International Journal of Business and Management; Vol. 18, No. 2; 2023
ISSN 1833-3850 E-ISSN 1833-8119
Published by Canadian Center of Science and Education

The Impact of Tendering Management Practices on Oil & Gas Project Scope Creep in the UAE: A Structural Equation Modeling Method

Awadh M. Alkarbi[1], Mian M. Ajmal[1], & Abdelrahim M. Zabadi[2]

[1] Abu Dhabi University, UAE

[2] PHD in MIS, UAE

Correspondence: Awadh M. Al Karbi. Abu Dhabi University, UAE. E-Mail: awad.alkarbi@gmail.com

Received: October 6, 2022 Accepted: January 10, 2023 Online Published: February 13, 2023

doi:10.5539/ijbm.v18n2p117 URL: https://doi.org/10.5539/ijbm.v18n2p117

Abstract

The goal of this study is to determine whether or not contract quality (CQ) can mediate the effect of tendering management (TM) procedures on the project scope creep (PSC) issue in the UAE's oil and gas (O&G) industry. The data collected from 270 individuals working in public and private companies on O&G projects in the UAE are analyzed using a structural equation modeling (SEM) methodology. The findings showed that TM significantly influenced PSC during the project's execution phase. The findings also supported the hypothesis that CQ mediated the relationship between TM and PSC during this period. This study provides clear guidelines for procurement, project, and other stakeholder managers and leaders on how to avoid project scope creep through careful planning of any O&G project's scope, budget, and duration by managing tendering activities and creating high-quality contracts to facilitate project management. The impact of TM on PSC during the project's execution phase through the CQ has not yet been researched in the UAE setting, despite existing literature and ideas in these three fields of study. This report could include mention the research of O&G industrial groups.

Keywords: tendering management (TM), contract quality (CQ), project scope creep (PSC), oil & gas (O&G) sector, UAE

1. Introduction

The UK O&G Industry Association Limited's OGUK 2019 economic research found that the present O&G worldwide demand/needs was 54% compared to approximately 50% as projected in 2040. O&G sector play a critical part in the global economy of energy mix today and in the future (OGUK, 2019). It is one of the most expensive, requiring expensive resources for operations, maintenance, (Sylvester et al, 2011) and project management. Such an industry is also marked by a high degree of complexity, competition, and uncertainty, in addition to its economic significance to society and nations (Hasan & Alhashimi, 2019). However, (Sefair et al., 2017) much like any other industry, the O&G sector has numerous difficulties and impediments while implementing projects to ensure compliance with the triple constraint triangle (i.e., budget/cost, time/schedule, and scope).

According to Chartered Institute of Building Surveys (2013), increasing demands from end users/customers caused 81% of O&G projects and 42% of engineering projects to be postponed or fail (Cullen & Parkar, 2015). Furthermore, Shenhar & Dvir studied more than 600 projects in 2007, and their findings showed that 85% of government and non-profit initiatives in various nations failed because they could not achieve the goals of the projected budget/cost, and time (Cullen & Parkar, 2015). A project scope, in particular, is a set of requirements, deliverables, plans, and budget estimates that are well-defined during the pre-planning stage and that are essential to the project's investment and success during execution (Banda et al., 2016). On the other hand, PSC is heavily involved in the implementation stage of O&G projects. Without increasing project resources or schedules, the deliverables are increased (Abbasi et al., 2014).

The quality and risk of numerous projects around the world are threatened by this project scope issue (Siriram, 2019). In the United Arab Emirates, Abu Dhabi's 2030 Economic Vision outlined a plan for steadily increasing O&G industry projects and investments while also investing in other non-O&G sectors (Harhara et al., 2015). Addressing O&G's PSC issue is necessary in order to keep its reputation as a top-tier O&G firm in the UAE. In this regard, it is important to remember that the UAE is an active member of OPEC and contributes significantly

to maintaining the supply and price of oil on the global market.

As a result, there is a dearth of information in the literature about how to resolve the PSC issue through TM's practices in the O&G sector in the UAE. However, this study aims to close the knowledge gap in this field. Furthermore, there is a dearth of literature in the O&G sector that would guide and assist managers, business owners, and decision-makers in the procurement and project business units as they conceptualized and planned their resources toward practices to address all PSCs that might arise (during the project's initial stages) in the variety of ongoing and upcoming projects. Given the research gap mentioned in the previous section, the following research question will serve as the basis for this investigation: What effect do TM efforts have on the PSC of O&G projects in the UAE?

This study contributes knowledge to the literature on project management and supplier chains. In the context of the O&G industry in the UAE, it offers a conceptual framework and supports empirical findings in TM and PSC literature. Additionally, it assists and directs O&G executives and decision-makers in procurement and project business units to conceptualize and plan their resources toward procedures to deal with PSC's anticipated problems (at early project stages) in the range of present and upcoming projects in the UAE. The results of this study further emphasize the idea that an O&G industry's PSC is more likely to improve when it has a stronger and higher TM and CQ. Last but not least, by examining how tendering management practices affected O&G PSC in the UAE, it was discovered that TM greatly helped PSC solve issues throughout the project's execution phase by bolstering their CQ determinants.

2. Literature Review

Studies that have looked into the PSC issue in various organizations are discussed from the standpoint of stakeholder theory. Additionally, some studies in the disciplines of supply chain management and project management look at key components of TM and CQ techniques under the same framework. The project scope is a clearly defined O&G project's requirements, deliverables, planned timeline, and expected cost / budget in the pre-planning phase, requiring a significant investment of time and resources for the project's success in the future during implementation (Banda et al., 2016). As stated in the introduction, the oil and gas business includes all types of projects (e.g. Operational & maintenance projects, construction, consultancy, IT projects).

A number of turnkey and large engineering procurement and construction projects are also available in this sector. These projects strive to achieve project success through careful resource planning and adherence to the iron triangle restrictions of scope, schedule, and cost to avoid PSC (Parker & Cullen, 2015). PSC is a significant issue at the implementation stage of O&G projects. Without increasing project resources or schedules, the deliverables are increased (Abbasi et al., 2014). Numerous O&G projects around the world's quality and risk are threatened by this project scope issue (Siriram, 2019).

PSC is similar in that it refers to a lack of control over the limitations placed on O&G projects in terms of money, duration, and scope (Wawira et al., 2019). According to practitioners, client changes, imprecise scope, and unforeseen other possible risks are the primary reasons of PSC. With PSC in mind, the project is now one in which either one of the two parties (client and contractor) or stakeholders is unaware of the modifications, there are no agreements between them, or there is no review or acceptance of probable project implications (Jones, 2014 ; Mello et al., 2007; Shishodia et al., 2018).

There isn't much information in the literature about various hypotheses that explain the connection between PSC, TM activities, CQ activities, and PSC and their dimensions. During the early stage of a project's scope clarifications, i.e., the procurement or tendering stage, the PSC dilemma is described in this study from the perspective of ST (Agarchand & Laishram, 2017a; Al-Nasser et al., 2017; Dorée, 2010; Jahn & Brühl, 2018; Johnson et al., 2016; Lu, 2019). In order to achieve high project performance, Freeman (1984)’s stakeholder theory describes a strong relationship between all parties, including shareholders, in organizations as client's business unit, procurement/contracts, suppliers, etc.

This relationship should be taken into consideration during TM and CQ stages of the project to avoid any effect of increased risks and the occurrence of PSC (Johnson et al., 2016). This is also agreed by Ajmal et al(2019), they say any organization achieve its success in all of its projects and operation if all stakeholders’ communication process is clear about project scope (Ajmal et al., 2019). Ajmal et al. (2019), who concur, assert that any business would succeed in all of its projects and operations if the communication process between all stakeholders is clear regarding the project scope.

