic standing (Altarawneh & Samadi 2019). The UAE is home to a diverse variety of construction projects, including those in the residential, commercial, infrastructural, hotel, and entertainment industries. The UAE has been through a period of rapid urbanisation, with major cities such as Dubai and Abu Dhabi developing at a rate that is unparalleled. The UAE economy is centred on the construction industry; thus, the industry's forecast for strong development in the future years is quite realistic. The country's economic growth and development are significantly influenced by the building sector. The country can overcome its socio-economic issues and better satisfy its new national economic demands by considerably strengthening the industrial base of the economy via the competitive construction sector. The UAE's economy, which is made up of seven emirates, cannot overstate the importance of the construction industry sector's economic growth (Cherian 2020). The government has taken the initiative to invest in developing infrastructure in pursuit of providing the needs of a rising population and to satisfy the requirements of a developing economy. The UAE is home to some of the most inventive and

forward-thinking building projects in the world, as seen by iconic skyscrapers and monuments including the Burj Khalifa, Palm Jumeirah, and Yas Island, for example.

The government of the UAE has taken a proactive stance by adopting a forward-thinking strategy and putting forth strategic plans and programmes to encourage the construction industry's continued and sustainable growth and development.

2.6 CSFs in the UAE Construction Industry

In this section, the UAE serves as the focal point as we investigate the distinct CSFs that impact the performance of PPPs in the constructing industry. It investigates the ways in which cultural and social dynamics, backing from the government, legal frameworks, and creative practices all play a part in the formation of PPPs ventures in the UAE. According to the findings that were presented by Areefi (2016), the most important economic and financial goals for implementing PPPs in Abu Dhabi include maximising revenues and government assistance, achieving value for money, and growing the economy. In addition, the findings indicated objectives pertaining to quality, such as the standard of public facilities that were delivered and the emphasis on the function. In addition, studies have demonstrated that characteristics such as the plan phase, PPPs framework, and economic climate are considered to be fundamental features of effectively carrying out a PPPs project in Abu Dhabi. According to a study conducted by Almarri (2015), there are nine most important characteristics that will determine whether or not a public–private partnership is successful in the UAE. These factors include the dedication of both public and private entities; proper allocation of risk; a dedicated and capable public organisation, consisting of a robust private consortium; the use of a competitive procurement procedure; political backing; an in-depth cost–benefit analysis; and good governance, which are all essential components. According to the findings as a whole,

the five most CSFs, ranked in order of importance, are as follows: the presence and efficacy of a suitable regulatory and legal framework for PPPs, the appropriate allocation and distribution of risks among project stakeholders, a well-defined project brief and desired outcomes from the client, a thorough and financially viable feasibility study for the project, and the effective implementation of project value management systems across all project phases. In decreasing order, the three variables that were evaluated as being of the least importance are as follows: savings and the requirement for funding, chances for innovation, and an efficient technology transfer process (Al-Saadi 2015). The PPPs structures of the various countries are determined by the political and economic environments of those specific countries (Almarri & Boussabaine 2023). Following the completion of the analysis and the presentation of the findings according to Alredha (2017), it became clear that the various elements had a greater impact on some players than they did on others. The government's primary reason for participating in PPPs was to increase its chances of achieving technical and managerial success. This is the case because most government agencies are incapable of keeping pace with technological advancements and possess insufficient managerial frameworks, which is why they need to collaborate with and profit from the private sector, which excels in both of these aspects. On the other hand, the primary motive for the private sector to participate in PPPs was motivated by regulatory and economic factors. These considerations have a significant influence on the private sector's capacity to function with the required degree of flexibility. Therefore, the private sector is accountable for enhancing their management and technical capabilities, while the government is accountable for implementing equitable and strong regulations, and providing substantial capital investment to incentivise private sector collaboration. This collaboration aims to achieve enhanced service delivery to the people of the UAE. According to Al Zamil (2019), the most frequently recognised CSFs are risk sharing

and allocation, governmental backing, a robust corporate consortium, and good economic policy, whereas the key factors for success include a conducive legal framework, clear procurement processes, and widespread public and community backing. The survey results, collected from project leaders in the UAE and evaluated by SPSS, indicate a favourable association between the impression of PPPs and crucial achievement variables. These factors include a beneficial economic situation, a solid political and cultural environment, and project implementability (Mustafa 2017).

Table 3

CSFs in the UAE Construction Industry and Literature Sources

No.	CSFs	References
1.	Government assistance	Al Areefi (2016), Al Zamil (2019)
2.	Quality of the public services	Al Areefi (2016)
3.	Proper planning	Al Areefi (2016), Alredha (2017)
4.	Regulatory framework and legislative structure	Al Areefi (2016), Almarri (2015), Al-Saadi (2015), Alredha (2017), Al Zamil (2019)
5.	Viable economic environment	Al Areefi (2016), Mustafa (2017)
6.	Risk sharing	Almarri (2015), Al-Saadi (2015), Al Zamil (2019)
7.	Commitment of both public and private sides	Almarri (2015)
8.	Committed and competent public agency	Almarri (2015)
9.	Robust private consortium	Almarri (2015), Al Zamil (2019)
10.	Use of a competitive procurement procedure	Almarri (2015), Al Zamil (2019)

11. Political support	Almarri & Boussabaine (2023), Almarri (2015), Mustafa (2017)
12. Cost–benefit analysis/ Feasibility study	Almarri (2015), Al-Saadi (2015)
13. Technological viability	Alredha (2017)

2.7 Challenges and Opportunities for PPPs in the UAE

Research using a between-subjects experimental design and a one-factorial experimental design (corporate diplomacy with or without governmental engagement) was carried out, and a total of 199 citizens of the United Arab Emirates served as the sample population for the survey. The findings suggest that business diplomacy with political ties leads to a stronger sense of moral, pragmatic, and regulatory organisational legitimacy. This relationship is somewhat mediated by the credibility of the media, the legitimacy of the government, and the legitimacy of the problem (Sarah & Diana 2021). The government of the UAE (2018) has outlined a strategy for developing a knowledge-based, expert-driven, and diverse workforce as part of an effort to build a more sustainable and competitive economy. In order to do this, it has been determined to combine the efforts of the government and the business sector, as well as to pool cash, human capital, and technological resources in order to realise the goals. In addition, the government of the UAE highlighted a number of other benefits that may be derived through public–private partnership initiatives. One of these benefits is the ability to entice local, regional, and even international investors to put money into the projects in question. Because the private sector businesses that are participating in these projects employ competitive bidding, the UAE government may also be able to save money as a result. This is because the UAE government may use this channel to reap such

advantages. This would also result in an increase in the number of jobs that are created, as well as an increase in the amount of income for those living in the UAE (Alkaabi 2022). In fact, the PPP method may be seen as a desirable transformation mechanism that has the potential to make a variety of features of the GCC economy more accessible. It may grow the private sector, infuse foreign money into key industries, and establish the groundwork to achieve economic diversity by reducing reliance on the nation's natural resources. In addition, the GCC governments are able to prevent some of the negative effects of privatisation with the assistance of the PPPs model, which enables these countries to keep ultimate authority over the projects. PPPs may also serve to promote investment-friendly settings and improve national competitiveness by bringing in top international businesses with transferrable skills and best practices. This can be accomplished via the use of foreign corporations as partners in the PPPs (Saadi & Abdou 2013). The authorities of Abu Dhabi and Dubai have made substantial investments in energy and desalination plants, airfields, roads, educational institutions, water infrastructure, and healthcare facilities in the United Arab Emirates. This showcases a firm dedication to infrastructure advancement and presents several enticing prospects for private sector participation. Additionally, ad hoc PPPs have been put into effect in Abu Dhabi's power, water, and educational fields (including the Paris–Sorbonne P3 project on Reem Island and the Abu Dhabi campus of Zayed University). By increasing the number and effectiveness of P3 transactions while reducing the expenses attributed to government balance sheets, a complete P3 law may be put into place. Effective P3 legislation will also increase governments' capacity to compete for partners and funding from the private sector. The UAE's short-term infrastructure demands will be lessened by its natural resource riches, but its long-term infrastructure requirements will need growing use of P3s as an economic method for the construction of programming infrastructure (Stark & Qureshi 2010). According

to Moustafa (2007), the UAE's Ministry of Labour (MoL) is the government body in charge of handling a labour market that is mostly made up of foreign workers. With the help of PPP, the MoL is now able to offer all of its customers effective online services in an efficient way. The results of 10 interviews conducted by Al Fardan and Marochi (2021) show that the business sector is ready to work with the government more in terms of putting gender policies into place. The people they talked to knew that the United Nation (UN) goals and government policies on gender were important for growth. This shows that the UAE government has an opportunity to work more closely with the business sector in this area. The outcomes show that the UAE's biggest problems with implementing its gender policy are a lack of openness, reporting, and correct data on gender balance and pay gaps in both the private and public sectors.

2.8 Comparative Analysis: Developed vs Developing Countries

According to a comparison between the UK and Nigeria that was carried out by Adeoye and Islam (2019), it notes the missing gap between the practices and accomplishments of both nations with the intention of encouraging favourable results for PPPs in Nigeria. Based on the findings of the literature review, the essential success criteria in the UK have been identified as the following: transparent procurement, quality private consortium, public backing, strong political support, appropriate risk distribution, etc. These are hints that the economy of Nigeria should take to heart in order to make the most of the PPP's method of funding infrastructure projects. According to a study by Ke, Wang, and Chan (2010), comparisons between China and Hong Kong and the UK and Greece are made. In China and Hong Kong, the public sector intended to keep the majority of the political, legal, and social risks, as well as share the majority of lower-level and disaster risks. On the other hand, the

private sector preferred to be allocated the majority of the meso-level risks. The public sector in the UK has been shown to have the least favourable risk allocation preferences among these four countries and jurisdictions, according to comparative studies of risk allocation preferences, followed by Greece, Hong Kong, and China, and was best able to shift PPPs risks to the private sector. The majority of respondents from Greece supported keeping the macro-level risks in the public sector. All of the respondents agreed that private investors need to manage the meso-level risks more actively. Respondents from Greece stated that the private sector needs to take on a more proactive role in the management of the micro-level risks, while the respondents from China and Hong Kong believed that the majority of the micro-level risks ought to be managed in an equal manner by the public and private sectors, the findings of the test indicate that there are five causes that significantly differentiate Ghana and Hong Kong from one another. In Ghana, the economic and social advantages of PPPs are rated higher than reasons relating to efficiency and quality of service, but in Hong Kong, efficiency and the quality of service are ranked higher than PPP-related reasons. Moreover, two compelling justifications for adopting PPPs were found to be extremely relevant in both countries: the facilitation of the expedited delivery of public infrastructural works and the ability to distribute risks among several parties (Osei-Kyei & Chan 2018). Both of these reasons support the idea that PPPs should be implemented. After conducting a comparative investigation of eight nations that fall into the groups of developed and underdeveloped economies, and also engage in many PPPs initiatives, the results of the analysis reveal that the industrialised nations included for the study execute more projects and record more projects with greater overall values, their projects are more varied and, in addition to economic infrastructure, also include social infrastructure, which is more numerous than economic infrastructure and, in certain industrialised nations, has a greater value. Since each economy is

unique and different, there is a degree of overlap between the categories and sectors, since this is not a universally applicable norm that can be strictly enforced across all countries. It is recommended to revise the institutional framework, laws, and regulations governing PPPs in order to attract greater private investment. Additionally, it is important to focus on developing essential economic infrastructure and aligning the structure of PPPs projects in developing countries with that of developed countries. This is because a well-designed PPPs structure contributes to economic growth and enhances the overall prosperity of the national economy (Đorđević & Rakić 2020). The research findings by Cheng et al. (2020), who studied the UK, India, and China, show that the unequal geographical distribution of PPPs and development fluctuation are common occurrences in the three nations. The policy and growth of PPPs in other nations are significantly influenced by the UK. However, there are notable variances in the PPPs institution, application, and project features among nations due to the combined effect of elements including economics, urbanisation, political regime, and social culture. The growth of PPPs globally has a tendency to converge due to global exchanges, knowledge spillovers, and the encouragement of intermediaries. In the research that Osei-Kyei and Chan (2017) conducted with relation to Ghana and Hong Kong, they found that it is very important for there to be a positive legal and regulatory environment in both of the countries. In addition, the transfer of technology, technical innovation, public and community engagement and coordination, and the provision of financial assistance by the government are all seen as having a low level of significance in both jurisdictions. The results of the non-parametric test indicate that some CSFs have a different level of significance in Ghana compared to Hong Kong. In particular, CSFs that are directly connected to the organisation and relationship of PPPs projects are particularly crucial in Hong Kong, while CSFs that are related to the socio-political and economic circumstances of PPPs projects are highly critical/essential in Ghana.

Comparing the institutional impact differentiators in PPPs projects in Australia and India, Ganesh et al.'s (2020) findings suggest that normative institutions are essential to the development of a spirit of partnership in PPPs, the success of normative institutions is contingent on the incorporation of not only norms but also values into PPPs processes, and the complexities and uncertainties that are encountered throughout the PPPs project lifecycle can be overcome through shared interaction and cooperation. Investigating the variables that influence the differences between developed and growing economies and the types of PPPs that can be used for building projects, if you want to choose a PPPs scheme, the five most important things according to Vu et al. (2023) are the "financial attractiveness of the project to investors", "financial viability based on NPV and risk adjusted PV", "stable politics and government system", "supportive political climate for PPP projects", and a "mature legal system required to support PPPs procurements". These factors are listed in the order of their importance. The main findings about PPPs in developed and developing nations are connected to some extent. The following may be used to sum up this: as a nation's degree of development rises, the PPPs strategy is refocused on micro issues. Following the maintenance and enhancement of economic and social infrastructure, governments concentrate on enhancing the inhabitants' quality of life. These essential infrastructure demands include transportation, electricity, and water supply. However, PPPs that include the construction of social infrastructure cannot be created via conventional PPPs like concessions, and must instead adopt more collaborative forms, which ultimately became a common practice in the nation. While regulations have always been an important part of PPPs policy, as PPPs grow more collaborative, they become even more important for preserving the system's accountability and transparency (Parlak & Hashi 2021).

Table 4*Comparative Analysis: Developed vs Developing Countries*

Region	Authors	Literature Sources (Results/Summary)
Developing Countries	1. Ke et al. (2010)	The public sector desired to retain the majority of political, legal, and social risks; share the majority of micro-level and force majeure risks; and the private sector preferred to be assigned the majority of meso-level risks.
	2. Osei-Kyei & Chan (2018)	Economic and social advantages; efficiency and quality of service; promotes the quick delivery of public infrastructure projects; and allows for shared risks.
	3. Đorđević & Rakić (2020)	Changes need to be made to the PPP's institutional structure, as well as to the rules and regulations that govern it, along with efforts to attract more private money and improve key financial services.
	4. Osei-Kyei & Chan (2017)	Positive legal and regulatory environment; transfer of technology; technical innovation; public and community engagement and coordination; and the provision of financial assistance by the government.
Developed Countries	1. Adeoye & Islam (2019)	Transparent procurement; quality private consortium; public backing; strong political support; and appropriate risk distribution.
	2. Cheng et al. (2020)	Economics; urbanisation; political regime; social culture; global exchanges; knowledge spillovers; and the encouragement of intermediaries.

