

The impact of risk management on procurement performance through SSC within (ADNOC) in UAE: A proposed framework

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Abstract

Currently, we live in an increasingly uncertain world that can be a threat to any business, but it can also be a source of leverage and opportunity for new ventures. Risk Management (RM) recognises that current decisions and actions can have an impact on the future and is concerned with identifying opportunities and threats. The purpose for this research was to assess the impact of risk management on sustainable supply chain and procurement performance within Abu Dhabi National Oil Company (ADNOC) in UAE. The study came to the conclusion that (ADNOC) has adopted some of the e-procurement applications, despite the difficulties that have arisen as a result of the adoption. Furthermore, the role of sustainable supply chain (SSC) in mediating the relationship between risk management and procurement performance has been confirmed. A number of additional details and important implications have been discussed throughout this study. It is hoped that the findings will assist practitioners and managers in making appropriate decisions when implementing RM, SSC, and excellence practises in their organisations in order to achieve maximum strong excellence while remaining competitive in the market. As a result, this study recommends that risk management practises be implemented more widely. It also recommends that the procurement mechanism be reviewed in order to improve the collection of adequate and accurate data for use in the risk pricing and evaluation processes.

Keywords: Risk management, procurement performance, sustainable supply chain, ADNOC.

1. Introduction

The United Arab Emirates (UAE) is one of the world's top ten oil producers and a member of both the Organization of the Petroleum Exporting Countries (OPEC) and the Gas Exporting Countries Forum. It is also a member of the United Nations Development Programme (UNDP) (EIA, 2017). The UAE is working to achieve a more sustainable future. The UAE Energy Strategy 2050 intends to quadruple the share of clean and nuclear energy in the total energy mix while reducing the carbon footprint of power generation by 70%. By the end of 2019, the government wants 10% of all citizens to have access to the internet. But there are some barriers to energy innovation that is sustainable. The nature of sustainable energy

innovation, which includes high technological risk, financial risk, and fierce commercial competition from established, low-cost products, is one of the most significant systemic barriers to the rapid development of new technologies in the oil and gas industry in the United Arab Emirates (ENR, 2019). The lack of professionalism in government institutions has caused major worry among practitioners and academics in dealing with the creative approach to risk management and its typical types of methods in the previous decade. This achievement could be reflected in the RM success factor on the UAE government's performance (UAE). O&G companies in UAE need of thoroughly examining the method of implementing risk management, as well as the

system for determining success criteria, should be taken into account (Humaid et al., 2020).

ADNOC is the UAE's market leader in retail and wholesale transportation fuels, principally selling and distributing gasoline and operating forecourt convenience stores. ADNOC Distribution found 77 of them. Proactive risk management is an important part of the ADNOC's fundamental business activities. By recognizing, understanding, and managing risks in line with a defined risk management policy and procedures, ADNOC risk management method reduces exposure to uncertainty and increases exposure to opportunities (ADNOC Distribution Annual Report, 2020).

The majority of industrial sectors today rely on third-party providers to deliver their goods and services, which is why supply chains are so important. In the oil and gas industry, there are no exceptions. The oil and gas industry routinely outsources portions of their responsibilities to subsectors in order to reduce operating costs, fill competency gaps, and transfer some supply chain risks to a third party (Ernst & Young 2014; Menhat et al., 2020). According to studies, approximately 40% of operations and maintenance (O&M) activities are outsourced in order to complete the project (Pillai et al. 2010; Yusuf et al., 2014). Because of the company's reliance on outsourcing, it places a greater emphasis on developing a sustainable supply chain in order to gain a competitive advantage over its competitors (Kumar & Markeset, 2017; Cai et al., 2009). The oil industry's logistics network is extremely inflexible, owing to the limited production capacities of crude oil suppliers, lengthy transit times, the limitations of available modes of transportation, and the inflexibility of energy planning and management. Demand management, efficient distribution of petroleum products among customers, better transportation scheduling, warehouse management, and information quality and timeliness through sustainable supply chain management are some of the key factors for lowering costs and increasing profits in supply chain management (Lisitsa et al., 2019).

The final step is procurement performance evaluation, which is a process in which procurement establishes criteria based on

strategic planning goals in order to determine the outcomes and quality of actions taken (Vaidya et al., 2003). It has been suggested by some academics that improving the qualifications of human resources can increase the efficiency of procurement performance (Kavua & Ngugi, 2014). While Rotich (2011) acknowledged that measuring procurement performance can be a source of contention for procurement managers, he also stated that investigating factors that impact oil and gas business continuity is necessary for the industry's long-term viability (Rotich 2011). Because risk management and SSC are critical components of any organization's success, an empirical investigation is conducted to determine how they interact to influence procurement performance.