Additionally, according to this theory, early coordination and understanding of project scope requirements among end users, finance, legal, procurement business units, other organization's business units, suppliers, and external

stakeholders like the government, etc., will help the project succeed and overcome PSC in the future. The terms PSC and scope change are frequently used interchangeably, but the former refers to an agreed-upon modification of the project's original scope, cost, and schedule that may or may not be reimbursed to the contractor (Amoatey et al., 2017). It is a remedy for PSC, to put it another way. Stakeholder theory influences how TM, CQ, and PSC are arranged in relationships. The next subsections cover how PSC overcomes its key obstacles (TM and CQ) and their supporting conditions, such as study hypotheses.

3. Conceptual Framework & Hypothesis Development

3.1 Tendering Management Activities (TMAs) and PSC

Before the start of the project itself, O&G industry projects begin with TM activities followed by CQ as aspects of procurement activities. There are few studies that concur that TM lowers all PSC risks in the project's early phases to mitigate PSC risks in the project's later stages by coordinating each TM activity with project stakeholders. The term "TM" refers to all activities involved in defining the project's requirements and scope with stakeholders, followed by the development or production of a high-quality contract with the goal of reducing PSC through the creation of clear contract quality and documentation that includes clear communication channels.

Managing all tasks associated with submitting a request for contracts for goods (EPC, civil constructions, etc.), services (consultancy, FEED, general services, etc.), or both, to a business, and then choosing the contractor after carefully examining all of the proposals in accordance with predetermined criteria and negotiating (Diabagate et al., 2017). As a result, TM comprises three primary phases: the pre-tendering stage (PTAs), the tendering stage (TAs), and the activities for evaluating and awarding bids (EVAs) (ADNOC Refining, 2019). Upon receiving a project contract or procurement request from an end user, a contract expert must first assess the project scope in order to prepare a tendering strategy or plan to minimize the risk of PSC (ADNOC Refining, 2019; Thangavelu et al., 2019).

It necessitates good coordination amongst stakeholders for every project need clarifications, including input from the market. Additionally, PTAs serve as a framework for the tendering process, tendering methods (one stage for submitting both technical and commercial bids, and two stages for submitting technical and the commercial bid), tendering timing, and tender award as PSC's constraints, i.e. single award or split award (Eba, 2014). In agreement with Eba (2014), Adedokun et al. (2013) added that the tender cost estimate (i.e. estimated project price results of estimator works), sourcing method, i.e. sole source (unique brand or original equipment manufacturer /licensor or etc.), competitive restricted tendering for special nature O&G industry and works, or unrestricted or public tendering.

Evaluation criteria (how to evaluate qualified bidders technically and commercially separately or jointly), budgetary allocations from the previous and current year, and the project's planned schedule of works/services-description. This procurement strategy also includes early supplier or original equipment manufacturer engagement to coordinate with client and procurement specialist as needed to estimate all specific project plans, including predicted risks (potential). Lean project activities are sparked by the aforementioned information efforts to prevent PSC. The project scope need, the supplier's experience on comparable projects, their financial statement, and the unique characteristics of O&G organizations were used as the selection criteria for suitable providers for the tender (such as O&G certificate and HSE ISO certificates as per the project scope) (Martinsuo & Sariola, 2015; Sundquist et al., 2018).

These predetermined parameters are used to choose the best prospective suppliers for the best tenders in order to account for PSC events throughout project implementation. In accordance with the delegation of authority by internal stakeholders, PTAs concludes with the approval of suppliers and the tendering strategy based on the requirements from the O&G organization board of tender/management (ADNOC Refining, 2019). Writing a report to the management as part of this process include noting the project's scope, tendering and awarding procedures, budget, cost estimate for the tender, a list of potential bidders, the selection criteria, and any other unique project-related information. PSC is defeated by properly implemented PTAs, such as supplier selection criteria for private tenders, budget confirmation, tendering boards/committees & multi-decision criteria, e-tendering/e-procurement, well-designed cost estimation mechanisms, etc. According to the aforementioned literature reviews and the theory that was addressed, there is a strong correlation between the TM's PTAs of stakeholders and the incidence of PSC during the project's execution phase. In light of this, the following first hypothesis is put forth:

H1a. PSC occurrence is significantly influenced by TM activities of PTAs.

The second stage of TM's tendering activities (TAs) begins with the production of the tender documents and the

floating of the request for tender/quotation (RFT/Q) invitation communication to the selected bidders in the market. (ADNOC Refining, 2019). The TAs contain information about the project's scope, the bill of quantities' specifications and drawings, the terms and conditions, the technical assessment standards with a cutoff score, the instructions for submitting bids, and the deadline for submitting technical and/or commercial bids. This phase serves as the O&G organization and bidders'/suppliers' initial official interface. When bidders submit clarification requests (such as contractual, technical, commercial (non-priced format), legal, etc.) to the contracts/procurement business unit (C/PBU) within the procurement division, the C/PBU team responds to those clarifications as tender bulletins via fax, email, or e-Procurement or through a meeting to all bidders after consulting with the technical user unit, legal advisor unit, etc., or directly (Idaham Umar Ong & Ariff Ameedeen, 2020). The RFT serves as a means of validating the scope of works or services (SOW/S) for technical stakeholders or end users, including technical requirements, as bidder explanations will resolve any ambiguities or omissions about project scopes and will be recorded in the CQ's DC. Additionally, ensuring the quality of a project conclusion from CQ by standardizing bid documents, including RFT forms and other correspondences, would help ensure the quality of contract content (Agarchand & Laishram, 2017b).

In order to avoid PSCs during project execution caused by any misunderstanding of project requirements, it is mandatory to meet with potential project's stakeholders, including clients, main contractors/bidders/suppliers, subcontractors, and any third party, prior to tendering, during the tendering process, and during negotiations (Nevstad et al., 2018). The CBU may schedule a pre-bid meeting with each bidder to familiarize them with the location and the scope requirements of the tender if it is necessary to visit the site to obtain additional information about the anticipated project's scope. The tenders document, which includes deadline and submission details of instructions to submit a final offer based on all rounds of clarifications meetings and clarifications correspondence, is a guide for bidders, technical end users, finance division, legal division, and others. Consequently, the following assertion is made:

H1b. **PSC occurrence is significantly impacted by TMAs.**

A tender evaluation and award activities (EVAs) stage is initiated by evaluation of bidders' technical bids, reviewing any exceptions or risk if any, followed by technical successor commercial bids evaluation, negotiation activities and finally awarding tender to the successful bidder (Adedokun et al., 2013). In order to lower PSC risks, this stage involves evaluating possible suppliers and their sourcing proposals. Technical bids from bidders are typically received and opened by the unpriced tender opening committee at the bid closing date before being forwarded to an end user unit for evaluation (ADNOC Refining, 2019). The user team will provide any necessary technical clarifications, which will then be provided to the bidders via CBU in order to set up a TC meeting with the bidders if necessary to lower PSC risks.

Following the meeting, the end user will receive the bidders' received TC answers. According to the delegation authorities, the contract end user must give the technical evaluation report to the special projects steering committee for approval before it can be issued for tenders with estimates that are more than a specified threshold (ADNOC Refining, 2019). Following the issuance of priced bid invitations to technically qualified bidders, the priced tender opening committee arranges for the opening of the priced bids after receiving the priced bids.