-
- | | | |
|----|-----------------------------|--|
| 3. | Devkar
et al.
(2020) | Regulative institutions; shared coordination; and collaboration. |
| 4. | Vu et al.
(2023) | Financial attraction of project to investors; financial viability based on NPV and risk adjusted PV; stable politics and government system; supportive political climate for PPP projects; and mature legal system required to support PPP procurements. |
| 5. | Parlak &
Hashi
(2021) | Refocused on micro issues; following the maintenance and enhancement of economic and social infrastructure; governments concentrate on enhancing inhabitants' quality of life; adopt more collaborative forms; and accountability and transparency. |
-

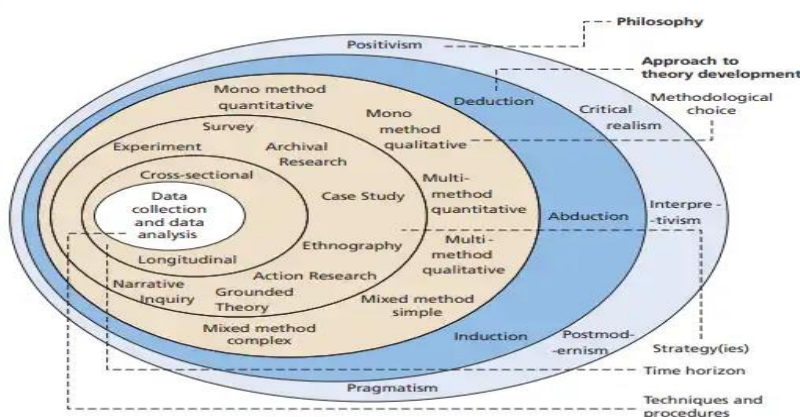
Chapter 3: Research Methodology

3.1 Introduction

This chapter presents the study methodology used to investigate the key success factors that impact PPPs in the construction sector of the UAE. Data are necessary for research in order to verify the findings that are reached at the conclusion of the investigation. As a consequence of this, the researcher needs a method that will guide him through the process of gathering the data and assessing it. For the purpose of directing students who are doing business research, a model based on the research onion that was presented by Saunders, Lewis, and Thornhill (2018) has been used by this study. In addition, the study employs the quantitative technique in its pursuit of understanding the ways in which certain elements impact the achievement of PPPs goals in the UAE, in addition to facilitating a comparative examination between developed and developing countries.

Figure 7

The Research Onion



Note. Source: ©2018 Mark Saunders, Philip Lewis and Adrian Thornhill

3.2 Questionnaire Design

The questionnaire questions were modified from the pertinent portions of a template questionnaire created by using the Internet and Intranet-mediated questionnaires (Google Forms). This instrument was created via a thorough examination of the existing literature to ascertain the key characteristics that lead to the achievement of PPPs in the construction sector of the UAE. It also aims to conduct a comparative comparison between the findings and those from the literature belonging to developed countries. Every element was substantiated by several investigations. As example, according to Deng et al (2021) there are nine key crucial aspects that might potentially affect the effectiveness of PPPs. The variables included in this list are capability for independent funding, governmental finance, loyalty or assurance, adequacy of the legislative structure, accessibility of the banking system, execution of a feasible analysis statement, efficiency of handling risks, investing in projects, and price. This concept was used to gather all the factors. The questionnaire survey for a pilot study in the UAE comprised a comprehensive list of nineteen parameters to determine their importance in PPPs projects.

The participant selection criteria for the questionnaire included practitioners and experts in the governmental and commercial areas, together with researchers who have expertise in the topic of PPPs. The criteria were only focusing on expertise in the domain of PPPs in the UAE, and all other participants without such experience were excluded from the study.

The questionnaire was divided into four sections, which were as follows. The first section of the survey consists of questions about the respondent's demographic information, including their age, gender, education level, designation, years of experience, the size of the organisation, and the extent of their companies' participation in PPPs. The second section

discusses their perceptions of the CSFs for PPPs. Additionally, as stated in tables 2, 3, and 4, each and every question was derived from the literature review.

The third section is all about the comparative analysis, which was conducted between developed and developing countries. This comparison was taken from the previous section's literature study and is shown in Table 4. Using a Likert scale ranging between 1 to 5, where 5 indicates extreme disagreement, 4 indicates disagreement, 3 indicates neutrality, 2 indicates agreement, and 1 indicates strong agreement, the participants were asked to react.

The fourth part was developed to focus on the insights and opinions of the participants through open-ended questions about the key challenges faced by PPPs in the UAE construction industry, what can enhance the success of such PPPs, and what CSFs are unique to the national context.

An educational professional who specialises in project management and, more particularly, in PPPs, was given a draft of the questionnaire so that he could examine it. When he returned, he had made some changes to the structure of the questions, and based on his recommendations and opinions, some questions were taken away and others were added. A pilot test of the questionnaire was run on four separate respondents drawn from academic, public, and business sectors before it was sent out to the whole sample. The outcomes were determined in order to validate the data. The participants were also asked about their viewpoint of the survey, and the input was then collected and deliberated over with the PPPs specialist. Based on the feedback that was offered, some minor adjustments to the phrasing of questions were made.

3.3 Population and Sampling

The purpose of the survey was to collect responses from project managers working in the UAE, specifically targeting project managers employed in both the governmental and commercial domains, since we want to gather their insights on PPPs initiatives based on their prior experiences. The sample was guaranteed to include respondents from both the public and private sectors. The survey is sent to project managers and experts who have experience working in the public and private sectors in the UAE by using the professional network search engine LinkedIn, WhatsApp groups, and relevant companies' web sites. These experts are working in the UAE. Due to the fact that the areas of water and power supply, transportation, and property development are the key sectors that have opted to use PPPs as a part of their procurement strategy, it was required to share the questionnaire with representatives from a wide variety of companies, sectors, and markets so that this study could have a decent amount of coverage.

According to Hair, Money, Samouel, and Page (2007), non-probability sampling, often known as non-random sampling, offers many alternative methods for selecting samples based on subjective opinion. During the first phases of some research endeavours, such as a pilot survey, it may be most convenient to use a non-probability sample. Therefore, the convenience non-probability sampling has been chosen.

The previously mentioned sample size indicates the whole population that was used in the research study using the convenience sampling approach. Choosing volunteers becomes much simpler, allowing them to accurately reflect the whole population (Bell, Bryman, & Harley 2022). The sample chosen for this research consists of individuals from the commercial, public, and academic sectors in the UAE who possess expertise in PPPs within the construction industry of the UAE.

3.4 Pilot Study

Prior to distributing the questionnaire to all respondents, a subset of respondents was selected to assess its effectiveness. This step was essential to verify the precision of the elements comprised in the measures and assess the alignment with the goals of the research, account for any missing information, and ensure that the meaning was unambiguous and free from any potentially misleading terms that could influence the participants' responses. Preliminary investigation was carried out using practitioners in PPPs. The sample included four participants.

3.5 Definitions of Statistical Analysis

3.5.1 Mean Score Ranking

For the calculation of the mean, the following formula by Li et al. (2005) has been used:

$$Mean = \frac{\sum_{i=1}^5 iN_i}{\sum_{i=1}^5 N_i} \text{-----}(1)$$

Where, N denotes the quantity of respondents who provided answers on a Likert scale ranging from "Not at all important" (1) to "Highly important" (5).

3.5.2 Reliability Test

To assess the dependability of the variables, a reliability test will be used. Cronbach's alpha is a statistical metric used to assess the degree of internal consistency within a collection of items, indicating how closely they are connected to each other. The minimal threshold deemed acceptable is 0.70. This analysis will assess the need to remove any item in order to enhance the alpha value and ensure the internal consistency between every level and its leftover elements (Brace, Kemp, & Snelgar 2012).

The formula for calculating alpha, as provided by Devellis (2011), is as follows:

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \sigma_i^2}{\sigma_{y_i}^2} \right) \text{-----}(2)$$

In this context, k represents the number of items, σ_i^2 indicates the total variance of the separate factors, and $\sigma_{y_i}^2$ is the variance of the element in the current scale of individuals.

3.6 Data Collection

Invitations to complete the online survey totalling close to six hundred were sent out. However, only 47 people finished the survey with all of their answers. The link to the questionnaire was distributed and kept up until the 11th of November 2023; a total of 47 people filled out the online questionnaire completely.

3.7 Data Analysis

The objective of the analysis is to prioritise the critical success factors (CSFs) for PPPs in the UAE construction industry. Frequency and mean values will be used to provide information on the relationship between each CSFs and PPPs. The study will analyse variations in the variables that motivate the adoption of PPPs. The ranking methodology employed in this analysis involves gathering questionnaire responses from experts and stakeholders. Each factor will be examined separately, and their overall score will be determined using SPSS descriptive statistics. The factors will then be ranked in descending order, starting with the factor that carries the highest weight.

3.7.1 Comparison Between UAE Factors and Developed Countries' Literature

The comparison is an essential part of this study, since it includes juxtaposing the results obtained in the UAE with those existing in both developed and developing nations. This is a significant contribution to the overall body of knowledge gained from this investigation. This comparative method seeks to identify CSFs for PPPs in a variety of

worldwide settings, with the objective of identifying any similarities, differences, and contextual subtleties among these elements. In order to make our analysis more accessible, we will perform a comprehensive evaluation of the current literature on PPPs initiatives in both developed and developing countries. Case studies, scholarly articles, reports from international organisations, and pertinent official documents will all be part of this study. This technique intends to achieve its goal of extracting significant insights by evaluating a variety of projects and circumstances. These findings have the potential to enrich the knowledge of CSFs in the distinctive construction industry environment of the UAE.

In addition, a questionnaire will be sent to experts or stakeholders in the UAE in order to collect first-hand information on their experiences with CSFs in PPPs projects, as well as their thoughts on these topics. The following comparisons will focus on particular practices, problems, and success factors in a variety of settings.

In addition, a comparison framework will be built in order to comprehensively investigate the CSFs that have been found in each of the different scenarios, in order to promote a thorough and transparent comparative study as its primary goal.

The results of this comparative study will assist in shedding light on the one-of-a-kind problems and possibilities that the UAE faces in the field of PPPs projects. It will also make it possible to identify the best practices and lessons gained from other nations, which can then be implemented to improve the performance of PPPs in the UAE construction sector.

3.8 Ethical Considerations

When performing any kind of study, the researcher must always keep in mind a variety of ethical concerns, which vary depending on the sort of research being done. The respondents' right to privacy is the primary concern raised by this research from an ethical standpoint. In

order to protect the participants' right to privacy, the researcher was required to leave out the participants' identities as well as the names of the organisations that they represented. On the other hand, the sector and the industry in which they worked were highlighted in order to enrich the study and to distinguish between the goals of each sector.

3.9 Limitations

Although this study methodology has been meticulously crafted to provide comprehensive insights into the key success factors for PPPs in the construction sector of the UAE, it is important to recognise some limitations.

Sample Bias: The study may be susceptible to sample bias, especially in regards to the selection process of key informants. Although purposive sampling is used to specifically choose people with specialised expertise, it is important to acknowledge that their viewpoints may not comprehensively include the complete range of stakeholders involved in PPPs initiatives.

The construction sector has an intrinsic dynamism, characterised by the continuous evolution of legislation, technology, and market circumstances. The conclusions of the study may be limited to a particular moment in time and may not comprehensively portray the dynamic character of the sector.

Limits on Data Collecting: The collecting of data may be limited by issues related to time and resources, which might have implications for the thoroughness of the study and the number of respondents included in the questionnaire survey research. Addressing these limitations will represent a significant challenge, although it is crucial in order to get reliable and comprehensive outcomes.

Notwithstanding these constraints, the objective of this study is to provide significant perspectives on the CSFs for achieving success in PPPs within the UAE.

3.10 Conclusion

This chapter elucidates the research methods used in this study. The research employed a quantitative approach and utilised appropriate tools and procedures. The research used the data collecting technique of a questionnaire, and pilot testing was also carried out to guarantee the instrument's validity and reliability. The researcher performed a pilot test with four participants, and quantitative data analysis has been used. Ultimately, this study acknowledged some ethical issues that arose throughout the research process and subsequent data analysis.

Chapter 4: Data Analysis

4.1 Descriptive Statistics

4.1.1 Respondent's General & Demographic Information

The gender distribution of the participants in this research is shown in Table 5 and Figure 8. It is clear that the majority of the respondents were male rather than female, as shown by the ratio of 2 females to 45 males out of the 47 total participants, which corresponds to a participation rate of 4.3% to 95.7.

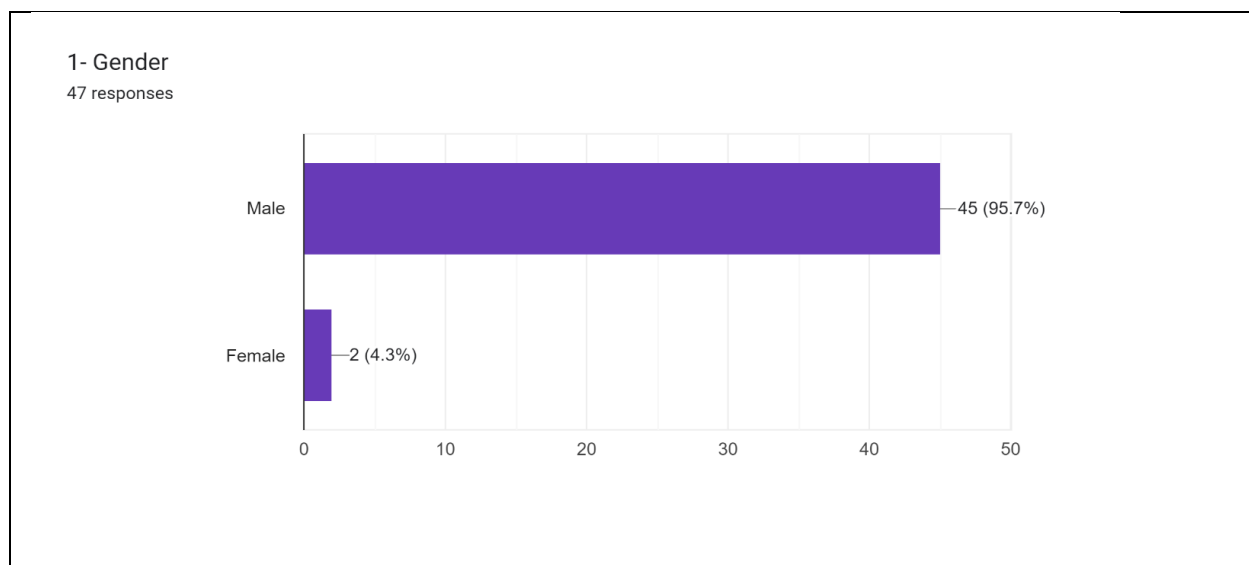
Table 5

Gender of Participants

Gender	Frequencies	Percentage
Male	45	95.7%
Female	2	4.3%

Figure 8

The Gender of Participants



The participants in this research were assigned groups, as shown in Table 6 and Figure 9. This demonstrates that the bulk of the responders (22 out of 47 participants, or 46.8%) were senior-level engineers in their respective companies. There were 13 managers, accounting for 27.7% of the total, 11 high-level managers, accounting for 23.4%, and 1 academic, accounting for 2.1%.

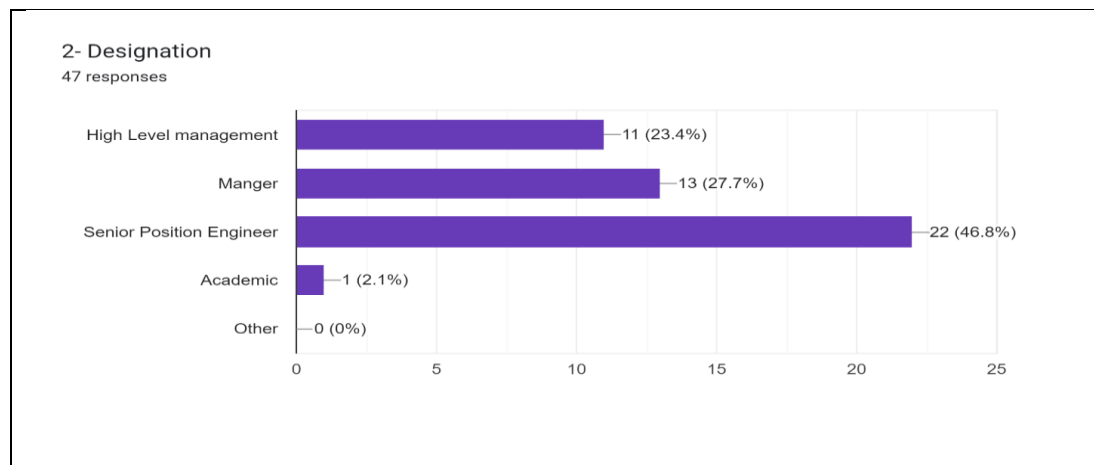
Table 6

Designation of Participants

Designation	Frequencies	Percentage
High-Level Management	11	23.4%
Manager	13	27.7%
Senior-Position Engineer	22	46.8%
Academic	1	2.1%
Other	0	0%

Figure 8

The Designation of Participants



The ages of the people who participated in this research are shown in Table 7 and Figure 10. It was found that the majority of the respondents were between the ages of 35 and 44, with 19 out of 47 participants at a rate of 40.4%. The same was true for those between the ages of 45 and 54, with the same count and rate. Seven of the participants were between the ages of 25 and 34, making up 14.9% of the total, while the number of participants over 55 years old comprised 4.3% of the total.