2. Theoretical literature and hypothesis development

Kaplan and Norton (1996) developed the Balanced Scorecard (BSC) for businesses in order to focus on the internal capabilities that can assist organisations in improving performance and gaining competitive advantages over their competitors in the marketplace. When it comes to internal factors for any organisation, RM practises and SSC are critical because they are intangible resources that help those businesses measure their supply chain and procurement performance more accurately (Ogwang, 2017).

2.1 Procurement performance

When it comes to procurement performance, it is a process in which procurement develops criteria based on strategic planning goals in order to determine the outcomes and quality of actions (Vaidya et al., 2003). Some scholar suggested that developing the qualifications of human resources increases the efficiency of procurement performance (Kavua & Ngugi, 2014). While Rotich (2011) acknowledged that measuring procurement performance agitates procurement manager, and as a result, organizations monitor their internal operations instead of directly evaluating procurement manager' work.

2.2 Risk management

Risk Management (RM) is an essential component of management and accountability in all kinds of industries and businesses. RM

supports the achievement of the strategic objectives or organizations through the application of a systematic approach for the purpose of identifying, analyzing, assessing, prioritizing and monitoring risks that could face the organization in the future (Tumuhairwe & Ahimbisibwe, 2018). Moreover, the application of RM helps organizations to deal with the challenges on work in the future and dealing with uncertainties. In manufacturing sector. RM is an essential part of every business or industrial project, it cannot be separated from the process of supply chain and procurement (Muzzammil et al., 2019; Aghajanian & Shevchenko-Perepy, 2018).

Procurement is frequently carried out under unpredictable supply conditions and high degree of uncertainty which increase the degree of risk, which might involve, among other things, fluctuating input material prices, supply shortages, and uncertain lead times (Brindley, 2017). According to Rotich et al. (2018), risk management has a significant impact on the performance of mega projects in the energy sector when it comes to the procurement process. Also discovered were inadequacies in the ability of megaproject procurement processes to collect adequate information for contractor evaluation, which could result in the selection of contractors who are not qualified in their fields.

In the same context, Max (2006) found that the main risks involved with procurement performance are timely project completion, cost control, supplying assets that match clients' service delivery and requirement, and meeting the government's obligations to ensure a competitive and sustainable supply market.

Further studies found in the literature confirming the association between risk management and procurement performance. These studies aid in the understanding of various aspects of risk management in the procurement process. The majority of these studies are either case studies (Crema, 2019) or systematic literature reviews (Serpella et al., 2014), and the majority of these studies are case studies (Crema, 2019). (Dieguez et al, 2018). Similarly, Crema (2019) investigated the risk indicators for managing the energy procurement process, and Tumuhairwe and Ahimbisibwe (2018) discovered a link between

effective risk management and procurement records compliance in their study.

In a nutshell, risk is the possibility of suffering a loss as a result of uncertainty. When it comes to public or private procurement, risk can be avoided, but it exists at every stage of the procurement process. As a result, risk management has a direct impact on the performance of the procurement process. The management of risks is linked to the operational activities of the procurement department (Kirsten, 2012). As a result, good practise in public and private procurement entails putting in place risk mitigation measures that allow for the understanding and management of these risks through effective risk management practises.

Risk management can assist organizations to reduce the degree of risk in the supply chain (Brindley, 2017). If a risk, which is frequently a multi-dimensional phenomenon with multiple consequences, occurs at the primitive connection between buyer and supplier, the risk will be magnified throughout the entire supply chain process, resulting in the phenomenon known as the "snowball effect" (Swierczek, 2014).

Risk management is the process of putting strategies and plans in place to sustain supply chain networks by constantly assessing risks and reducing vulnerabilities to maintain supply chain resilience (Gurtu & Johny, 2021).

Sustainable supply chain is more important than ever in today's evolving business environment because risks tend to interrupt sustainable operations, lowering an organizational performance. However, these risks can be handled by risk management practices to integrate with supply chain management, resulting in greater organizational performance. Various risk classifications are used in the supply chain literature to describe risks associated with the supply chain. These classifications are based on factors such as assessing the risk, determining the probability factor and impact level (Wieland, 2013); and dependencies of vulnerabilities such as (1) time dependence (i.e., time delays, lead times, and delivery schedule); (2) functional dependence (i.e., inventories, production, products, and transportation) (Zepeda et al., 2016).

According to one of the research papers that looked into collaboration in the aerospace industry and examined the risk impact based on risk-sharing partnerships, they discovered that reliance on supply chains helped to mitigate risk (Rose-Anderssen et al., 2011). Another study confirmed the existence of a link between the supply chain environment and risk management practises (Lemke & Petersen, 2013). Because of all of the theoretical discussion and debate, as well as the current empirical evidence, the following hypothesis is proposed:

H1. Risk management has a significant effect on procurement performance.