The CBU, or procurement business unit, has the responsibility of assessing commercial offers, resolving commercial ambiguities with bidders, and collecting updated priced bids. The Vice President Procurement or contract/procurement manager, contracts section head, contracts engineer, and technical team representatives make up the majority of O&G companies' negotiation teams. The goal of a price negotiation meeting with the lowest bidder is to achieve maximum savings in accordance with the tender estimate and the approved budget, as well as to optimize scope to reduce risks. Revised priced bids can be obtained by suing the lowest bidder (ADNOC Refining, 2019).

In order to establish specific and tailored technical and commercial bids criteria that fit a current tendering/auction project and prevent PSC after contract award, Lahdenperä (2016) agrees to the information provided above. In certain circumstances, awarding criteria to the lowest priced technical accepted bidder could increase the risk of PSC as a result of cost overrun risk after winning a competitive tender by presenting the lowest priced offer for the sole purpose of winning the tender (Lahdenperä, 2016). For unbalanced bids might cause PSC due to bidder's upfront loadings of prices for unit rate and lump sum contracts during tendering management (Polat et al., 2019).Similarly, Polat et al. (2019) agrees with Lahdenperä (2016) that such bid leverages benefits of contractor against project's owner in order to maximize its profit, and it can be mitigate by developing technical evaluation criteria stopping such practices and overcoming any chance of PSC during project execution in order to resolve such slippage in tendering at project stage.

The next step in the EVA stage is the awarding of the tender. After careful preparation, review, and compilation of the submission report by the procurement team, it is to prepare an award recommendation in favor of the lowest priced technically acceptable bidder or other criteria of award strategy and to submit to a tender board for its endorsement and then to the approval authority (Diabagate et al., 2017). In some circumstances, in addition to the lowest price bid or offer, the O&G company in the UAE asks to award the tender to the highest in-country value contributions to the local market in terms of using local materials and resources, building local facilities especially for foreign companies, Emiratizations, or employing locals, among other things, as part of awarding practices (ADNOC Refining, 2019). Hence, the following hypothesis is posted as follows:

H1c. PSC occurrence is significantly influenced by TMAs of EVAs stage of the tenders.

Prior to contracting any project, the three steps of the TM process—the three that have been discussed—include accurate details analysis of the project's needs, contractor/supplier information, and tendering and contracting techniques (Zaigham et al., 2018). As an additional example, if stakeholders or parties to a project lack complete information, their trust in one another will decrease during project execution, increasing the costs of post-award transactions since the owner may hire a third party consultant to assess the project's success (Diabagate et al., 2017; Kassem et al., 2019; Ma et al., 2019; Miroslavas et al., 2017; Wimalasena & Gunatilake, 2018; Xia et al., 2017). All of the aforementioned authors claimed in their studies that TM activities lower project risks, however some of them omitted the phrase PSC or used it in an ambiguous manner. Clients of O&G firms test prospective bidders against the minimal quality criteria as part of quality management before choosing those for a bid (Sylvester et al., 2011). This is to ensure a selection of the eligible bidders to be engaged in the potential tender, contract, and project to overcome PSC. Therefore, is necessarily to prepare criteria for selection prior to start tendering in order to ensure quality competed for bids (technical and commercial) submission during tendering stage (Martinsuo & Sariola, 2015). This may be a source of risks that to be taken care seriously during TM. Generally speaking, while preparing agreements, the right TM and particularly detailed EVAs are to ensure highly CQ. The relationship between PSC and the contract's parts is covered in the next sections.

3.2 Contracts Quality Mediating Relationship between TMAs and PSC

Any project in the O&G sector begins with tendering operations, followed by the development of contracts as part of procurement activities, before the real project is launched (Brook, 2017). This implies that we must manage the tendering processes before managing any project. The term "TM" refers to all actions taken to define the project's requirements and scope, develop or produce a high-quality " contract quality (CQ)", and lower the PSC by providing a clear CQ document and clear communication procedures (Brook, 2017). Managing all tasks associated with submitting a request for contracts for goods (EPC, civil constructions, etc.), services (consultancy, FEED, general services, etc.), or both, to a business, and then choosing the contractor after carefully examining all of the proposals in accordance with predetermined criteria and negotiating (Diabagate et al., 2017).

The CQ's DC is the culmination of all TM activities, such as well-applied supplier selection criteria for private tenders, budget confirmation, tendering board/committee & multi-decision criteria, e-tendering/e-procurement, well cost estimation mechanism, tendering policies & procedures, clarified scope & duration in tendering documents/template, pre-defined technical & commercial bids evaluation criteria, legalize terms & conditions, pre-defined tendering (Diabagate et al., 2017; Kassem et al., 2019; Ma et al., 2019; Miroslavas et al., 2017; Wimalasena & Gunatilake, 2018; Xia et al., 2017). The PSC is also a result of the lowest bidder submitting partial information under time constraints, which goes against the CQ parts of DC and CC (Baig & Kureshi, 2018).

As the involved parties (end users and procurement specialists) race to complete the tenders within a designated procurement tendering cycle key performance indicators, PSC can occasionally result from the haste to award the project tender (Baig & Kureshi, 2018; Brook, 2017; Diabagate et al., 2017). According to CC of CQ, a written contract is required for any commercially significant contractual relationship; this formality results in a written or other permanent record of what has been agreed upon and allows third parties (including the courts) to see what rights and obligations under the agreement affect each party (AZTech & COPEX, 2014). Inaccurate memory (people/stakeholders forget), a lack of confidence between/among parties, and the complexity of technological, commercial, and legal challenges are further reasons for formal contractual relationships. As stated in the PSC subsection, the majority of its risks can be avoided by using proper, well-written contracts documents with full details that remove any ambiguities resulting from PSC's internal and external risks (Amoatey et al., 2017; Baram, 2005; Jones, 2014; Lyles et al, 2002; Mello et al., 2007; Nzelibe, 2004; Sadler, 2002; Shishodia et al., 2018). PSC is sometimes resulted in undocumented verbal communications (Olsson et al., 2018).

Any discussions regarding the range of duties or responsibilities should be documented in writing, either through contracts before the project is executed or correspondence throughout the project, in order to reduce the risks of

PSC. Olsson et al. (2018) recommended that all information be included in a well-written document clarity (DC) with a clear Communication channels (CC) to minimize potential disagreements and claims that could result in PSC. Agreeing with Olsson et al. (2018), communication protocols among stakeholders need to be established to deal with expanding work scopes (Lappi & Aaltonen, 2017). From the above literature reviews including the discussed theories, The CQ (including DC & CC) mediating the relationship between TM stages (PTAs, TAs and EVAs) and the PSC occurrence during execution phase of project. Accordingly, the second hypothesis is proposed as follows:

H2. CQ activities (DC & CC) mediates the relationship between the TMAs and the PSC occurrence.

This study developed a thorough framework that takes into account various determinants of running into PSC problems, including TM and CQ, based on UAE's O&G industry, in order to overcome and supplement the limitations of prior studies (e.g., limited research target, limited determinants, and insufficient study in terms of the direct and indirect relationships between the study variables). As a result, this study has created a framework to investigate the empirical correlations among the constructs of the literature review (TM, CQ and PSC). The research conceptual framework suggested by this study is depicted in Figure 1 and is based on the literature previously mentioned.