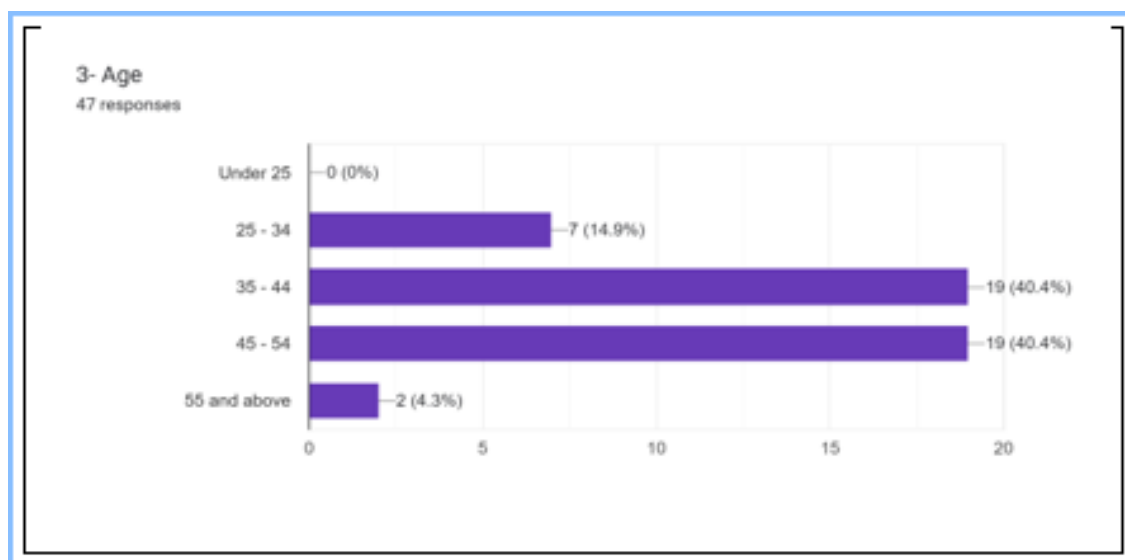
Table 7

Age of Participants

Age	Frequencies	Percentage
Under 25	0	0%
25–34	7	14.9%
35–44	19	40.4%
45–54	19	40.4%
55 and above	2	4.3%

Figure 9

The Age of Participants



The highest educational level of the people who took part in this research is shown in Table 8 and Figure 11. It is evident from the results that the majority of the participants had at least a bachelor's degree, with 22 out of the 47 participations accounting for 46.8%. Master's degrees numbered 21 among them, accounting for 44.7% of the total, while doctorates numbered 4, accounting for 8.5%.

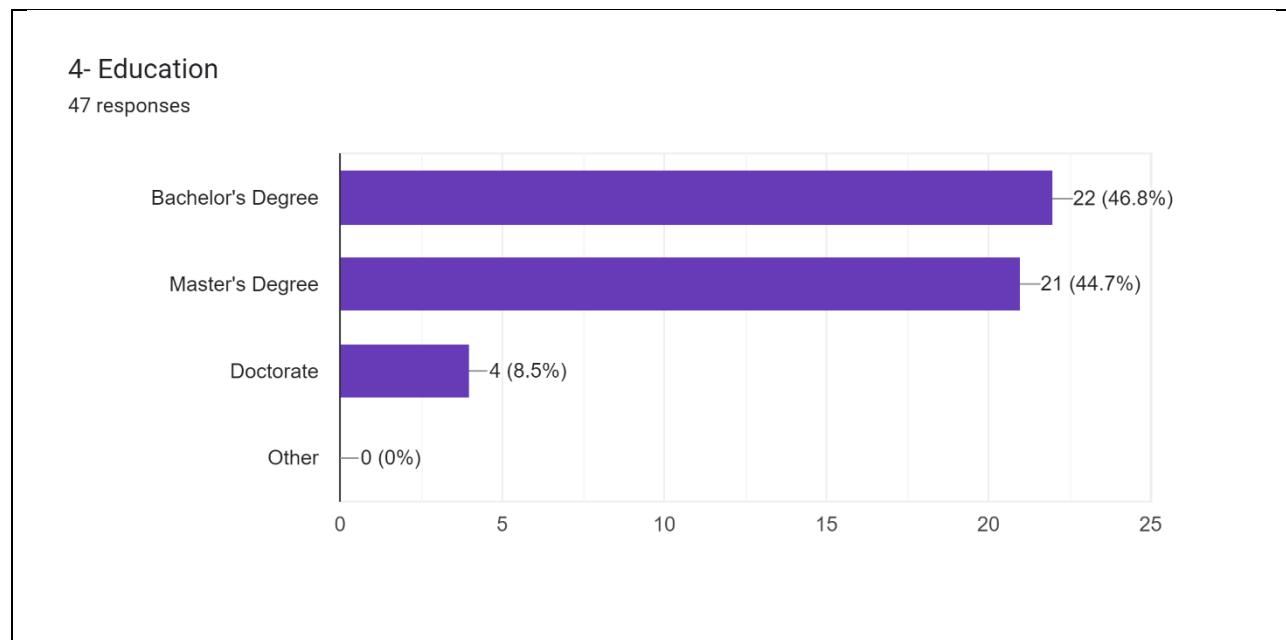
Table 8

Educational Level of Participants

Level	Frequencies	Percentage
Bachelor's degree	22	46.8%
Master's degree	21	44.7%
Doctorate	4	8.5%
Other	0	0%

Figure 10

The Education of Participants



The number of employees in the organisation or corporation for each of the 47 participants is shown in Table 9 and Figure 12. The data suggest that the participant's firm or organisation primarily consists of a certain number of employees, with 12 respondents (25.5%) from firms with 101–500 employees, followed by 11 respondents (23.4%) from firms with 0–100 and more than 2,000 employees, 7 respondents (14.9%) from firms with 501–1000 employees, and 4 respondents (8.5%) from firms with 1001–2000 employees.

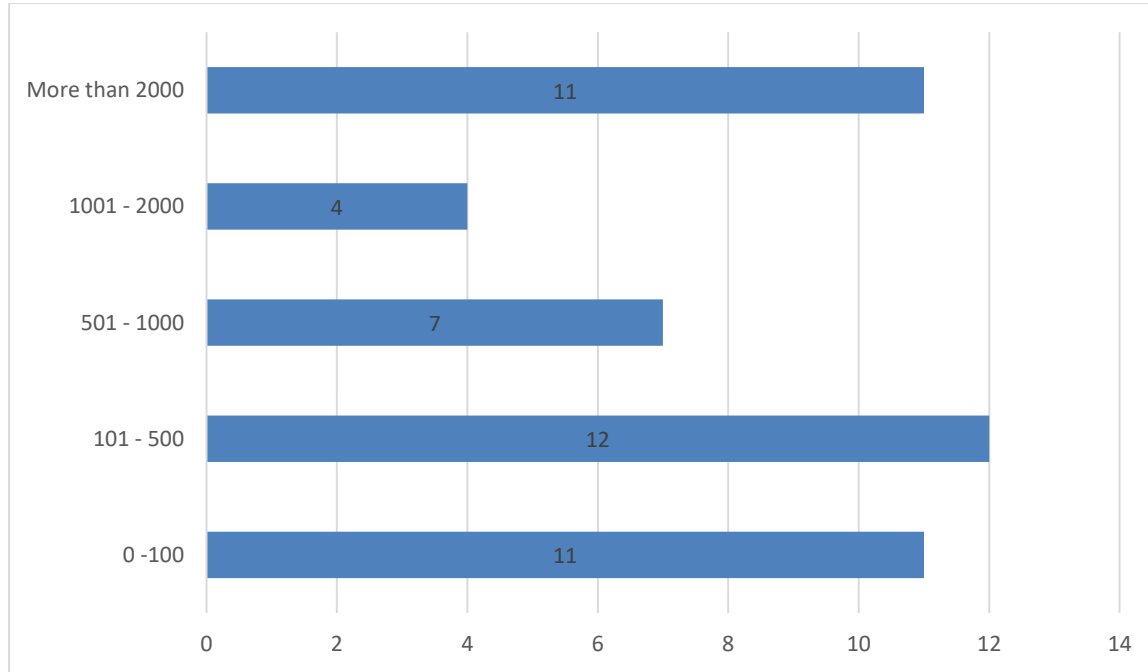
Table 9

Number of Employees in the Participants' Organisations

Number of employees	Frequencies	Percentage
0–100	11	23.4%
101–500	12	25.5%
501–1000	7	14.9%
1001–2000	4	8.5%
More than 2000	11	23.4%
Other	0	0%

Figure 11

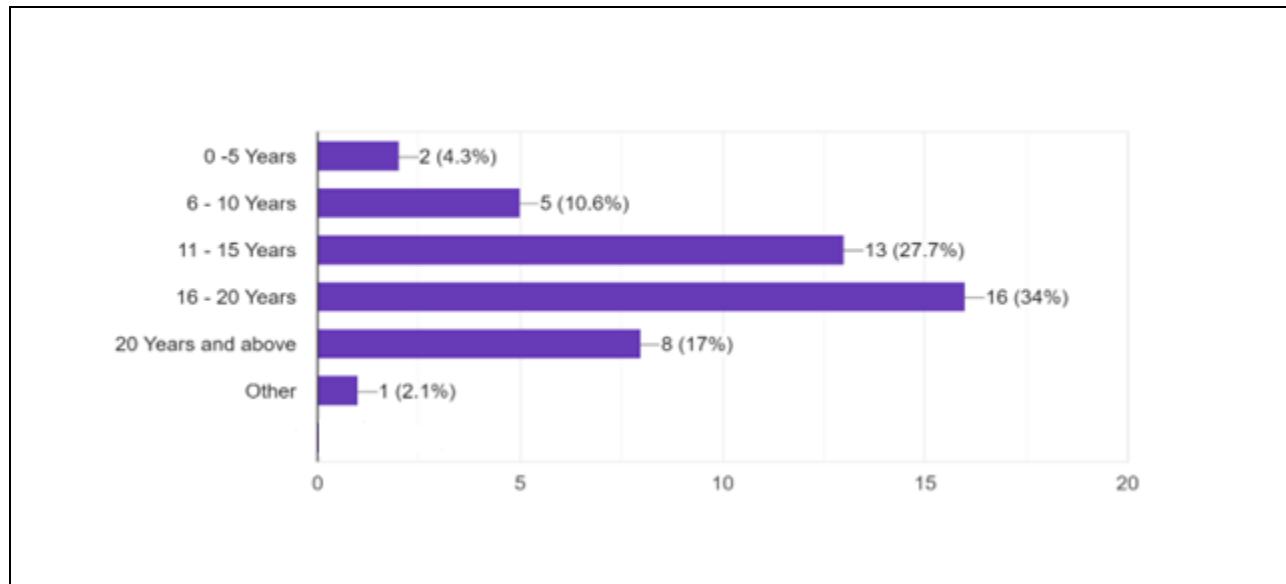
The Number of Employees in the Organisation



The participants' combined years of experience in managing construction projects are outlined in Table 10 and Figure 13. It seems that the majority of the responders had a range of 16 to 20 years of expertise in managing the building activities, with 16 participants accounting for 34% of the total. The remaining information revealed the participants' range of experience, which was as follows: Two participants (4.3%) had an experience range of 0–5 years, participants with an experience range of 6 to 10 years made up 5 at 10.6% of the total, participants with an experience range of 11 to 15 years made up 13 at 27.7% of the total, and participants with an experience range of more than 20 years made up 8 at 17% of the total.

Table 10*Years of Experience*

Years of experience	Frequencies	Percentage
0–5	2	4.3%
6–10	5	10.6%
11–15	13	27.7%
16–20	16	34%
20 and above	8	17%
Other	1	2.1%

Figure 12*The Years of Experience in Construction*

The frequency with which the participants' enterprises are involved in public–private partnership projects is outlined in Table 11 and Figure 14. The data indicate that a significant proportion of the participants' PPP involvement was moderate with 12 participants at 25.5%.

The remainder of the data revealed 7 very frequently at the rate of 14.9%, 8 often at the rate of 17%, 8 low at the rate of 19.1%, and 11 not at all at the rate of 23.4%.

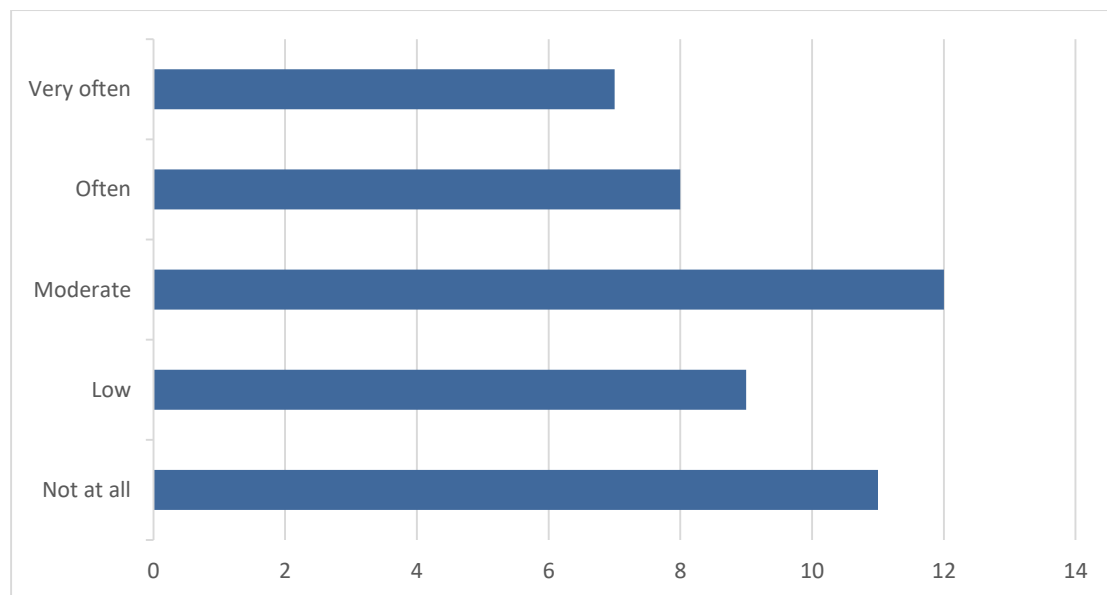
Table 11

Frequency of the Companies' PPP Involvement

Frequency of PPP involvement	Frequencies	Percentage
Not at all	11	23.4%
Low	9	19.1%
Moderate	12	25.5%
Often	8	17%
Very Often	7	14.9%

Figure 13

The Frequency of the Companies' PPP Involvement



4.1.2 Reliability Test

Cronbach's alpha is a common approach for determining reliability. For example, it may be used to evaluate the reliability of a score that is used to summarise the information

obtained from a number of questions in questionnaires (Christmann & Van Aelst 2006). Cronbach's alpha is often regarded as the primary measure of reliability for variables in quantitative research, particularly when utilising Likert scale questions. A Cronbach's alpha coefficient of 0.7 and over is regarded as reliable and satisfactory in a study (Hair et al. 2006). Cronbach's alpha is applied to evaluate the dependability or consistency of either a single variable or a group of variables collectively. The Cronbach's alpha coefficient is often used to assess the internal consistency and reliability of items. In this research, a test was done to evaluate the reliability of the CSFs. The result is as follows.

Table 12

CSF Reliability Statistics

Reliability Statistics		
	Cronbach's Alpha Based on	
Cronbach's Alpha	Standardised Items	No of Items
.996	.997	19

Table 12 illustrates that the Cronbach's alpha coefficient is 0.996, showing a substantial level of internal reliability for our measure in this research. Therefore, there is no requirement to eliminate any item in order to improve the Cronbach's alpha.

4.1.3 KMO and Bartlett's Test

Table 13

KMO and Bartlett's Test

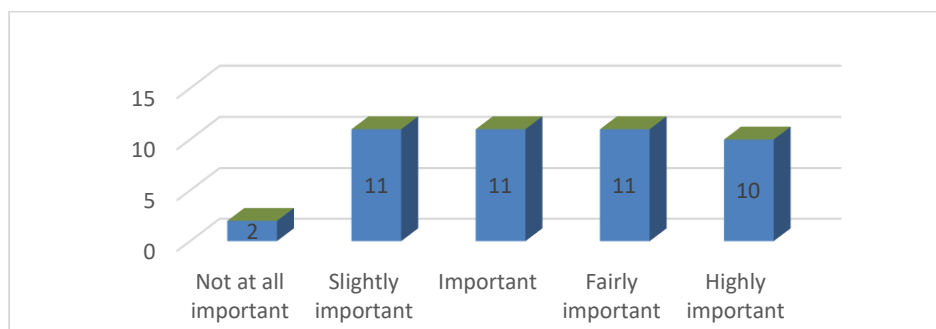
KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.912
Bartlett's Test of Sphericity	Approx. Chi-Square	2261.382
	df	171
	Sig.	<.001

4.1.4 CSFs for PPPs in the Context of the UAE

The findings of the factor capability for the independent funding question based on 47 participants are presented in Figure 15. The findings revealed that 11 participants rated the issue as somewhat significant, 11 participants rated the issue as important, 11 participants rated the issue as fairly important, 10 participants rated the issue as highly important, and only 2 people rated the issue as not essential at all. Therefore, the majority of the respondents agree on the importance of capability for independent funding in PPPs.

Figure 14:

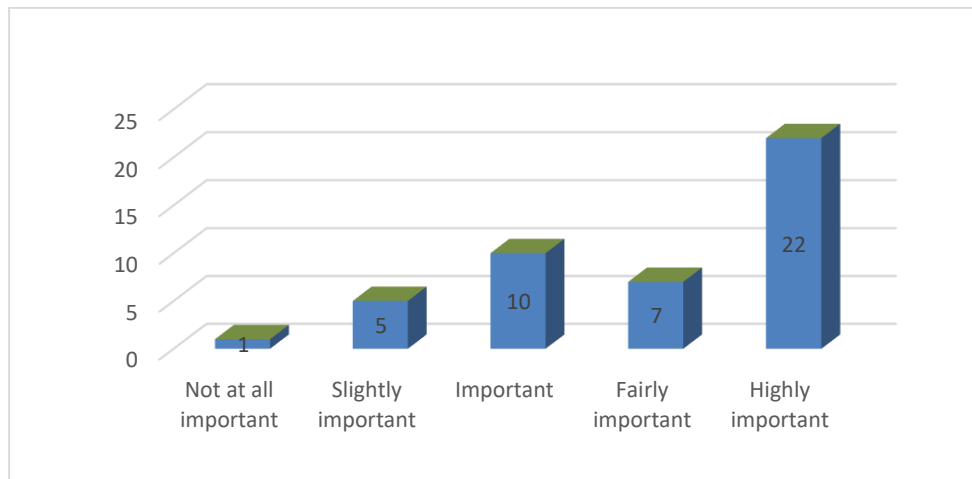
The Capability for Independent Funding



Based on the responses of 47 participants, the findings for the factor "Clear project objective and scope" are presented in Figure 16. The findings indicated that the topic was extremely important (22), moderately important (7), important (10), and slightly important (5), and there was just one response that indicated the topic was not essential at all. Hence, a significant proportion of the responders agree that the factor of a clear project objective and scope is highly important for the success of the PPPs in the UAE construction industry.

Figure 15

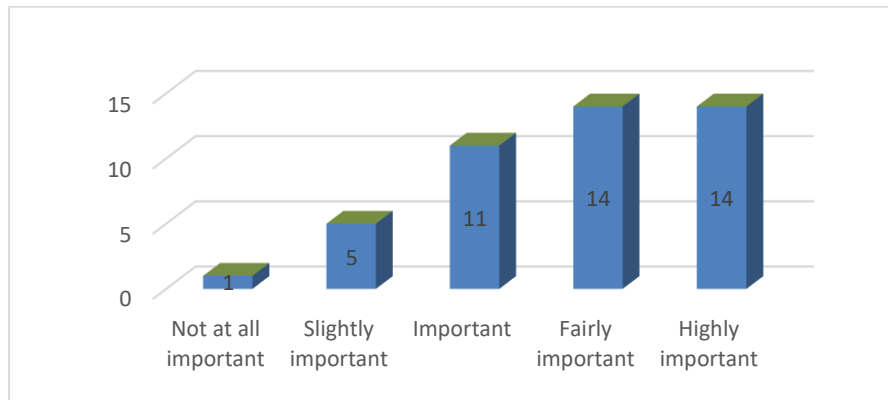
The Factor of Clear Project Objective and Scope



The findings for the factor "Effective risk management and risk handling" are shown in Figure 17. These findings are based on the responses of 47 participants. The findings revealed that 14 people thought it was very important, 14 thought it was quite important, 11 thought it was significant, 5 thought it was somewhat important, and just one thought it was not essential at all. Therefore, the vast majority of respondents are in agreement that effective risk management and risk handling play a significant role in the success of PPPs in the UAE's construction industry.

Figure 16

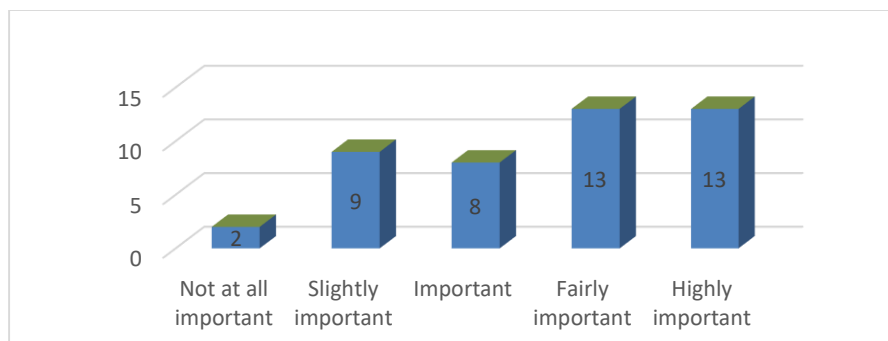
The Factor of Effective Risk Management and Risk Handling



The findings of the factor "Government financing and funding systems" are shown in Figure 18, which is based on the responses of 47 participants. According to the findings, thirteen of the respondents thought the factor was very important, thirteen thought it was quite important, eight thought it was important, nine thought it was little importance, and two thought it was not significant at all. As a result, the vast majority of respondents are of the opinion that the issue of government money and funding methods is of the utmost significance to the accomplishment of PPPs in the UAE construction sector.

Figure 17

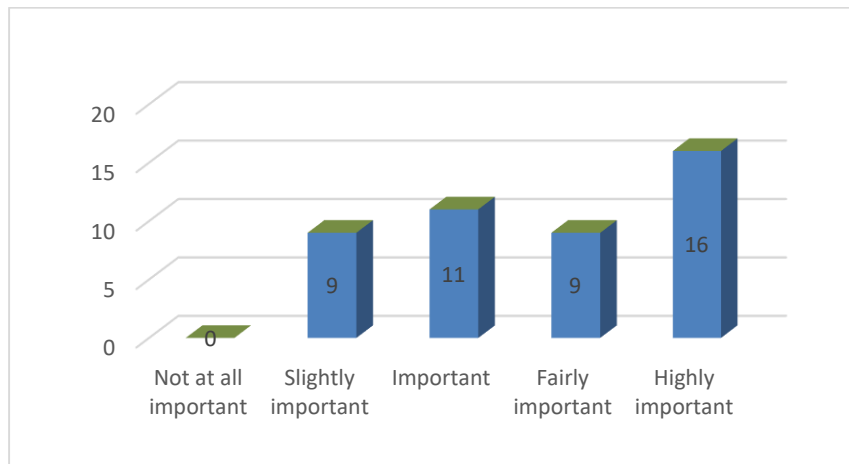
The Factor of Government Financing and Funding Systems



Based on the responses of 47 participants, the findings for the component "Stakeholder engagement and skilled collaborators" are shown in Figure 19. The findings indicated that the factor was very significant (16), moderately important (9), important (11), and somewhat important (9), and there was no answer for the factor being not important at all. As a result, the study respondents overwhelmingly agree with the high importance of the element "stakeholder engagement and skilled collaborators" for the success of PPPs in the UAE construction sector.

Figure 18

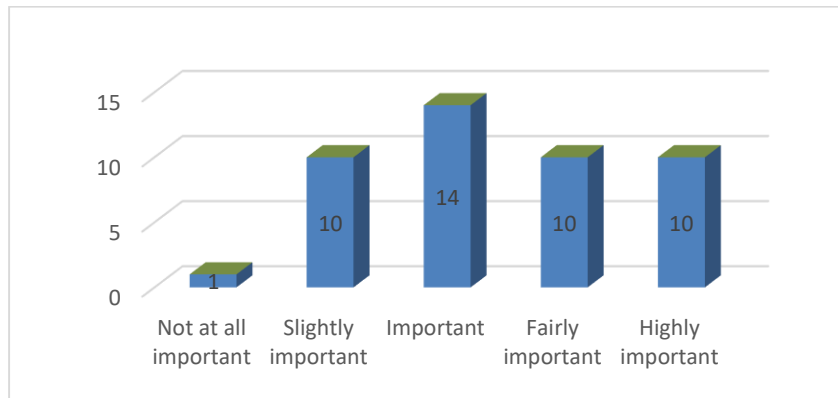
The Factor of Stakeholder Engagement and Skilled Collaborators



The findings for the element of "Loyalty or assurance" are shown in Figure 20, which is based on the responses of 47 participants. The findings revealed that ten of the respondents thought the factor is very important, ten thought it is pretty important, fourteen thought it is significant, ten thought it is somewhat important, and just one thought it is not essential at all. As a result, the vast majority of the respondents are of the opinion that the aspect of loyalty or assurance is critical to the accomplishment of PPPs in the UAE construction sector.

Figure 19

The Factor of Loyalty or Assurance



The findings for the factor "Legal and regulatory framework" are shown in Figure 21, which is based on the responses of 47 participants. The findings indicated that the factor was very important (17), moderately important (9), important (13), and somewhat important (6), and there was no answer for the factor being not important at all. As a result, the study respondents overwhelmingly agree that the element of loyalty or assurance plays a high significant role in determining the success of PPPs in the UAE construction sector.

Figure 20

The Factor of Legal and Regulatory Framework

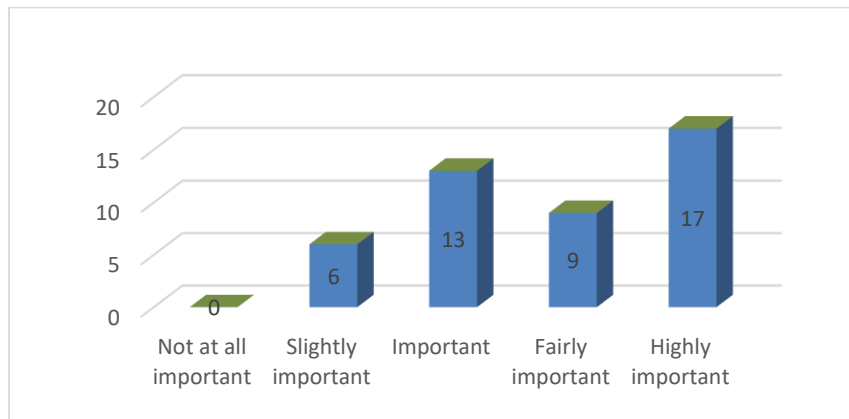
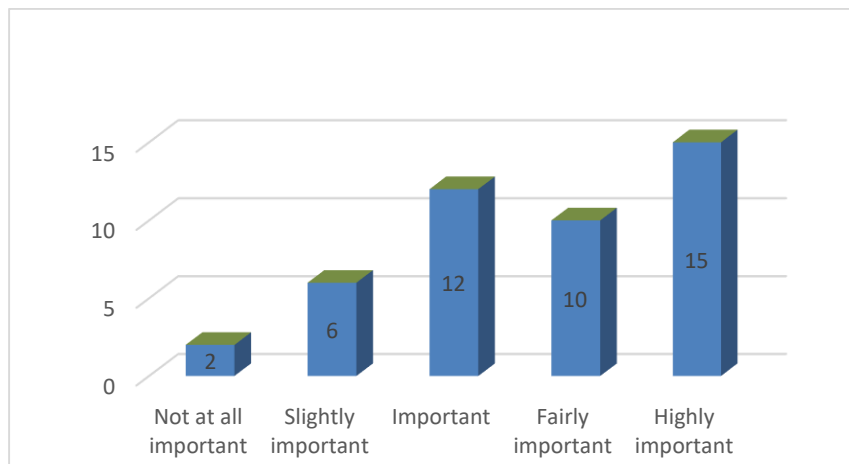


Figure 22 displays the results of the factor "Technical expertise, innovation, and qualified employees", which are derived from the replies of the 47 participants to the survey. According to the data, the component was rated as extremely important (15), fairly important (10), important (12), and somewhat important (6), and there were only two responses that rated the item as not being essential at all. As a consequence of this, an overwhelming majority of the individuals who took part in the questionnaire are in agreement with the statement that the factor of technical competence, innovation, and qualified staff serves a crucial role in deciding the success of PPPs in the building sector of the UAE.

Figure 21

The Factor of Technical Expertise, Innovation, and Qualified Employees

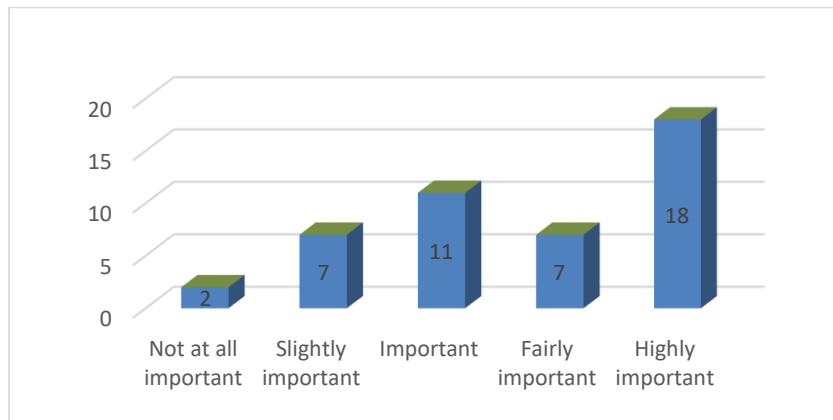


The findings of the factor "Well-designed PPP contract" are shown in Figure 23. These results are generated from the responses of 47 individuals who took part in the survey. The component was scored as being very important (18), quite important (7), important (11), and somewhat important (7), and there were only two replies that assessed the item as not being necessary at all. The results show that the component was regarded as such. As a result of this, an overwhelming majority of the persons who took part in the poll are in agreement with the

statement that the factor of a well-designed PPPs contract plays a highly crucial role in determining the success of PPPs in the UAE construction industry.