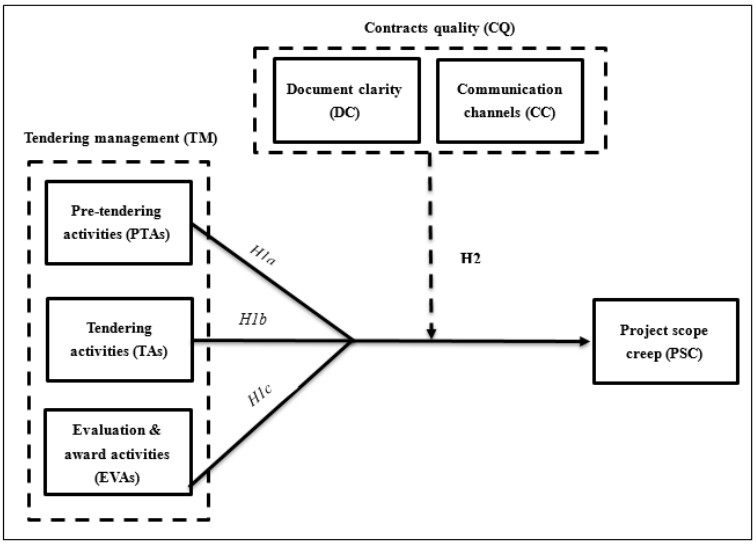

Figure 1. Conceptual model

4. Research Methodology

4.1 Measures and Survey Development

The constructs items were developed based on the theoretical background and literature review (Kalaitzi et al., 2019). Additionally, focus groups or subject-matter experts are used to generate the construct metrics (Lintukangas et al., 2016). The questionnaire for the study was created across three stages. In the first stage, an instrument was created based on an unstructured interview with five subject matter experts in the procurements and project fields (two faculty members from Abu Dhabi University (ADU), one from a high-level management position and two from a medium level management position in an O&G company). In the second step, information was gathered from people with 14 to 30 years of experience in the O&G sector in the Abu Dhabi region (eight managers and two doctors in ADU). As a result, the entire questionnaire was updated by concentrating on TM and CQ to overcome PSC, and it was then examined by four specialists to remove common technique bias and ensure its validity. The survey questionnaire was created using a 5-point Likert scale and divided into four sections with a total of 29 indicators. The instrument's Section A deals with the demographic data of the chosen company, while the other three sections—Part B for TM, Part C for CQ, and Part D for PSC—are concerned with the three variables in the model. Before being submitted to the Institutional Study Board (IRB) of the ADU for approval and the beginning of data collection, the measuring items were chosen from the literature review and reviewed by four subject matter experts.

4.2 Sampling

800 representatives from Abu Dhabi-based O&G businesses received the survey (360O stakeholders, who are dealing with TM, CQ and PSC directly or indirectly e.g. clients, suppliers and so on). Using a Survey Monkey link, a survey was sent out via Outlook email to all workers of Abu Dhabi oil and gas-based businesses. The Abu Dhabi region makes up 85% of all of the UAE. Around 80% of all UAE residents live in the Abu Dhabi region (Albuquerque & Awadalla, 2020). Received 412 responses (response rate = 61%); 141 of these were deemed redundant and hence eliminated since they were duplicates. For online and email surveys, the standard response rate is roughly 55%. (Maronick, 2009). The study sample size is the remaining 270 stakeholders (O&G companies' dealings with TM, CQ, and PSC). Accordingly, in Abu Dhabi, 62% of respondents are in middle and senior management positions, with the remaining respondents working as procurement and project specialists. 1.5% midstream: Transportation firms (pipeline, oil tanker, barge, truck, etc.), 26.7% downstream: Processing and Marketing Companies, and 55.2% Service O&G Company (consultant/vendor/contractors). There are also 1.5% oil & gas educational institutions. The questionnaire was sent out via Outlook email, which has a database of all employees in Abu Dhabi O&G-based companies and is registered with an O&G government company. This email also included a description of the study's goals, a guarantee of confidentiality, and instructions on how to complete the questionnaire. The questionnaire is divided into two sections: one is for demographic data, and the other is for questions concerning the TM, CQ, and PSC. IBM AMOS and IBM SPSS Statistics version 20 were used to examine the data. In the data analysis and outcomes, the data were examined for reliability, validity, correlation, and regression.

4.3 Non-Response Bias and Common Method Bias

According to Hair, et al. (2014), non-response bias was first reduced by removing any responses with more than 9.5% of the data missing. Using IBM SPSS Statistics version 20, the partial responses were substituted using 5 multiple imputation (Regression method) with the options of either Monke Carlo iterations or monotonality. As a result, 270 out of 412 responses were received. The primary limitation on this study is time, along with financial restrictions on tuition. Second, a used methodology or measurement equipment can lead to common method bias (CMB), also known as a common method variance (CMV) (Podsakoff, 2012). It happens when an instrument has three types of bias: 1) systematic construct variance related to the features that represent the intended construct; 2) systematic error bias due to the features of the particular method applied that may not be relevant to your studied construct or model, but it fits for other constructs; and 3) random error bias (MacKenzie & Podsakoff, 2012). As was previously noted, the CMD was overcome by using numerous reviewers and specialists at different phases to assess the instrument items. Additionally, it is possible to assess both measurement and prediction errors by utilizing SEM (Joseph F. Hair et al., 2014). This study employs SEM to lessen bias during model testing.

4.4 Data Analysis Method

In this study, the model in figure 2 was tested using the SEM based on AMOS 22.0, which has several advantages over other multivariate data analysis approaches since it combines multiple elements and multiple indicators that were taken from numerous empirical studies to assess their interrelationships (Sila & Ebrahimpour, 2005). Given the extensive literature study and stakeholders theory used here, the SEM demands the researcher to offer particular information regarding measurement model in terms of variable and construct relationships (Joseph F. Hair et al., 2014). The latent variable model known as the SEM was chosen over the route analysis for a variety of reasons. First, unlike SEM, which evaluates many indicators per component, route analysis evaluates the relationship of one sign per factor, this makes it advantageous to carefully research and study events.

Unlike other methods, SEM allows for the evaluation of both measurement and prediction errors. 2014 (Hair et al.2014). As a result, the bias in model testing is decreased. The route analyses presuppose that there is no mistake with the independent variable and that the dependent variable has an error, which is the residual error of the modeling equation. The SEM outperforms the conventional multiple regression method in that it automatically calculates the true regression relationship by dividing the observed regression coefficient by three (Hair et al, 2014). The proposed theoretical framework explored in the study is studied utilizing the SEM, which is referred to be a statistical method that uses a confirmatory factor analysis (CFA); i.e., hypothesis testing (Byrne, 2013).

5. Data Analysis and Results

Six first order factors—PTAs, TAs, EVAs, DC, CC, and PSC—are present in this model. The metrics for the model, including its reliability and validity, were computed in the next subsection. Testing of hypotheses and model fit.

5.1 Construct and Indicator Reliability

The consistency of responses over a construct is what determines reliability. To evaluate reliability, one uses

Cronbach's (reliability coefficient). The values obtained by utilizing the IBM SPSS Statistics version 20 software are 0.917, 0.942, and 0.853 for the latent constructs TM, CQ, and PSC, respectively (> 0.7 threshold is reliable) (Joe F. Hair et al., 2014; Tenenhaus & Vinzi, 2005). These findings demonstrate the strong psychometric qualities of the suggested constructs. The researcher's well-measured items based on the literature review and its validity, along with the multi-stage method design that includes subject matter experts, determine the content (internal) validity (Thorn & Deitz, 1989). The Bentler-Normed Bonett's Fit Index (NFI) can be used to quantify convergence validity, which is the extent to which the construct and its indicators produce the same outcomes (Bentler & Bonett, 1980). It is obtained by CFA and is displayed in Table 1 with a threshold of 0.9 to indicate a successful fit index (Joseph F. Hair et al., 2014; Henseler et al., 2016). *Discriminant validity* is the degree of how the factor and its indicators differ from another construct or factor and measured by comparing alpha of scale with its mean correlation (Bentler & Bonett, 1980). Accordingly, α of a latent construct should be > its correlation to be valid and it is or the difference should be significant and it is in Table 1.