Figure 22

The Factor of a Well-Designed PPP Contract



The findings of the component "Feasible analysis statement" are shown in Figure 24. The component was ranked as extremely important (10), pretty important (15), important (8), and somewhat important (11), and there was only one answer that assessed the item as not being vital at all. As a result of this, the study found that a vast majority of the participants agree with the assertion that the feasible analysis statement factor plays a pretty essential role in deciding the success of PPPs in the UAE construction sector. This is due to the fact that this component plays a role in determining whether or not PPPs are successful.

Figure 23

The Factor of a Feasible Analysis Statement

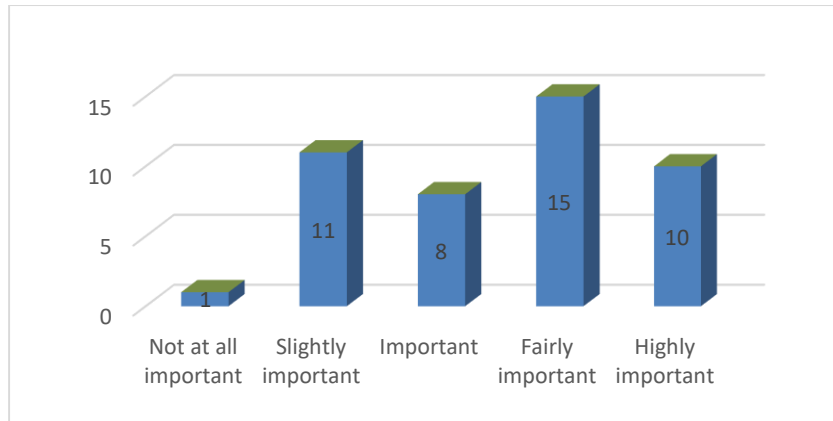


Figure 25 displays the results of the "Political support" component, which was rated as very significant (6), moderately significant (7), significant (13), and somewhat significant (11), and 8 participants evaluated the item as not being essential at all. The poll revealed that a significant majority of the participants think that the "feasible analysis statement" component is crucial in determining the success of PPPs in the construction industry of the UAE. This is because this component has a significant impact on the success of PPPs

Figure 24

The Factor of Political Support

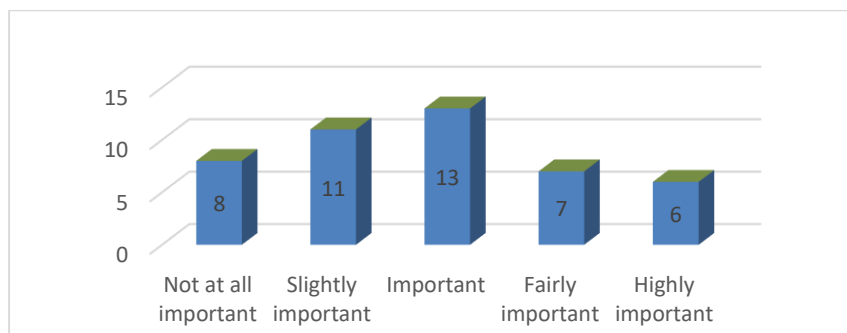


Figure 26 illustrates the ratings for the "Stable politics" component. It was deemed extremely important by 16 participants, very significant by 8 participants, significant by 11 participants, somewhat significant by 7 participants, and not vital at all by 3 participants. The survey indicated that a substantial majority of the participants consider the "Stable politics" factor to be very critical in influencing the success of PPPs in the construction sector of the UAE. This is due to the fact that this component has a substantial influence on the efficacy of PPPs.

Figure 25

The Factor of Stable Politics

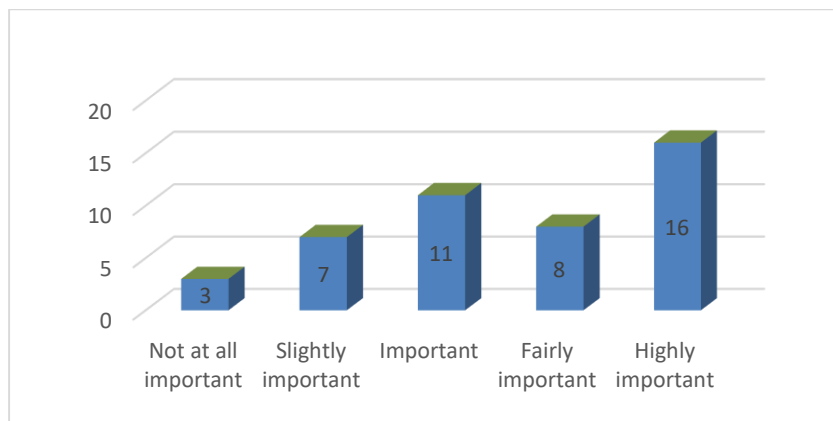


Figure 27 illustrates the ratings for the "Suitable amount of fees and taxes" component. The ratings range from highly important (13), fairly important (8), important (10), and slightly significant (12), to not necessary at all (2). The survey indicated that a substantial majority of the participants consider the "Suitable amount of fees and taxes" factor to be of great importance in determining the success of PPPs in the construction sector of the UAE. This is due to the fact that this component has a substantial influence on the effectiveness of PPPs.

Figure 26

The Factor of Suitable Amount of Fees and Taxes

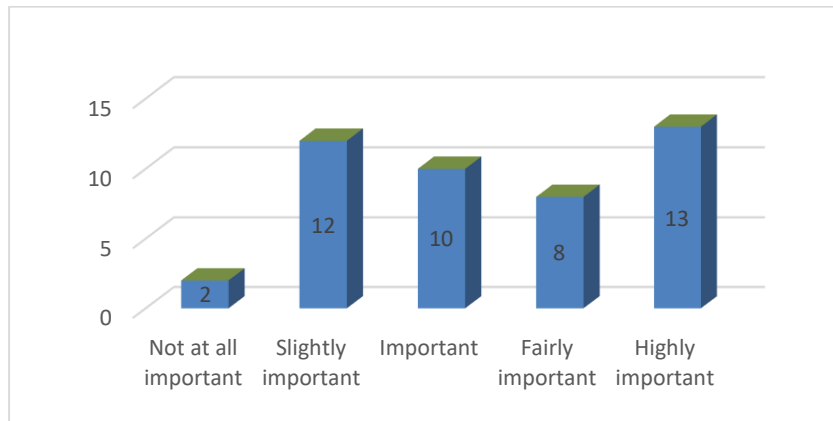
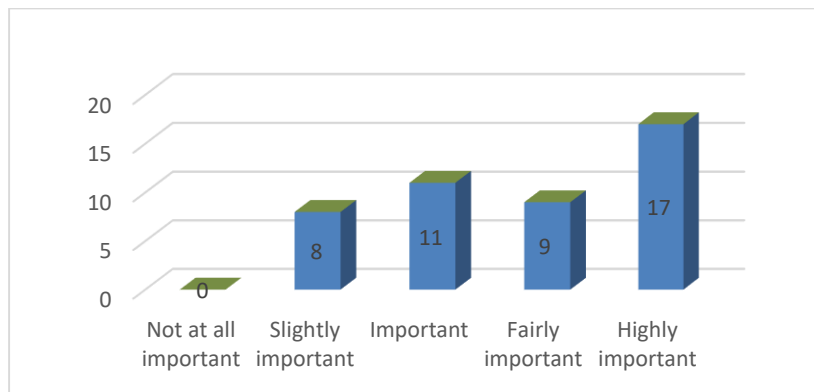


Figure 28 shows the ratings for the component "Authorities' cooperation". The responses span from highly important (17), fairly important (9), important (11), and slightly significant (8), to completely unnecessary (0). The poll revealed that a significant majority of the participants believe the aspect of "Authorities' cooperation" to be very significant in assessing the efficacy of PPPs in the building industry of the UAE. This is because this component significantly impacts the efficacy of PPPs.

Figure 27

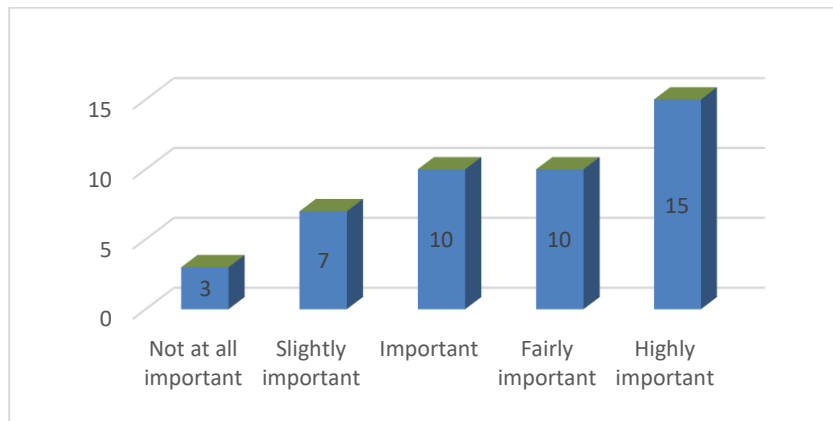
The Factor of Authorities' Cooperation



The ratings for the "Skilled consultants" component are shown in Figure 29. The importance ratings vary from very important (15), moderately important (10), important (10), and somewhat significant (7), to not at all (3). According to the study, a large majority of the participants believe that "Authorities' cooperation" is very important in determining the success of PPPs in the UAE construction industry. This is because this component has a significant impact on the efficacy of PPPs.

Figure 28

The Factor of Skilled Consultants



The ratings for "Project technical viability" is shown in Figure 30, which vary from very important (13), fairly important (11), important (12), and slightly important (8), to the lowest rating possible of not essential at all (1). According to the results of the poll, an overwhelming majority of respondents believe that the "Authorities' cooperation" aspect is one of the most important factors in determining the success of PPPs in the building industry of the UAE. This is owing to the fact that the efficacy of PPPs is significantly impacted by the presence of this component in the system.

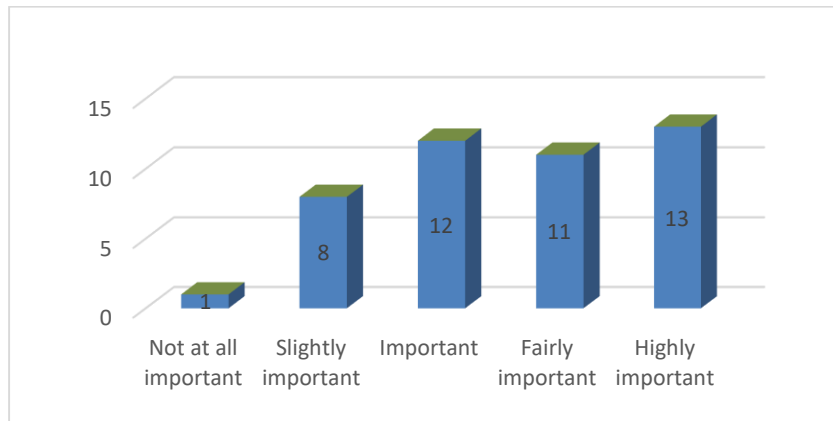
Figure 29*The Factor of Project Technical Viability*

Figure 31 shows the ratings for the "Commitment from the partners". The grades span from highly important (15), fairly important (11), important (11), and somewhat important (6), to not at all important (2). The poll revealed that a significant majority of the participants believe the component of "Commitment from the partners" to be very crucial in determining the success of PPPs in the construction industry of the UAE. This is because this component significantly impacts the efficacy of PPPs.

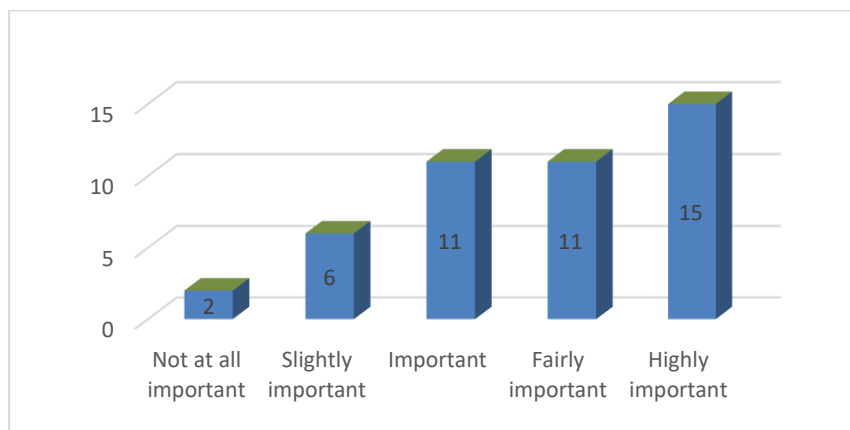
Figure 30*The Factor of Commitment from the Partners*

Figure 32 shows the ratings for the "Robust commercial groups". The scores span from very significant (7), moderately significant (12), substantial (14), and somewhat significant (8), to not essential at all (4). The poll revealed that a significant majority of the participants believe the "Robust commercial groups" element to be crucial in assessing the efficacy of PPPs in the building industry of the UAE. This is because this component significantly impacts the efficacy of PPPs.

Figure 31

The Factor of Robust Commercial Groups

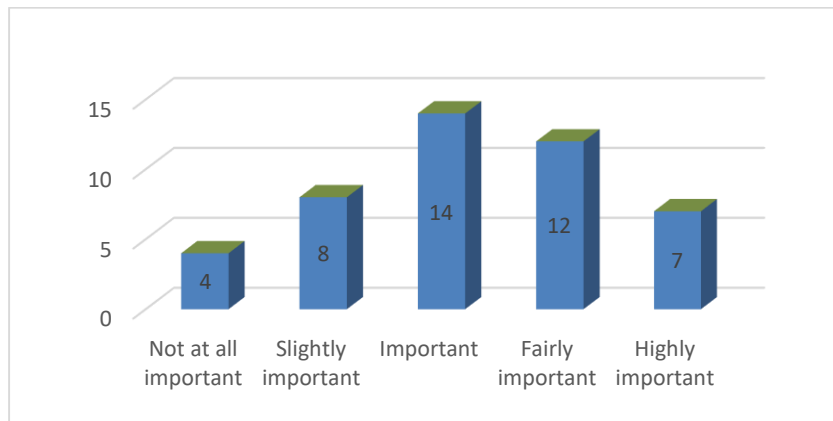


Figure 33 shows the evaluations for the factor "Transparent procurement process". The grades span from highly important (16), fairly important (10), important (9), and slightly important (7), to not necessary at all (3). The questionnaire revealed that a significant majority of the participants believe the "Transparent procurement process" element to be of utmost importance in assessing the performance of PPPs in the construction industry of the UAE.