Table 1. Construct validity analysis

Factors/constructs	Convergent validity (NFI)	Discriminant validity Factor Cronbach's α- average correlation between factors
TM	0.955	0.220
CQ	0.985	0.180

5.2 *Model Fit*

SEM could be used to investigate the causal links between the independent and dependent variables (Joseph F. Hair et al., 2014). As a result, SEM has been employed in this study to evaluate the data and to construct the models using AMOS V. 21. The model is specified, estimated, evaluated, and presented using AMOS to illustrate potential links between variables in an understandable path diagram (Figure 2).

According to the analysis's findings, the degree of freedom (DF) is 363, the Chi-Square value is (921.675), and the p value is 0.000. Also, the value of $\chi^2/_{df} = \frac{921.675}{363} = 2.5390$ is less than 5, indicating that the model fits the data very well. The Goodness of Fit Index (GFI), Comparative Fit Index (CFI), and Root Mean-Square Error of Approximation (RMSEA) are better fit measures to consider because the chi-square statistic is overly sensitive to the sample size. The findings indicates that GFI = 0.8093 $\leq$ 1, the GFI value is always less than or equal to 1, a value close to 1 indicates a perfect fit. While the value of CFI is equal to 0.8944. The CFI value is between 0 and 1, a value close to 1 indicates a very good fit. The value of RMSEA is equal to 0 .0416 $\leq$ 0.05. A value about 0.05 or less indicates a close fit of the model. Fortunately, the other fit measures also indicate the goodness of fit of the model to the data, (CFI = 0.8944, GFI = 0.8093 and RMSEA = 0.041). Also, the results of the analysis show that the value of Chi-Square (χ2 = 13.5671) degree of freedom = 7, and p-value = 0.000. The value of $\chi^2/_{df} = \frac{13.5671}{7}$ = 1.398 is less than 5 indicating that the model fits the data very well also. Moreover, because the chi-square statistic is very critical to the size of the sample, it is more suitable to consider another measures' fitness viz GFI, CFI, and RMSEA. Results showed that GFI = 0.9835 1, the GFI value is consistently less than or equal to 1, and a value close to 1 denotes a perfect match, in relation to various measures of fitness. While the CFI value is 0.9930, it ranges from 0 to 1, and a result close to 1 indicates a very excellent fit. The value of RMSEA is equal to 0.035 $\leq$ 0.05, a value about 0.05 or less indicates a close fit of the model. Also, the other fit measures also indicate the goodness of fit of the model to the data, (CFI = 9835, GFI = 0.9930, and RMSEA = 0.0341).

5.3 Hypothesis Testing

Using IBM SPSS and the AMOS application, this process was carried out to test this hypothesis. Path analysis was also utilized to see if there was a significant impact of (TM) on PSC via CQ (0.05). To test H1a, we first

examined if the TM significantly impacted PSC in order to test this theory. With the exception of (PSCC, PSDC, TA2, TA4, PTA3), all model estimates are significant at the level of (P = 0.000 < 0.05), and the values of critical ratio (CR), except (PSCC, PSDC, TA2, TA4, PTA3) (Figure 2, Table2). This is evident from the analysis summary in table (2) and figure (2). (Figure 3). In addition, as shown in table (3), all CR values were significant at the level of ($p \leq 0.05$), except the paths: (PTA, DC), (PTA, CC), (PTA, PSC), (TA, PSC), (EVA, PSC), (DC, PSC), and (CC, PSC). TM had a significant effect on PSC. In more detail, PTA, TA, and EA had significant positive (+) effects on PSC. These results indicate that to solve PSC problems, UAE's O& G have to enhance their PTA, TA, and EA. Our findings demonstrate that the above variables can act as determinants of international performance. In summary, H1a, H1b, H1c was supported.

Table 2. C.R. & P values for questions and dimensions

Variable	*C.R*	*P*	*Variable*	*C.R*	*P*
PSC3	7.3781	0.00	EA1	6.3656	0.00
PSCC	0.5020	***	EA2	2.0112	0.00
PSDC	.5568	***	EA3	5.3196	0.00
CDC	10.7325	0.00	EA4	4.2687	0.00
CCC	7.3364	0.00	EA5	4.3301	0.00
CC3	7.3954	0.00	EA6	2.4590	0.00
CC4	6.6526	0.00	TA1	3.3823	0.00
DC7	9.2775	0.00	TA2	-.3577	***
DC6	9.8958	0.00	TA3	2.2178	0.00
DC5	10.2166	0.00	TA4	1.5038	***
DC4	10.5753	0.00	TA5	4.4674	0.00
DC3	6.7782	0.00	PTA1	4.2714	0.00
DCC	7.4293	0.00	PTA2	2.6403	0.00
DDC	9.2935	0.00	PTA3	-0.2323	***
			PTA4	2.7716	0.00

Notes. *** not significant greater than sig. level (0.05).

Table 3. Path analysis results

Variable / Path analysis			*Estimate*	*S.E.*	*C.R.*	*P*
PTA	→	DC	0.3222	0.2304	1.3985	0.1620
TA	→	DC	2.2068	.5290	4.1719	0.0000
PTA	→	CC	0.2485	.2079	1.1955	0.2319
TA	→	CC	1.7679	.3502	5.0491	0.0000
EVA	→	DC	-1.3359	.4804	-2.7808	0.0054
EVA	→	CC	-0.8658	.3188	-2.7161	0.0066
PTA	→	PSC	-1.9678	9.6033	-0.2049	0.8376
TA	→	PSC	-15.6407	65.6462	-0.2383	0.8117
EVA	→	PSC	9.6025	40.5610	0.2367	0.8129
DC	→	PSC	6.9437	28.5123	.2435	0.8076
CC	→	PSC	0.4696	.2899	1.6197	0.1053
GFI	0.8093		CFI	0.8944	RMSEA	0.041

Note. *** Not significant, greater than (0.05).

To test the H2, Path Analysis was used, using the AMOS program supported by the Statistical Package for Social Sciences (SPSS) program to verify a statistically significant impact of TM practices (PTA, TA, & EA) on PSC via the mediating role of CQ(DC & CC) at the level of significance of ($\alpha \leq 0.05$) The value of standard direct effect (SDE) on TM in CQ is 0.8730), on CQ in PSC is 0.4872, and TM on PSC via CQ is 0.5881 at ($P \leq 0.05$) level

of significance. As well, the standard indirect effect (SDInE) of TM on PSC via CQ is 0.42532, which explains (42.5 %) of variance in the dependent variable (PSC), while the standardized total effect (STE) was (0.4841) (Table 4). Also, the value average variance extracted (AVE) is 0.878 between (0.81- 1.00), this indicates that CQ has a high effective impact according to (Joseph F. Hair et al., 2014) criteria (Table 5). This study shows that CQ with its components can mediate the relationships between TM determinants and PSC. In summary, hypothesis 2 was supported. Finally, we can vouch for the existence of an important connection between TM and PSC. This suggests that PSC can be determined by CQ.

Table 4. Results of DE / InDE & TE

Var.	GFI	CFI	RMSEA	Path	Direct effect	Indirect effect	Total effect	Estimate	S.E	C.R.	P
TM				TM → CQ → PSC	0.5881	0.4253	0.4841	0.8524	0.069	12.3441	0
CQ	0.9835	0.993	0.0354	TM → CQ	0.873	----	0.873	0.7974	0.0599	13.3173	0
PSC				CQ → PSC	0.4872	----	0.4872	0.9908	0.0666	14.8673	0

Notes. 0.8730 * 0.4872= 0.4253256+0.0588=0.484125

Table 5. Degree of the mediating variable effectiveness

Effectiveness degree	Inactive	Partially effective	Active	Highly effective
Effectiveness Range	0.00 – 0.15	0.16 - 0.35	0.36 – 0.80	0.81 – 1.00

*Notes.*SDE: Standardized Direct Effect, ** SInDE: Standardized Direct Effect, ***STE: Standardized Direct Effect.*

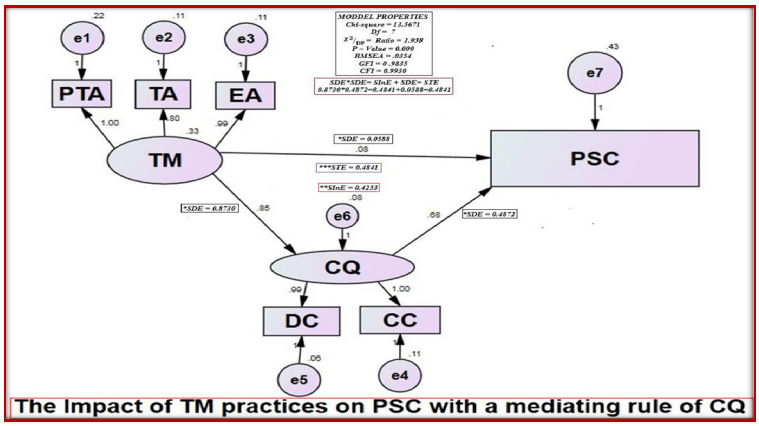

Figure 2. Tested research model

6. Discussion

The model's fit was confirmed, and it can be used in the UAE's oil and gas sector. Additionally, it aimed to empirically examine two theories based on the suggested model. The empirical test provides substantial support for the secondary data. In conclusion, PSC was significantly impacted by TM during the project's execution phase. The conclusion in Shamil and Charles (2016), Eba and Tesfaye (2014), Adedokun et al. (2013), Amoatey and Anson (2017), and others who emphasize procurement strategy or early deals with potential scope creep causes against later action during project execution to overcome scope creep are supported by this result. Rolstad et al. (2014) and others' arguments to the contrary conflict with this conclusion (The Project Management Institute, Inc., 2013). The interaction between TM and PSC is mediated by CQ. More specifically, CQ affects reducing PSC risks and uncertainty; low CQ correlates with a high PSC, and vice versa.

6.1 Theoretical Contribution

The primary goal of this study is to create a validated SEM for examining how TM and CQ affect PSC, with support from all literature studies and the stakeholder theory. The empirical test provides substantial support for the secondary data. First off, CQ has an effect on lowering PSC risks and uncertainties since when CQ is low, PSC

is high and vice versa. With the complete mediator of CQ present, the TM, including PTAs, TAs, and EVAs, has direct impacts on PSC. The model is legitimate and trustworthy, and it can be used in the UAE's O&G business. The six latent constructs provide clear evidence for how we can reduce the risk of PSC in the early stages of the project through stakeholder engagements and coordination that do away with the project manager's role in order to overcome the PSC, as at that point it is too late to set a precaution or remedy and must instead focus on TM and partially the CQ's factor as a mechanism to do so. Experts, a literature analysis, and a theory all verified the instrument. The statistics were gathered from procurement and project management experts at the UAE gas business. The goal of this study is to provide a validated SEM for examining the effect of TM on PSC with the mediating role of CQ based on literature and the stakeholder theory, which may serve as a platform for project management or business students' education.

6.2 Managerial Contribution

To help UAE's O&G industry to overcome their PSC issues, this study developed a research model considering TM, composed of PTA, TA, EVA, and CQ composed of DC and CC as significant variables regarding PSC during project's execution phase. The latent constructs give a clear evidence on how we can mitigate the PSC risks in early stage of project before projects management to overcome the PSC, as at that time it is too late to set a precaution or remedies and focus on TM and partially the CQ's factor as entire document as a mechanism to do so. To achieve project success in terms of budget/cost, schedule, and scope quality, O&G industry project managers and procurements managers must concentrate their strategies, goals, policies, and procedures on the aforementioned activities related to quality TMs and well-drafted contracts document while making decisions for any projects issues.

This study highlights the crucial roles of project managers and coordinators as well as procurement/contract managers. For instance, the contracts manager should concentrate on the project's tender management activities such as reviewing the project charter or scope and preparing the tender documents in accordance with the tendering plan or strategy to include the method of tendering, the bidding instructions, and clarification of bidders for any tender inquiries before awarding the contract to the qualified supplier who receives the highest bid after fair evaluations in accordance with the defined bid evaluation criteria to prepare contracts documents. The contracts manager or commercial manager directs the teams under his or her control to prepare contracts documents, which include a clearly defined project scope, project protocol or terms and conditions, technical and commercial bids, and other documents or correspondence pertaining to project clarifications, including information on the project's time, cost, and supplier. To assist the project manager in carrying out the project, all must be included in a single, clearly defined document (the project contract). Before being signed by both parties under contracts with manager witnesses or initials, the contracts can be evaluated beforehand by the project manager and the supplier/contractor/service provider. Following that, the project manager's responsibility is to oversee the project's execution and ensure that the contract is being followed.

7. Conclusions and Future Research

7.1 Summary and Implications

This subject offers a suitable platform for business management, project management, and other students to concentrate on supply chain management or procurement in accordance with project requirements to resolve the issue of scope creep. The main driver of CQ, which interacts with project management to establish clear project requirements and prevent PSC, is specifically TM. As a result, the following goals of this paper are attained:the direct effect of the TM on the PSC in the UAE's O&G industry was investigated and established; the indirect effects of the TM on the PSC due to CQ's function as a mediator in the UAE's oil and gas industry were also investigated and established; and , it offers a framework, looks at the connections between TM, CQ, and PSC, and introduces a second-order CFA model that is appropriate and useful for application in the UAE environment. These goals include closing the knowledge gap in the literature, which lacks a thorough framework for the oil and gas sector and knowledge of the UAE context to address the PSC issue, and supporting leaders and decision-makers in procurement and project business units to conceptualize and strategize their resources toward practices to address all PSC's probability (in the early stages of project) in the variety of ongoing and upcoming projects. The results of this study have some consequences, (1), this study suggested three components, namely PTA, TA, and EVA, as well as TM as a key influencer of PSC during the project's execution phase. This study empirically supported the claim that the aforementioned three are the main TM constructs; however, other combinations may be used that are anticipated to have an impact on PSC during the project's execution phase;(2), the SEM framework developed to identify the key causal relationships among study variables to address PSC in the oil and gas industry is regarded as a platform for addressing any project type in any sector, (3) , with regard to the academic implications,

using the research's conclusions and suggestions as a springboard may contribute to academic learning and create new opportunities for researchers to do additional research in a related field in the future.(4), Providing a conceptual framework and verified empirical evidence in the TM and PSC literature in the O&G business in the context of the UAE , (5), assisting and directing O&G leaders and decision-makers in procurement and project business units to conceptualize and plan their resources toward procedures to face and resolve PSC's anticipated challenges (in early project stages) in the variety of existing and future projects in the UAE context.

In more detail, the study's findings emphasize the idea that an O&G industry's PSC is more likely to improve when it has a strong and higher TM and CQ. O&G in the UAE must develop and use effective CQ with internal and external stakeholders in light of some constraints. Finally, it was discovered by studying the effect of tendering management practices on scope creep in O&G projects in the UAE that TM considerably contribute in resolving PSC issues throughout the project's execution phase by bolstering their CQ determinants.