Figure 32

The Factor of Transparent Procurement Process

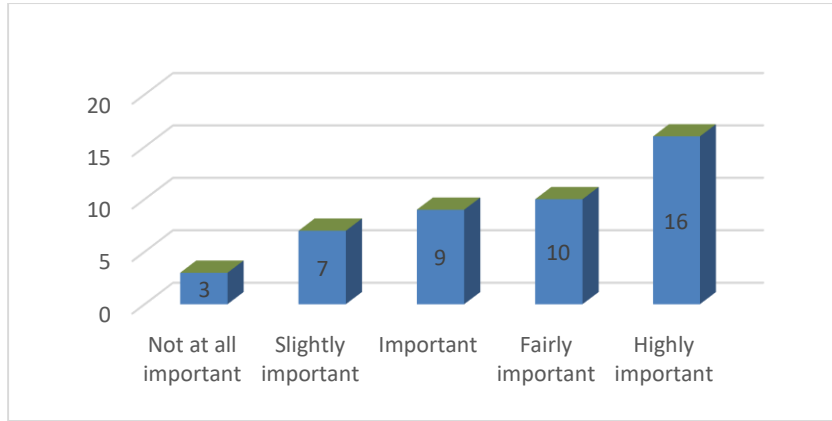


Table 14 and Figure 34 below show the scores derived from the examination of the crucial factors contributing to the success of PPPs in the construction industry of the UAE. The scores were obtained as follows. The factors that contribute to successful project implementation include the ability to secure independent funding (3.36); having a clear project objective and scope (3.98); effective risk management and handling (3.78); access to government financing and funding systems (3.58); engaging stakeholders and collaborating with skilled partners (3.71); ensuring loyalty and assurance (3.40); complying with the legal and regulatory framework (3.82); possessing technical expertise, promoting innovation, and employing qualified staff (3.67); having a well-designed PPPs contract (3.71); preparing a feasible analysis statement (3.49); receiving political support (2.82); operating in a politically stable environment (3.60); dealing with appropriate fees and taxes (3.4); obtaining cooperation from authorities (3.78); working with skilled consultants (3.60); ensuring project technical viability (3.60); securing commitment from partners (3.69); forming robust commercial groups (3.22); and following a transparent procurement process (3.64).

Table 14*Score of the Factors*

SN	Critical Success Factor	Frequencies	Mean	Std. Deviation	Variance
1	Capability for independent funding	47	3.36	1.209	1.462
2	Clear project objective and scope	47	3.98	1.177	1.386
3	Effective risk management and risk handling	47	3.78	1.085	1.177
4	Government financing and funding systems	47	3.58	1.234	1.522
5	Stakeholder engagement and skilled collaborators	47	3.71	1.160	1.346
6	Loyalty or assurance	47	3.40	1.136	1.291
7	Legal and regulatory framework	47	3.82	1.093	1.195
8	Technical expertise, innovation, and qualified employees	47	3.67	1.206	1.455
9	Well-designed PPP contract	47	3.71	1.272	1.619
10	Feasible analysis statement	47	3.49	1.160	1.346
11	Political support	47	2.82	1.284	1.649
12	Stable politics	47	3.60	1.304	1.700
13	Suitable amount of fees and taxes	47	3.40	1.286	1.655
14	Authorities' cooperation	47	3.78	1.146	1.313
15	Skilled consultants	47	3.60	1.286	1.655
16	Project technical viability	47	3.60	1.156	1.336
17	Commitment from the partners	47	3.69	1.203	1.446
18	Robust commercial groups	47	3.22	1.185	1.404

19	Transparent procurement process	47	3.64	1.300	1.689
	Weighted Mean		3.57		

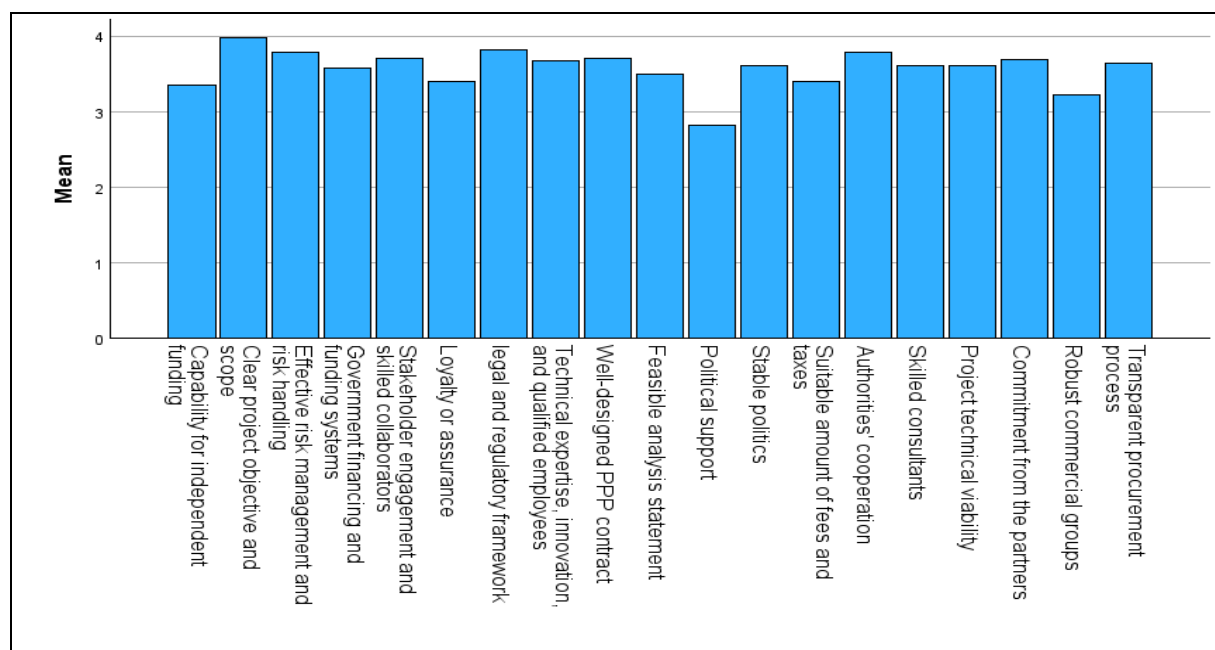
Figure 33*Score of the Factors*

Table 15 and Figure 35 show the ranking and scores obtained from the analysis of essential success elements of PPPs in the construction sector of the UAE. The highest scores were achieved in the following areas: clear project objective and scope (3.98); legal and regulatory framework (3.82); authorities' cooperation (3.78); effective risk management and risk handling (3.78); well-designed PPP contract (3.71); stakeholder engagement and skilled collaborators (3.71); commitment from the partners (3.69); technical expertise, innovation, and qualified employees (3.67); transparent procurement process (3.64); stable politics (3.60); skilled consultants (3.60); project technical viability (3.60); government financing and funding

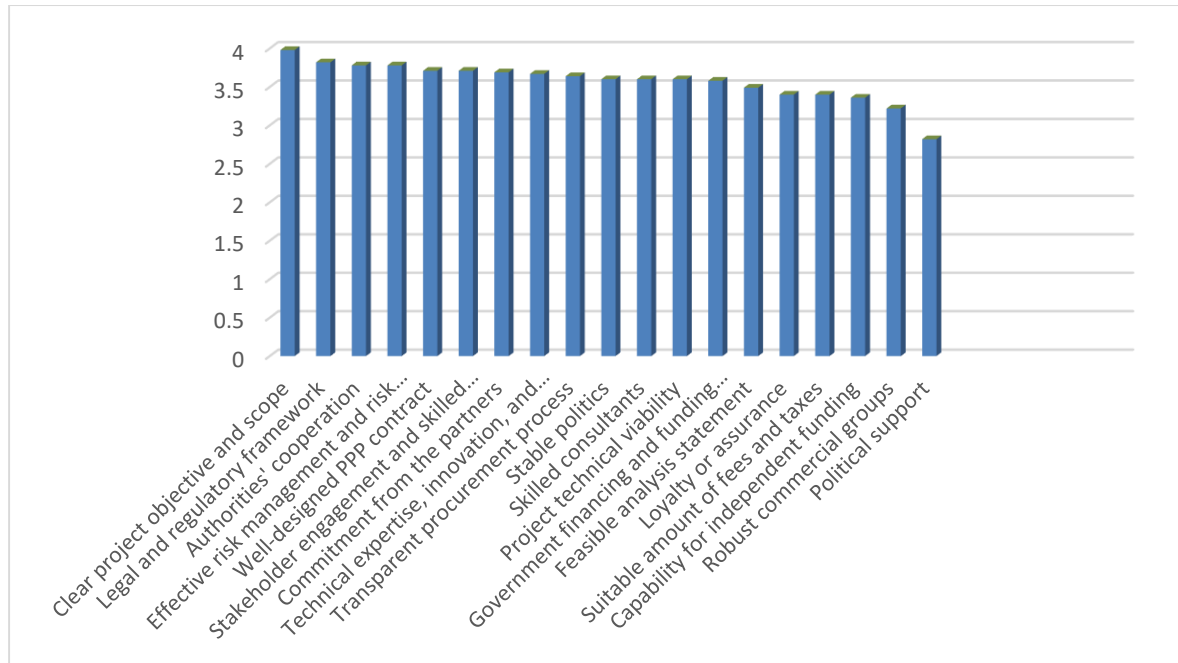
systems (3.58); feasible analysis statement (3.49); loyalty or assurance (3.40); suitable amount of fees and taxes (3.40); capability for independent funding (3.36); robust commercial groups (3.22); and political support (2.82). The literature and this study's results exhibit resemblances.

The research study determines the rankings of the elements listed in Table 15 and Figure 35, from greatest to lowest priority.

Table 15

Ranking of the Critical Success Factors

SN	Factor	Mean	Rank
1	Clear project objective and scope	3.98	1st
2	Legal and regulatory framework	3.82	2nd
3	Authorities' cooperation	3.78	3rd
4	Effective risk management and risk handling	3.78	3rd
5	Well-designed PPP contract	3.71	4th
6	Stakeholder engagement and skilled collaborators	3.71	4th
7	Commitment from the partners	3.69	5th
8	Technical expertise, innovation, and qualified employees	3.67	6th
9	Transparent procurement process	3.64	7th
10	Stable politics	3.60	8th
11	Skilled consultants	3.60	8th
12	Project technical viability	3.60	8th
13	Government financing and funding systems	3.58	9th
14	Feasible analysis statement	3.49	10th
15	Loyalty or assurance	3.40	11th
16	Suitable amount of fees and taxes	3.40	11th
17	Capability for independent funding	3.36	12th
18	Robust commercial groups	3.22	13th
19	Political support	2.82	14th

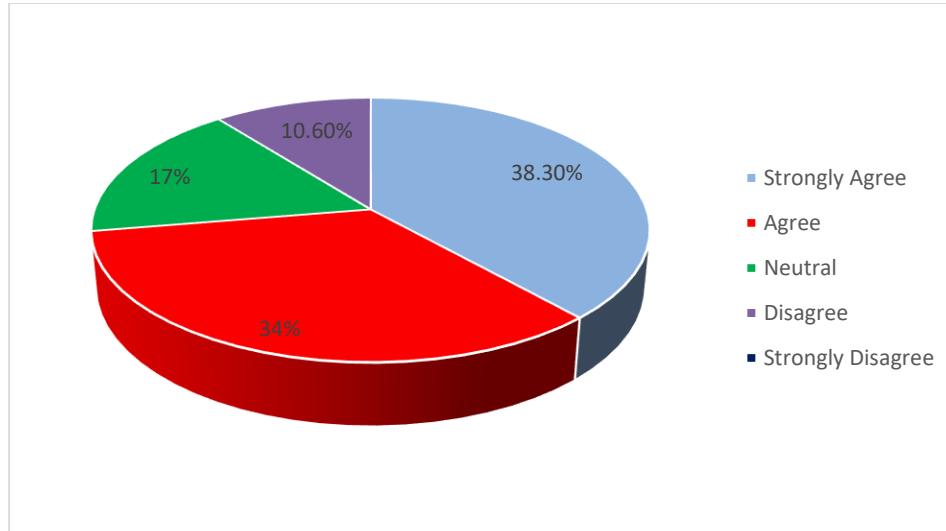
Figure 34*Ranking of the Critical Success Factors*

4.2 Comparison Between UAE's Factors and Developing Countries

The participants were questioned on their views on whether the success of PPPs in the developed countries is greater compared to those in developing countries (the UAE is an example). The results of the questionnaire, are shown in Figure 36. Specifically, the data indicate that 18 participants, or 38.3%, strongly agreed with the statement, while 16 participants, or 34%, agreed. Additionally, 8 participants, or 17%, were indifferent, and 5 participants, or 10.6%, disagreed. Hence, a significant proportion of the participants express a strong consensus that PPPs in industrialised countries exhibit more success in comparison to those in developing countries.

Figure 35

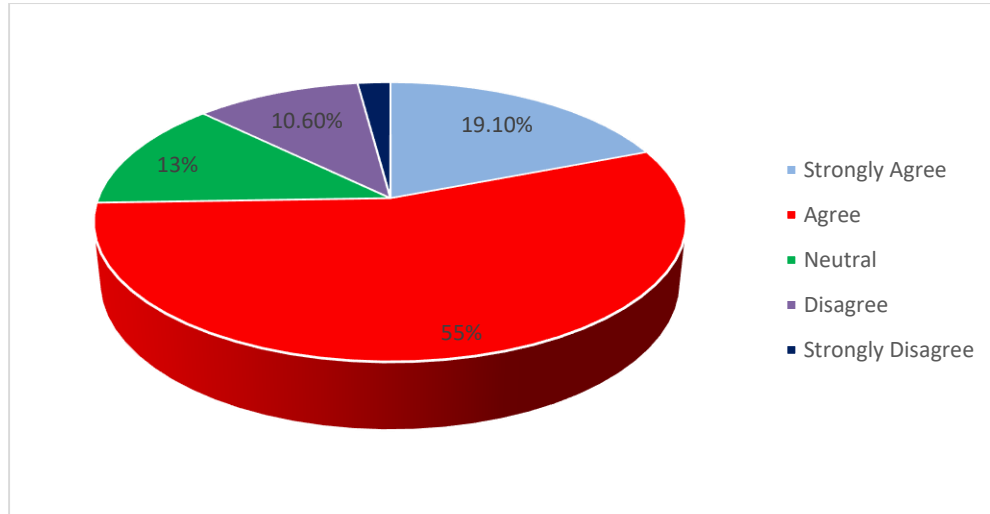
Comparison of PPP Success Between Developed and Developing Countries



Then, the participants were also asked about their opinions regarding the key variables that contribute to the success of PPPs in the construction sector in the UAE compared to those in developed countries, and if there are major differences between the two. Figure 37 displays the results of the questionnaire, which had 47 participants. More precisely, the data reveals that 9 participants, or 19.1% of the total, strongly agreed with the statement, whilst 26 individuals, accounting for 55%, agreed. In addition, 6 people, accounting for 13% of the total, expressed indifference, while 5 participants, representing 10.6%, expressed disagreement. One individual, representing 2.1% of the participants, strongly disagreed. Therefore, a notable number of the participants reached an agreement that the crucial success elements for PPPs in the construction sector of the UAE vary greatly from those in developed countries.

Figure 36

CSF Comparison Between the UAE and Developed Countries



Chapter 5: Discussion

The objective of this study is to identify and examine the key factors that contribute to the success of partnerships between public and private entities in the construction industry of the UAE. In order to streamline this process, a questionnaire was administered to experts in the UAE construction sector. The objective of this chapter is to discuss the findings from the previous chapter.

The important success factors were assessed and analysed in the preceding section using SPSS analysis and testing techniques.

The study was done with a sample of experts selected from organisations active in PPPs in the UAE. The majority of the participants have senior positions in engineering, management, or high-level management. Nevertheless, the quantity of academic positions was very small. Additionally, the survey revealed that the predominant age group of the participants was between 35 and 54 years old, with no individuals under 25 years and a smaller number of people under the age of 35. Similarly, the majority of the participants were found to have extensive experience, ranging from 16 to 20 years, and the majority had obtained a bachelor's degree.

Regarding the gender of the expert participants, it was noted that the PPPs in the UAE construction sector have a relatively limited number of female specialists. More than 95% of the participants were male.

In addition, a reliability test was performed to assess the dependability of the obtained data. The findings indicated a good degree of reliability, with an overall Cronbach's alpha value of 0.996, taking all aspects into account.

The next section will provide a description of the factors that were tested in the previous chapter, along with reviews for the same from other academic literature.

5.1 Legal and Regulatory Framework

The legal and regulatory framework obtained the highest ranking. For the project to achieve accomplishment, it is essential that it meets the expectations of the investors. The individual part will pursue a legal framework that ensures the accurate understanding and execution of the contracts it enters into with the governmental part and subcontractors. Previous studies have also emphasised this point. According to Al-Saadi (2015), the existence and effectiveness of an appropriate regulatory and legislative structure for PPPs is considered the most important component for success, and it has ranked first in order of importance out of five most CSFs. As to Alredha's research in 2017, the main driving force for the private sector's involvement in PPPs was regulatory issues. These factors greatly impact the private sector's ability to operate with the necessary level of adaptability.