7.2 Limitations and Avenues for Future Research

There are certain limitations to the study, despite the fact that it adds to the body of knowledge on TM, CQ, and PSC during the execution phase of a project in a number of ways. The study was conducted in the Emirate of Abu Dhabi, so it is advised that similar studies be conducted in future to include other Emirates (such as Dubai). Additionally, since this study was conducted in one of the GCC countries, it can be expanded in the future to the other six countries or any Middle Eastern countries. Second, the industry was only the oil and gas sector, so we'd like to suggest that future research be done in other sectors or in the energy sector (e.g., nuclear, renewal energy and so on). Thirdly, the time constraints, by sending an email to participants via sending Survey Monkey links, without face-to-face meetings to clarify the study objective, and to get more missed responses, and repetitive, and by distributing a survey to people other than suppliers and clients of O&G based companies as third-party audit and consultant in current projects, so we hope that future studies will take into account such issues to get more interesting and verified results. Additionally, because our research was restricted to O&G industry companies in the UAE, it is challenging to generalize our findings. In order to promote generalizability, it is important to conduct a comparative research between two or more countries.

References

Abbasi et al. (2014). Project Failure Case Studies and Suggestion. *Article in International Journal of Computer Applications*, *86*(6), 975-8887. https://doi.org/10.5120/14992-2696

Adedokun et al. (2013). Assessment of competitive tendering methods of procuring educational building projects in Nigeria. *Journal of Facilities Management*, *11*(1), 81-94. https://dx.doi.org/adu-lib-database.idm.oclc.org/10.1108/14725961311301484

ADNOC Refining. (2019). *Contracts Tendering Procedures*. ADNOC Refining.

Agarchand, N., & Laishram, B. (2017a). Sustainable infrastructure development challenges through PPP procurement process: Indian perspective. *International Journal of Managing Projects in Business*, *10*(3), 642-662. https://doi.org/10.1108/IJMPB-10-2016-0078

Agarchand, N., & Laishram, B. (2017b). Sustainable infrastructure development challenges through PPP procurement process: Indian perspective. *International Journal of Managing Projects in Business*, *10*(3), 642-662. https://doi.org/10.1108/IJMPB-10-2016-0078

Ajmal, M., Khan, M., & Al-Yafei, H. (2019). Exploring factors behind project scope creep – stakeholders' perspective. *International Journal of Managing Projects in Business*, *13*(3), 483-504. https://doi.org/10.1108/IJMPB-10-2018-0228

Albuquerque, F. D. B. De, & Awadalla, D. M. M. (2020). Roadside Fixed-Object Collisions, Barrier Performance, and Fatal Injuries in Single-Vehicle, Run-Off-Road Crashes. *Safety*, *6*(2). https://doi.org/10.3390/safety6020027

Al-Nasser et al. (2017). The relationship between agency theory, stakeholder theory and Shariah supervisory board in Islamic banking: An attempt towards discussion. *Humanomics*, *33*(1), 75-83. https://dx.doi.org/adu-lib-database.idm.oclc.org/10.1108/H-08-2016-0062

Amoatey et al. (2017). Investigating the major causes of scope creep in real estate construction projects in Ghana. *Journal of Facilities Management*, *15*(4), 393-408. https://doi.org/http://dx.doi.org.adu-lib-database.idm.oclc.org/10.1108/JFM-11-2016-0052

AZTech & COPEX. (2014). *The Complete Course on Contracts, Purchasing & Project Management* (AZTech & COPEX (ed.); London). AZTech & COPEX. www.aztech.ae

Baig, K. F., & Kureshi, N. (2018). Organizational Causes And Control Of Project Scope Creep In Pakistan'S Hydropower Projects. *Journal of Strategy and Performance Management*, *6*(4), 130-144. Retrieved from http://adezproxy.adu.ac.ae/docview/2132564074?accountid=26149

Baram. (2005). Project Execution Risks in EPC/Turnkeys Contracts and the Project Manager's Roles and Responsibilities. *AACE International Transactions*, R51-R58. Retrieved from http://adezproxy.adu.ac.ae/docview/208174402?accountid=26149

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, *88*(3), 588-606. https://doi.org/10.1037/0033-2909.88.3.588

Brook, M. (2017). *Estimating and Tendering for Construction Work*. Routledge Taylor & Francis Group. Retrieved from https://books.google.ae/books?hl=ar&lr=&id=ZC8lDwAAQBAJ&oi=fnd&pg=PP1&dq=ESTIMATING+AND+TENDERING+FOR+CONSTRUCTION+WORK&ots=BQ6xwYYFGG&sig=XwLRrP95mfo4LSvzHPixQcyi-k&redir_esc=y#v=onepage&q=ESTIMATINGANDTENDERINGFORCONSTRUCTIONWORK&f=false

Diabagate et al. (2017). Selection of the Best Proposal using FAHP: Case of Procurement of IT Master Plan's Realization. *International Journal of Electrical and Computer Engineering*, *7*(1), 353-362. http://adezproxy.adu.ac.ae/docview/1889053388?accountid=26149

Dorée, V. (2010). An Evaluation of the Performance Information Procurement System (PiPS). *Journal of Public Procurement*, *10*(2), 187-210. https://doi.org/http://dx.doi.org.adu-lib-database.idm.oclc.org/10.1108/JOPP-10-02-2010-B002

Eba. (2014). *Project Management- Project: Proposal, Life Cycle, Feasibility, Communication, Risk Management, Contract Management*. AV Akadmikerverlag.

Hair, J.F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. In *European Business Review*, *26*(2), 106-121. https://doi.org/10.1108/EBR-10-2013-0128

Hair, Joseph F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate Data Analysis Hair Black Babin Anderson*. Retrieved from http://www.pearsoned.co.uk

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management and Data Systems*, *116*(1), 2-20. https://doi.org/10.1108/IMDS-09-2015-0382

Idaham Umar Ong, M., & Ariff Ameedeen, M. (2020). User Requirement Validation: Challenge Exploration in Pre-project Execution. *IOP Conference Series: Materials Science and Engineering*, *769*(1). https://doi.org/10.1088/1757-899X/769/1/012050

Jahn, & Brühl. (2018). How Friedman's View on Individual Freedom Relates to Stakeholder Theory and Social Contract Theory: JBE JBE. *Journal of Business Ethics*, *153*(1), 41-52. https://dx.doi.org/adu-lib-database.idm.oclc.org/10.1007/s10551-016-3353-x

Johnson et al. (2016). Recent Trends in Theory Use and Application within the Project Management Discipline. *Journal of Engineering, Project, and Production Management*, *6*(1).