Regarding developed countries, this factor was found to be aligned. According to Emmanuel (2013), many crucial success elements for public–private initiatives may be identified in nations worldwide, including the UK, Australia, and Hong Kong. Clear and robust regulatory frameworks are essential for the effective implementation of PPPs. The government should provide a solid basis for law and regulation to support PPPs.

5.2 Effective Risk Management and Risk Handling

The adoption of PPP models is driven by the appeal of efficient risk management and risk handling. Transferring risk to the private sector alleviates the challenges faced by the government in undertaking large-scale initiatives. The government's lack of effective development capabilities may sometimes lead to delays in providing much-needed facilities, resulting in increased costs and delivery delays for end-users. Additionally, this situation poses significant hazards. The participants have assigned a high importance to this aspect.

According to research conducted by Almarri in 2015, effective risk allocation was identified as one of the top nine variables that impact the success of a public–private collaboration in the UAE. Furthermore, the precise assignment and dispersion of risks across project stakeholders was deemed the second most significant factor, as per the findings of Al-Saadi in 2015.

When comparing with industrialised nations, Adeoye and Islam (2019) stated that the UK's key indicators of success have emphasised the significance of proper risk allocation and distribution.

In a study conducted by Almarri and Abu-Hijleh (2017), the PPP practice trends of the UK and the UAE were compared. The study found that out of the eighteen criteria essential for the success of adopting PPPs, both countries identified the same nine aspects as the most important. These criteria included the need for sufficient risk dispersion.

5.3 Authorities' Cooperation

The literature discussed the identification of authorities' collaboration in assessing the degree of performance of PPPs contracts in the UAE. The research found that the collaboration of authorities was crucial for the private sector. Consequently, this particular aspect was recognised in the existing research and examined in the actual setting, where it was considered to have a significant impact on the achievement of PPPs in the UAE. Seventeen participants rated this aspect as very essential.

The results align with the findings of Al Zamil (2019), which indicate that government support is often acknowledged as one of the most significant critical success factors. The study conducted by Al Areefi (2016) revealed that the primary economic and monetary goals for implementing PPPs in Abu Dhabi are to optimise income generation and get government support.

Based on the research conducted by Adeoye and Islam (2019), this factor is in line with the developed countries as well, as one of the crucial factors for success in the UK has been identified as the need for the public and authorities' support and collaboration.

5.4 Well-Designed PPP Contract

The literature examined the identification of key factors in well-designed PPPs contracts that have a crucial role in evaluating the effectiveness of PPPs contracts in the UAE. The study revealed that well-crafted PPPs contracts were essential for achieving success. Therefore, this specific component was acknowledged in the previous study and analysed in the real-life context, where it was deemed to have a substantial influence on the attainment of PPPs in the UAE. Eighteen people deemed this characteristic very important.

The results are consistent with the research conducted by Al Areefi (2016), which has shown that factors such as project planning and the PPPs framework are essential components for the successful implementation of PPPs projects.

According to Aerts et al. (2014), a clear statement of duties and a well-designed PPPs with a defined scope of work are considered one of the eight CSFs that are highly important in ports' PPPs.

5.5 Commitment from the Partners

The dedication of both governmental and non-governmental organisations to the PPPs is a crucial determinant of success, as highlighted by the survey respondents. The public party must demonstrate its commitment by actively enabling the private party to optimise the project's performance via various ways. The public party must demonstrate a strong dedication to effectively managing the contract. Additionally, they must guarantee that all necessary local circumstances, which include approvals, regulations, legislative structures, governmental

assistance, and accessibility to the finance marketplace, are sufficiently provided for the project. The commercial party must exhibit unwavering commitment to the project by showing the utmost diligence in the creation and supervision of the PPPs project in a manner that optimises both parties' profitability while enhancing and cost-effectively delivering services to the public.

As stated by Almarri (2015), the primary determinant of the success of a PPPs in the UAE is the commitment of the parties involved. This is one of the nine crucial criteria that play a significant role in determining the partnership's outcome.

Regarding the comparison with developed countries, Kahwajian et al. (2014) state that despite the increasing utilisation of PPPs and their notable accomplishments in established democratic and economic systems, these agreements have faced challenges, especially in developing countries. The government's lack of dedication has been the root cause of such occurrences.

Furthermore, Aerts et al. (2014) have determined that sincere dedication has greater importance.

5.6 Transparent Procurement Process

In addition, 16 respondents expressed the belief that enhancing openness and competition in the procurement process will increase the likelihood of success in PPPs projects in the UAE. Competitive bidding is more likely to result in the selection of the most qualified winner to execute a project, as opposed to selective bidding when capacity may not be the primary factor in determining the ability to perform the project. According to Almarri (2015), effective contract management requires the use of a competitive procurement

procedure for the success of PPPs. Similarly, Al Zamil (2019) identifies clear procurement processes as one of the most frequently recognised critical success factors.

The questionnaire study done by Li et al. (2005) has recognised the successful procurement in the UK, namely via the PFI, as a key outcome determinant.

Based on the research conducted by Almarri and Abu-Hijleh (2017), a comparison of the PPPs practice trends in the UK and the UAE revealed that both countries recognised the importance of a transparent procurement process in ensuring the effective implementation and success of projects.

5.7 Project Technical Viability

The firm's technical proficiency in completing the project was assessed by the respondents using a grading scale that ranged from extremely important (13) and moderately important (11), to important (12). This is because a company's technical competence in completing a project demonstrates its management strength, which in turn indicates its capacity to fulfil its obligations under the contract. The findings align with the study done by Alredha (2017), which revealed that the government's main motive for engaging in PPPs was to enhance the likelihood of attaining technological and managerial achievement. This is the situation due to the limited ability of most government organisations to keep up with technology improvements and their inadequate management frameworks. Consequently, they must partner with and benefit from the private sector, which excels in both of these areas.

Based on the results of the study done by Osei-Kyei and Chan (2017), which emphasises the crucial role of technology transfer and technological innovation for both Ghana and Hong Kong, this factor is therefore found to be in line as well with the developed countries.

5.8 Government Financing and Funding Systems

On the general sentiment in the sector on the influence of financial issues on the outcomes of PPPs agreements in the UAE, the majority of the respondents considered this aspect to be significant. Thirteen respondents saw the question as very important, while another thirteen considered it to be somewhat important. The results are contrary to the findings of the study conducted by Al-Saadi (2015), which regarded this component as having little significance.

This factor contradicts the result in the study on Ghana and Hong Kong, where Osei-Kyei and Chan (2017) discovered that the government's supply of financial aid is seen to have a limited amount of importance in both regions.

5.9 Feasible Analysis Statement

The respondents evaluated the feasible analysis statement using a grading scale that ranged from extremely important (10) to pretty important (15), important (8), and somewhat important (11). This aligns with the findings of a study conducted by Almarri (2015), which highlighted in-depth cost–benefit analysis as a critical success factor. In addition, the element was substantiated by the research conducted by Al-Saadi in 2015. A comprehensive and economic feasibility assessment is crucial for the project.

Based on the results of a questionnaire survey conducted by Deng, Zhou, Zhao, Yin, and Li in 2021, it has been determined that the implementation of a viable analysis statement is among the nine key factors that could potentially affect the ability of PPPs to achieve sustainability.

5.10 Robust Commercial Groups

The requirement for robust commercial groups is a key factor for success, as indicated by the survey respondents. The scores range from highly significant (7) and moderately significant (12), to substantial (14). This finding is supported by Al Zamil (2019), who recognises a robust corporation as one of the most frequently acknowledged critical success factors. Additionally, Almarri (2015) emphasises the importance of a strong private consortium.

The overlap that exists between the UK and the UAE was brought to light by Almarri and Abu-Hijleh (2017), where the strong commercial group component was discovered to be considerable.

5.11 Political Support

The political support component was graded as very significant (6), fairly significant (7), significant (13), somewhat significant (11), and assessed as not vital (8).

As to Almarri's research in 2015, respondents from the UAE and the UK rated political support as the seventh most important factor. The mean score significance for the UAE was 4.17 and for the UK it was 4.06. The success of PPPs relies heavily on political backing, which must be steadfast and enduring for the whole lifespan of the PPPs project, irrespective of any changes in parliamentary or ministerial leadership. Almarri and Boussabaine (2023) discovered that the PPPs models in different nations are influenced by the political and economic conditions of those countries.

The essential success criteria in the UK have been identified to include the significance of the strong political support factor; consequently, this factor is consistent with the requirements of developed countries. This comparison between the UK and Nigeria was carried out by Adeoye and Islam (2019).

Chapter 6: Conclusions, Recommendations, and Limitations

A series of findings have been drawn as a result of the literature review, the questionnaire, and the data analyses, whereby recommendations and limitations have been developed, with an emphasis placed on the limits of this study as a foundation upon which future research might expand.

6.1 Conclusions

In conclusion, this dissertation sought to examine the fundamental factors that lead to the achievement of PPPs in the UAE construction sector. The research findings have provided enlightenment on the unique factors of the UAE's PPPs, providing valuable insights for policymakers, industry stakeholders, and project managers.

The study identified several key contributing elements to the success of PPPs in the UAE construction industry, such as the requirement for a legal and regulatory framework, authorities' cooperation, effective risk management and risk handling, and well-designed PPPs contracts.

In conclusion, this dissertation provides a thorough understanding of the crucial factors that determine the success of PPPs in the construction sector of the UAE, and contributes to the wider body of knowledge on PPPs.

By embracing these insights and implementing best practices, the UAE construction industry can effectively leverage PPPs to accelerate infrastructure development and drive economic growth.

6.2 Recommendations

The following suggestions are offered based on the results of the study and are proposed to enhance the success of PPP projects in the UAE construction industry.

6.2.1 Focus on Transparent Procurement Procedures

Irrespective of their developmental stage, it is essential for all countries to place the utmost importance on transparent procurement procedures in order to guarantee equity, responsibility, and public confidence. Developed countries may prioritise the preservation of elevated standards, whilst underdeveloped countries like the UAE should strive to enhance openness in their procurement procedures.

6.2.2 Public Endorsement and Governmental Support

Ensuring robust public support and government endorsement is essential for the durability and prosperity of PPPs ventures in developed countries.

In contrast, developing countries should prioritise the cultivation of dedication from partners and collaboration from authorities, while also resolving any possible deficiencies in public support.

6.2.3 Tackling Distinctive Factors in Developing Countries

Developing countries, like the UAE, need to prioritise the implementation of efficient risk management, collaboration among authorities, and the establishment of well-crafted public-private partnership contracts. Although these elements are given less importance in the concerns of industrialised countries, they play a vital role in resolving the special difficulties and goals encountered by emerging nations.

6.2.4 Tailoring Strategies to Suit Individual Environments

To address the differing goals of industrialised and developing countries, it is crucial to customise PPPs methods to suit the specific circumstances of each setting. Developed countries may emphasise reputation and partner quality, but developing countries should give priority to basic factors such as the legal structures and defined project goals.

6.2.5 Lifelong Learning and Flexibility

The comparative study emphasises that the effectiveness of the PPPs is dependent on the unique circumstances in which it is implemented. It is essential for all countries to actively pursue ongoing education, adjusting their techniques in response to changing objectives and problems. This iterative method guarantees the continuous enhancement of PPP frameworks and processes.

6.3 Limitations

This dissertation acknowledges some limitations that may have influenced the research findings:

- Sample Size: The study's sample size may not have been exhaustive, potentially limiting the generalisability of the findings.
- Time Constraints: The time allocated for data collection and analysis might have restricted the depth of investigation into certain factors.
- Language Barrier: Some participants may have faced language barriers affecting the accuracy of the data gathered.
- Subjectivity: The perception and interpretation of PPP success may vary among participants due to their individual biases and experiences.
- Cultural Sensitivity: The research relied on the interpretation of cultural aspects, which could have introduced a level of subjectivity.

Despite these limitations, this dissertation provides valuable insights into the CSFs for PPPs success in the UAE construction industry, contributing to the existing body of knowledge and guiding future research.

In conclusion, the research findings highlight the CSFs that play a pivotal role in ensuring the success of PPPs projects in the UAE construction industry. By identifying the unique

challenges and opportunities in the UAE context and comparing them with those of developed and developing countries, this study offers relevant recommendations to foster successful public–private partnerships. However, it is essential to consider the limitations while interpreting the findings, thereby paving the way for further exploration in this field.

6.4 Future Researcher

As previously stated, it has been obviously observed that the UAE construction sector, and particularly PPP, lacks adequate research for the critical success factors. This was particularly noticeable with regard to PPPs. In addition, discussions about PPPs and its critical success factors need to take place on the same platform. Meanwhile, the critical success factors in the UAE's PPPs are not well understood, and there is a need for further research and comprehension in order to close the knowledge gap that exists between the PPPs and its conceptual framework.

References

- Adeoye, O.A. & Islam, S.M.N. (2019). Comparing public-private partnership infrastructure financing approach in a developing and developed economy. *International Journal of Business and Economics*, vol. 4 (1), pp. 33–62.
- Adiyanti, N.P. & Fathurrahman, R. (2021). Assessing critical success factors for PPP water project in Indonesia: lessons from West Semarang. *Policy & Governance Review* ISSN 2580-4820, vol. 164 (2), pp. 164–181. <https://doi.org/10.30589/pgr>
- Aerts, G., Grage, T., Doooms, M., & Haezendonck, E. (2014). Public-private partnerships for the provision of port infrastructure: an explorative multi-actor perspective on critical success factors.
- Ahmed, Y. & Bin Sipan, I. (2019). Critical success factors of public private partnership for affordable housing in Nigeria. *International Journal of Recent Technology and Engineering*, vol. 8 (2S9), pp. 57–69. <https://doi.org/10.35940/ijrte.b1014.0982s919>
- Akbiyikli, R. & Eaton, D. (n.d.). A comparison of PFI, BOT, BOO, and BOOT procurement routes for infrastructure construction projects.
- Al Areefi, M. (2016). The execution of public-private partnership projects in Abu Dhabi: strategic objectives and critical success factors.
- Al Fardan, M. & Marochi, B. (2021). Implementation of gender policies by the private sector in the UAE: challenges and opportunities. *Journal for Interdisciplinary Middle Eastern Studies*, vol. 7 (2), pp. 127–153. <https://doi.org/10.26351/JIMES/7-2/2>
- Alkaabi, R.J.R.S. (2022). The infrastructure development success model for public-private partnership in UAE.

Allard, G. (2008). Public-private partnerships in Spain: lessons and opportunities.

International Business & Economics Research Journal, vol. 7 (2).

<http://www.minfin.nl/PPS>

Almarri, K. (2015). Developing a framework for implementing public private partnerships in a research reactor project in the United Arab Emirates.

Almarri, K. & Abu-Hijleh, B. (2017). Critical success factors for public private partnerships in the UAE construction industry-a comparative analysis between the UAE and the UK.

Journal of Engineering, vol. 7 (1).

Almarri, K. & Blackwell, P. (2014). Improving risk sharing and investment appraisal for PPP procurement success in large green projects. *Procedia - Social and Behavioral Sciences*, vol. 119, pp. 847–856. <https://doi.org/10.1016/j.sbspro.2014.03.095>

Almarri, K. & Boussabaine, H. (2023). Critical success factors for public–private partnerships in smart city infrastructure projects. *Construction Innovation*. <https://doi.org/10.1108/CI-04-2022-0072>

Alredha, M. (2017). Critical success factors for public private partnership in the UAE.