Jones. (2014). Minimizing the Risk of Litigation: Problems Noted in Breach of Contract Litigation. *Software Quality Professional*, *17*(1), 4-13. Retrieved from http://adezproxy.adu.ac.ae/docview/1640577959?accountid=26149

Kalaitzi, D., Matopoulos, A., Bourlakis, M., & Tate, W. (2019). Supply chains under resource pressure: Strategies for improving resource efficiency and competitive advantage. *International Journal of Operations and Production Management*, *39*(12), 1323-1354. https://doi.org/10.1108/IJOPM-02-2019-0137

Kassem et al. (2019). Risk factors in oil and gas construction projects in developing countries: a case study. *International Journal of Energy Sector Management*, *13*(4), 846-861. https://dx.doi.org/adu-lib-database.idm.oclc.org/10.1108/IJESM-11-2018-0002

Lahdenperä, P. (2016). Preparing a framework for two-stage target-cost arrangement formulation. *International Journal of Managing Projects in Business*, *9*(1), 123-146. https://doi.org/10.1108/IJMPB-07-2015-0049

Lappi, T., & Aaltonen, K. (2017). Project governance in public sector agile software projects. *International Journal of Managing Projects in Business*, *10*(2), 263-294. https://doi.org/10.1108/IJMPB-04-2016-0031

Lee, S., Brownlee, E., Kim, Y., & Lee, S. (2017). Ticket sales outsourcing performance measures using balanced scorecard and analytic hierarchy process combined model. *Sport Marketing Quarterly*, *26*(2), 110-120. Retrieved from https://search-proquest-com.adu-lib-database.idm.oclc.org/central/docview/1931960303/F4445643C89E4DEBPQ/2?accountid=26149

Lintukangas, K., Hallikas, J., Koivisto-Pitkänen, M., & Kähkönen, A. K. (2016). The drivers of supply management capability. *Benchmarking*, *23*(7), 2109-2127. https://doi.org/10.1108/BIJ-02-2015-0014

Lu, X. (2019). Incomplete Contracts and Stakeholder Theory. *Business and Professional Ethics Journal*, *38*(3), 321-338. https://doi.org/10.5840/bpej201982086

Lyles et al. (2002). Cost and quality trends in direct contracting arrangements. *Health Affairs*, *21*(1), 89-102. https://dx.doi.org/adu-lib-database.idm.oclc.org/10.1377/hlthaff.21.1.89

Ma et al. (2019). Adopting a QCA Approach to Investigating the Risks Involved in Megaprojects from Auditing Perspective. *Discrete Dynamics in Nature and Society*, *2019*. https://doi.org/adu-lib-database.idm.oclc.org/10.1155/2019/4037859

Maronick, T. J. (2009). The role of the internet in survey research: guidelines for researchers and experts. *Journal of Global Business and Technology*, *5*(1), 18-32. Retrieved from https://search-proquest-com.adu-lib-database.idm.oclc.org/central/docview/216943419/648CC24A7DF7485BPQ/14?accountid=26149

Martinsuo, M., & Sariola, R. (2015). Developing a supplier's third-party relationships and cooperation in project networks. *International Journal of Managing Projects in Business*, *8*(1), 74-91. https://doi.org/10.1108/IJMPB-10-2013-0058

Mello et al. (2007). Compact versus Contract -- Industry Sponsors' Obligations to Their Research Subjects. *The New England Journal of Medicine*, *356*(26), 2737-2743. https://doi.org/http://dx.doi.org.adu-lib-database.idm.oclc.org/10.1056/NEJMhle067499

Miroslavas et al. (2017). Procurement With Bim: Lithuanian Situation Analysis and Further Development. *Mokslas : Lietuvos Ateitis*, *9*(5), 541-546. https://doi.org/adu-lib-database.idm.oclc.org/10.3846/mla.2017.1082

Nevstad, K., Børve, S., Karlsen, A. T., & Aarseth, W. (2018). Understanding how to succeed with project partnering. *International Journal of Managing Projects in Business*, *11*(4), 1044-1065. https://doi.org/10.1108/IJMPB-07-2017-0085

Nzelibe. (2004). INTEREST GROUPS, POWER POLITICS, AND THE RISKS OF WTO MISSION CREEP. *Harvard Journal of Law and Public Policy*, *28*(1), 89-95. Retrieved from http://adezproxy.adu.ac.ae/docview/235208570?accountid=26149

Olsson, A. C. T., Johannesson, U., & Schweizer, R. (2018). *Decision-making and cost deviation in new product development projects*. https://doi.org/10.1108/IJMPB-02-2018-0029

Parker, D. W., & Cullen, K. (2015). Improving performance in project-based management: Synthesizing strategic theories. *International Journal of Productivity and Performance Management*, *64*(5), 608-624. https://doi.org/10.1108/IJPPM-02-2014-0031

Podsakoff, M. (2012). Common Method Bias in Marketing: Causes, Mechanisms, and Procedural Remedies. *Journal of Retailing*, *88*(4), 542-555. https://doi.org/adu-lib-database.idm.oclc.org/10.1016/j.jretai.2012.08.001

Polat et al. (2019). A Grading System-based Model for Detecting Unbalanced Bids during the Tendering Process. *Periodica Polytechnica.Architecture*, *50*(2), 139-147. https://doi.org/adu-lib-database.idm.oclc.org/10.3311/PPar.12669

Sadler. (2002). Beware the scope creep: Establishing service levels. *International Tax Review*, *5*, 22-26. Retrieved from http://adezproxy.adu.ac.ae/docview/230186063?accountid=26149

Shishodia et al. (2018). Project risk analysis based on project characteristics. *Benchmarking*, *25*(3), 893-918. https://dx.doi.org/adu-lib-database.idm.oclc.org/10.1108/BIJ-06-2017-0151

Sila, I., & Ebrahimpour, M. (2005). Critical linkages among TQM factors and business results. *International Journal of Operations and Production Management*, *25*(11), 1123-1155. https://doi.org/10.1108/01443570510626925

Siriram, R. (2019). A Project Management Investigative Framework Establishing Links For Better Project

Outcomes. *South African Journal of Industrial Engineering*, *30*(2), 100-114. https://doi.org// adu-lib-database.idm.oclc.org/10.7166/30-2-2064

Sundquist et al. (2018). From project partnering towards strategic supplier partnering. *Engineering, Construction and Architectural Management*, *25*(3), 358-373. https://doi.org/adu-lib-database.idm.oclc.org/10.1108/ECAM-08-2016-0177

Sylvester et al. (2011). Comparison between oil and gas companies and contractors against cost, time, quality and scope for project success in Miri, Sarawak, Malaysia. *African Journal of Business Management*, *5*(11), 4337-4354. https://doi.org/10.5897/AJBM10.1369

Tenenhaus, M., & Vinzi, V. E. (2005). PLS regression, PLS path modeling and generalized Procrustean analysis: A combined approach for multiblock analysis. *Journal of Chemometrics, 19*(3), 145-153. https://doi.org/10.1002/cem.917

Thangavelu, S. M., T, C. B. E. C. İ., Görener, A., ADNOC Refining, Turner, J. R., Lecoeuvre, L., Sankaran, S., Er, M., Ma et al., Polat et al., Kagogo, T. S., Steyn, H., Siriram, R., Becit, C., Görener, A., Kassem et al., Song, H., Zhu, F., Klakegg, O. J., … Schweizer, R. (2019). Project Management- Project: Proposal, Life Cycle, Feasibility, Communication, Risk Management, Contract Management. *International Journal of Managing Projects in Business*, *9*(1), 1-211. https://doi.org/10.5120/14992-2696

Thorn, D. W., & Deitz, J. C. (1989). Examining content validity through the use of content experts. *Occupational Therapy Journal of Research, 9*(6), 334-346. https://doi.org/10.1177/153944928900900602

Wimalasena, & Gunatilake. (2018). The readiness of construction contractors and consultants to adopt e-tendering. *Construction Innovation*, *18*(3), 350-370. https://dx.doi.org.adu-lib-database.idm.oclc.org/10.1108/CI-03-2017-0025

Xia et al. (2017). Lifecycle cost risk analysis for infrastructure projects with modified Bayesian networks. *Journal of Engineering, Design and Technology*, *15*(1), 79-103. https://dx.doi.org/adu-lib-database.idm.oclc.org/10.1108/JEDT-05-2015-0033

Zaigham et al. (2018). Risk Assessment of Ex-Post Transaction Cost in Construction Projects Using Structural Equation Modeling. *Sustainability*, *10*(11), 1-20. https://dx.doi.org/adu-lib-database.idm.oclc.org/10.3390/su10114017