Alsaadi, R. & Abdou, A. (2013). The use of public-private partnership in infrastructure development in Gulf Cooperation Council countries. An ethical (descriptive) framework for judgment of actions and decisions in the construction industry and engineering- Part I. <https://www.researchgate.net/publication/257364530>

Alshamsi, S. (2019). Managing construction projects in the United Arab Emirates to gain competitive advantage.

Altarawneh, J.Y. & Samadi, B. (2019). The relationship between critical success factors and success criteria in construction projects in the United Arab Emirates. *International*

Journal of Advanced and Applied Sciences, vol. 6 (7), pp. 43–53.

<https://doi.org/10.21833/ijaas.2019.07.006>

Athias, L. & Saussier, S. (2007). Contractual flexibility or rigidity for public private partnerships? Theory and evidence from infrastructure concession contracts 1.

Auzzir, Z.A., Haigh, R.P., & Amaratunga, D. (2014). Public-private partnerships (PPP) in disaster management in developing countries: a conceptual framework. *Procedia Economics and Finance*, vol. 18, pp. 807–814. [https://doi.org/10.1016/s2212-5671\(14\)01006-5](https://doi.org/10.1016/s2212-5671(14)01006-5)

Batjargal, T. & Zhang, M. (2022). Review on the public-private partnership. *Management Studies*, vol. 10 (1). <https://doi.org/10.17265/2328-2185/2022.01.001>

Belachew, M. & Shyamasundar, R.K. (2013). Public private partnerships (PPP) in the e-government initiatives for developing nations: the case of Ethiopia. *ACM International Conference Proceeding Series*, pp. 42–45. <https://doi.org/10.1145/2591888.2591895>

Chan, A.P.C., Lam, P.T.I., Chan, D.W.M., Asce, M., Cheung, E., & Ke, Y. (2010). Critical success factors for PPPs in infrastructure developments: Chinese perspective. *Journal of Construction Engineering and Management*. <https://doi.org/10.1061/ASCECO.1943-7862.0000152>

Cheng, Z., Ke, Y., Yang, Z., Cai, J., & Wang, H. (2020). Diversification or convergence: an international comparison of PPP policy and management between the UK, India, and China. *Engineering, Construction and Architectural Management*, vol. 27 (6), pp. 1315–1335. <https://doi.org/10.1108/ECAM-06-2019-0290>

Cherian, A. (2008). The construction industry in the perspective of an economic boost of the United Arab Emirates (UAE). *International Research Journal of Engineering and Technology*, vol. 9001. www.irjet.net

- Cheung, B. & Eng, E. (2009). Developing a best practice framework for implementing public private partnerships (PPP) in Hong Kong.
- Chiu, T.Y.C. & Bosher, C.B. (n.d.). Risk sharing in various public private partnership (PPP) arrangements for the provision of water and wastewater services.
- Christmann, A. & Van Aelst, S. (2006). Robust estimation of Cronbach's alpha. *Journal of Multivariate Analysis*, vol. 97 (7), pp. 1660–1674.
<https://doi.org/10.1016/j.jmva.2005.05.012>
- Cui, C., Liu, Y., Hope, A., & Wang, J. (2018). Review of studies on the public–private partnerships (PPP) for infrastructure projects. *International Journal of Project Management*, vol. 36 (5), pp. 773–794. <https://doi.org/10.1016/j.ijproman.2018.03.004>
- Cumming, D. (2007). Government policy towards entrepreneurial finance: innovation investment funds. *Journal of Business Venturing*, vol. 22 (2), pp. 193–235.
<https://doi.org/10.1016/j.jbusvent.2005.12.002>
- Dada, M.O. & Oladokun, M.G. (n.d.). Critical success factors for public-private partnership projects in Nigeria: a perceptual survey.
- David, O., Olufemi, K., Sharafadeen, O., & Owolabi, B. (2021). Challenges facing public private partnership modalities especially Build Operate Transfer (BOT) in the provision of hostels accommodation in Nigeria. *IOSR Journal of Humanities And Social Science*, vol. 26 (6). <https://doi.org/10.9790/0837-2606090916>
- Dechev, D. (2015). Public-private partnership - a new perspective for the transition countries. *Trakia Journal of Science*, vol. 13 (3), pp. 228–236.
<https://doi.org/10.15547/tjs.2015.03.005>
- Deng, B., Zhou, D., Zhao, J., Yin, Y., & Li, X. (2021). Fuzzy synthetic evaluation of the critical success factors for the sustainability of public private partnership projects in

China. *Sustainability (Switzerland)*, vol. 13 (5), pp. 1–21.

<https://doi.org/10.3390/su13052551>

Devkar, G., Palliyaguru, R., & Oyegoke, A.S. (2020). The effects of institutional frameworks on implementation of PPP projects: a comparative perspective in Australia and India. *International Journal of Construction Management*, vol. 20 (6), pp. 720–736.

<https://doi.org/10.1080/15623599.2020.1769255>

Đorđević, A. & Rakić, B. (2020). Comparative analysis of PPP projects sectoral structure in developed and developing countries. *Facta Universitatis, Series: Economics and Organization*, 187. <https://doi.org/10.22190/fueo200304014d>

El-Sawalhi, N.I. & Mansour, M.A. (2014). Preparation critical success factors for public private partnership (PPP) projects in Palestine. *Journal of Engineering Research and Technology*, vol. 1 (2).

Emmanuel, O.O.B. (2013). Critical success factors (CSF) determining the implementation of public-private partnership projects. *Covenant Journal of Research in the Built Environment (CJRBE)*, vol. 1 (2).

Ghazali, M., Rashid, S.A., & Sadullah, M.A.F. (2017). The critical success factors for public-private partnership highway construction project in Malaysia. *Journal of Engineering and Technology*.

Hall, D., de la Motte, R., & Davies, S. (2003). Terminology of public-private partnerships (PPPs).

Hardcastle, C., Akintoye, A., & Li, (n.d.). Critical success factors for PPP/PFI projects in the UK construction industry: a factor analysis approach.

Helmy, M.A. (2011). Investigating the critical success factors for PPP projects in Kuwait.

Jayasena, N.S., Chan, D.W.M., & Kumaraswamy, M.M. (2022). Is public–private partnership (PPP) a preferred strategy for procuring smart infrastructure in developed countries: an empirical study of the perceived benefits, barriers and recommended strategies.

Sustainability (Switzerland), vol. 14 (11). <https://doi.org/10.3390/su14116421>

Kahwajian, A., Baba, S., Amudi, O., & Wanos, M. (2014). Identification of critical success factors (CSFs) for public private partnership (PPP) construction projects in Syria. *Jordan Journal of Civil Engineering*, vol. 8 (4).

Ke, Y., Wang, S., & Chan, A.P.C. (2010). Risk allocation in public-private partnership infrastructure projects: comparative study. *Journal of Infrastructure Systems*.

<https://doi.org/10.1061/ASCEIS.1943-555X.0000030>

Khanom, N.A. (2010). Partnership for development view project conceptual issues in defining public private partnerships (PPPs). *International Review of Business Research Papers*, vol. 6 (2). <https://www.researchgate.net/publication/228862464>

Liu, Z. & Yamamoto, H. (2009). Public-private partnerships (PPPs) in China: present conditions, trends, and future challenges. *Interdisciplinary Information Sciences*, vol. 15 (2), pp. 223–230. <https://doi.org/10.4036/iis.2009.223>

Makofane, T.S., Supervisor, P., & Fourie, D.J. (2013). Public private partnership in South Africa with reference to the realisation of black economic empowerment.

Marschlich, S. & Ingenhoff, D. (2022). Public-private partnerships: how institutional linkages help to build organizational legitimacy in an international environment. *Public Relations Review*, vol. 48 (1). <https://doi.org/10.1016/j.pubrev.2021.102124>

Mashele, M.P. (2012). An appraisal of public-private partnership procurement systems in the South African construction industry. <http://hdl.handle.net/102000/0002>

Moustafa, E. (2007). Public-private partnership in managing labor market in UAE- case study.

- Mulyani, S. (2021). Critical success factors in public-private partnership. *Journal of Accounting Auditing and Business*, vol. 4 (1), p. 81.
<https://doi.org/10.24198/jaab.v4i1.31953>
- Mustafa, H. (2017). Critical success factors for public private partnership in the UAE: impact of perception on success of PPP projects.
- Nataraj, G. (2007). Infrastructure challenges in South Asia: the role of public-private partnerships. www.adbi.org
- Nsasira, R., Basheka, B.C., & Oluka, P.N. (2013). Public private partnerships (PPPs) and enhanced service delivery in Uganda: implications from the energy sector. *International Journal of Business Administration*, vol. 4 (3). <https://doi.org/10.5430/ijba.v4n3p48>
- Osei-Kyei, R. & Chan, A.P.C. (2017). Empirical comparison of critical success factors for public-private partnerships in developing and developed countries: a case of Ghana and Hong Kong. *Engineering, Construction and Architectural Management*, vol. 24 (6), pp. 1222–1245. <https://doi.org/10.1108/ECAM-06-2016-0144>
- Osei-Kyei, R. & Chan, A.P.C. (2018). Comparative study of governments; reasons/motivations for adopting public-private partnership policy in developing and developed economies/countries. *International Journal of Strategic Property Management*, vol. 22 (5), pp. 403–414. <https://doi.org/10.3846/ijspm.2018.5223>
- Otairu, A.G., Umar, A.A., Zawawi, N.A.W.A., Sodangi, M., & Hammad, D.B. (2014). Slow adoption of PPPs in developing countries: survey of Nigerian construction professionals. *Procedia Engineering*, vol. 77, pp. 188–195.
<https://doi.org/10.1016/j.proeng.2014.07.014>

- Paanakker, H. & Reynaers, A.M. (2020). Value contextuality in public service delivery. An analysis of street-level craftsmanship and public–private partnerships. *Public Integrity*, vol. 22 (3), pp. 245–255. <https://doi.org/10.1080/10999922.2020.1715128>
- Quium, A. (2011). Public-private partnership in infrastructure economic and social commission for Asia and the Pacific.
- Rahman, I.A., Memon, H., Sheda, N., & Zulkiffli, M. (2014). Failure reasons of PPP infrastructure projects: case study of Kuala Lumpur LRT Project. *Life Science Journal*, vol. 11 (7).
- Rashed, M.A., Alam, M.M., & Fahim, F. (2013). The performance and challenges of public-private partnership (PPP) projects in Bangladesh. *Journal of Bangladesh Studies*, vol. 15 (2).
<https://drive.google.com/file/d/1GadRNNlnibzUqYfy27dKJQpx5NvCHMVR/viewElectr>
[oniccopyavailableat:https://ssrn.com/abstract=2942639](https://ssrn.com/abstract=2942639)
- Roehrich, J.K., Lewis, M.A., & George, G. (2014). Are public-private partnerships a healthy option? A systematic literature review. *Social Science and Medicine*, vol. 113, pp. 110–119. <https://doi.org/10.1016/j.socscimed.2014.03.037>
- Roman, A.V. & Professor, A. (2015). *Research report*. The NIGP Business Council 1.
- Saeed, R., Al-Saadi, A.S., Al-Saadi, R., & Saeed, A. (2015). A framework for guiding the briefing process in public-private partnerships in the UAE construction industry.
https://scholarworks.uaeu.ac.ae/all_dissertations/17
- Saunders, M., Lewis, P., Thornhill, A., Lewis, S., & Thornhill, (2009). *Research methods for business students*. 5th edn. www.pearsoned.co.uk
- Saunders, M.N.K., Lewis, P., & Thornhill, A. (2019). *Research methods for business students*.

Shawa, H. (1995). Project related finance for construction contractors operating in the United Arab Emirates.

Solomon, H., Swart, G., & South African Institute of International Affairs. (2004). *Conflict in the DRC: a critical assessment of the Lusaka Ceasefire Agreement*. South African Institute of International Affairs.

Stark, R.D. & Qureshi, M.A. (2010). Enhancing public private partnerships in GCC.

Surachman, E.N., Handayani, D., Suhendra, M., & Prabowo, S. (2020). Critical success factors on PPP water project in a developing country: evidence from Indonesia. *Journal of Asian Finance, Economics and Business*, vol. 7 (10), pp. 1071–1080.

<https://doi.org/10.13106/jafeb.2020.vol7.no10.1071>

Tvam, C.D. (2014). Negotiating efficient PPP contracts.

Vu, H., Sandanayake, M., & Zhang, G. (2023). Factors affecting the readiness of user-pay public–private partnership procurement for infrastructure projects: a comparison between developed and emerging economies. *Knowledge*, vol. 3 (3), pp. 384–400.

<https://doi.org/10.3390/knowledge3030026>

Appendix - Questionnaire

Survey on "Critical success factors (CSFs) for public–private partnerships (PPPs) in the UAE construction industry. A comparative analysis between developed and developing countries"

Part 1: Respondent's General & Demographic Information

• Gender: ☐ Male ☐ Female • Designation: ☐ High-Level Management ☐ Manager ☐ Senior-Position Engineer ☐ Engineer ☐ Other (Please specify): • Age: ☐ Under 25 ☐ 25–34 ☐ 35–44 ☐ 45–54 ☐ 55 and above • Education: ☐ Bachelor's Degree ☐ Master's Degree ☐ Doctorate
• How many employees does your organisation have? ☐ 0–50 ☐ 51–100 ☐ 101–150 ☐ 151–200 ☐ More than 200 • What is the extent of your years of experience in managing construction work? ☐ 0–5 ☐ 6–10 ☐ 11–15 ☐ 16–20 ☐ 20 and above • How often does your company participate in public–private partnership assignments? ☐ Not at all ☐ Seldom ☐ Moderate ☐ Often ☐ Very often
Would you be interested in receiving a copy of the analysis detailing the results of the survey? ☐ Yes ☐ No
I am extremely appreciative of your considerate cooperation.

Part 2: Perception of benefits, challenges, and CSFs

Please rate the following factors on a scale of 1 to 5, where 1 represents "Not Important" and 5 represents "Very Important".

Perception of CSFs		Importance
1	Capability for independent funding	1 2 3 4 5 □□□□□
2	Clear project objectives and scope	1 2 3 4 5 □□□□□
3	Effective risk management and risk handling	1 2 3 4 5 □□□□□
4	Government finance and funding mechanisms	1 2 3 4 5 □□□□□
5	Stakeholder engagement and skilled collaborators	1 2 3 4 5 □□□□□
6	Loyalty or assurance	1 2 3 4 5 □□□□□
7	Legal and regulatory framework	1 2 3 4 5 □□□□□
8	Technical expertise, innovation, and qualified employees	1 2 3 4 5 □□□□□
9	Well-designed PPP contract	1 2 3 4 5 □□□□□
10	Accessibility of the banking system	1 2 3 4 5 □□□□□
11	Feasible analysis statement	1 2 3 4 5 □□□□□
12	Politicians' support	1 2 3 4 5 □□□□□
13	Stable politics	1 2 3 4 5

		□□□□
14	Suitable amount of fees and taxes	1 2 3 4 5 □□□□
15	Authorities' cooperation	1 2 3 4 5 □□□□
16	Skilled consultants	1 2 3 4 5 □□□□
17	Project technical viability	1 2 3 4 5 □□□□
18	Commitment from the partners	1 2 3 4 5 □□□□
19	Robust commercial groups	1 2 3 4 5 □□□□
20	Transparent procurement process	1 2 3 4 5 □□□□

Part 3: Comparative Analysis

Please provide your opinion on the following statements by selecting the appropriate option.

1	Public–private partnerships (PPPs) in developed countries are more successful compared to those in developing countries. ☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree
----------	--

2	The critical success factors for PPPs in the UAE construction industry differ significantly from those in developed countries. ☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree
---	---

Part 4: Open-Ended Questions

Please provide your insights and opinions on the following open-ended questions.

1	In your opinion, what are the key challenges faced by PPPs in the UAE construction industry?
2	What specific strategies or actions can be taken to enhance the success of PPPs in the UAE construction industry?
3	Based on your experience, can you identify any critical success factors that are unique to the UAE context?
4	Any additional comments?