H2. Risk management has a significant effect on supply chain.

2.3 Sustainable supply chain

The fundamental approach to managing the processes and activities of the entire supply chain during a crisis is called sustainable supply chain management (SCM) (Novira, 2021). As a result, sustainable supply chains must be managed seriously, with a series of appropriate alternative strategies being developed to increase their resilience capabilities (Hobbs, 2020). When we talk about a sustainable supply chain, we're referring to the network of companies that work together to transform a series of raw materials into finished goods or services for their customers. Today almost all manufacturers and companies worked in production of goods, and even those in energy sectors such as O&G companies linked to an organized supply chain for connecting the main contractor, designers, engineers, surveyors, sub-contractor, cost engineers, suppliers, including the clients to one part of the supply chain (Abubakar et al, 2020).

Over the years, supply chain management has emerged as a popular topic, involving the strategic alignment of roles and processes within a company's internal operations. However, there have been significant debates and arguments over the proper design of the types of integration that would lead to an improvement in the result on the performance after the adoption of supply chain management, which have resulted in significant debates and arguments (Vikas et al., 2017).

The review of literature reveals that sustainable procurement could be enhanced through supply chain management (Sanchez-Flores et al., 2020). Some researchers found a significance correlation between strategic procurement and supplier integration in large scale manufacturing sector (Chenini et al., 2020). As a result of the critical impact that purchasing activities have on revenues, costs, and operational efficiencies, procurement constitutes a significant portion of the supply chain (Ross, 2016).

In the same vein, Kepher et al. (2018) investigated the impact of supplier chain management on the performance of the procurement department. According to their findings, four factors, including buyer-supplier integration, supplier quality management, supplier training, and supplier collaboration, account for approximately 81 percent of improvements in procurement performance. Because suppliers are such an important component of organisations, managing supplier performance is crucial to procurement success (Kepher et al., 2018).

In a similar vein, the research conducted by Mutua and Moronge (2018) revealed that supply chain practises have a significant impact on the procurement performance of state-owned enterprises. Furthermore, the findings of their study revealed that four supply chain practises, namely distribution management, inventory management, outsourcing, and procurement planning, have a positive and statistically significant impact on procurement performance.

It is evident that supply chain management have a direct impact on procurement performance in various industries, especially in large organizations like O&G companies. The findings from previous studies reveal that firms adopting supply chain in their management strategy will have better procurement performance. Based on this claim, this study will examine the following hypothesis statement.

H3: Supply chain management has a significant effect on procurement performance.

2.4 Mediating role of sustainable supply chain

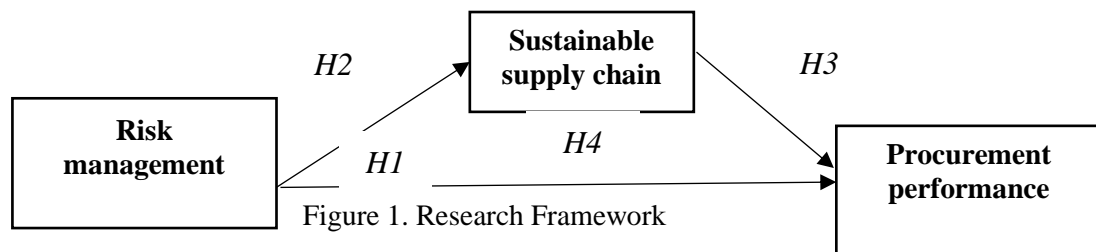
Sustainable supply chain is more important than ever in today's evolving business

environment, because risks tend to interrupt sustainable operations, lowering a organizational performance. However, these risks can be handled by risk management practices to integrate with supply chain management, resulting in greater organizational performance (Muzzammil et al., 2019). Procurement is frequently performed under unpredictable supply conditions and high degree of uncertainty which increase the degree of risk on the supply chain (Aghajanian & Shevchenko-Perepy, 2018). Thereby, the relationship between risk management, procurement performance is hypothesized to be mediated according to the following hypothesis statement.

H4: SSC mediates the relationship between risk management and procurement performance.

2.5. The proposed framework for the research

Figure 1 shows conceptual research model that has been designed with the reference of previous literature. It shows risk management on left hand side, whereas procurement performance on the right-hand side. Both extremes has been connected with the arrows which show the relationship dimension amidst the variables through sustainable supply chain as mediator.



3. Theoretical Gap

It is important to see that various studies attempted to develop conceptual frameworks for evaluating supply chain management from the perspective of risk management to address the absence of supply chain risk assessment tools in general (Bak, 2018). Although realistic risk management strategies are needed to evaluate the risk in O&G industry, there are still needed to show in this regard with from the perspective of BSC theory. As a result of the lack of empirical studies in supply chain and risk management research, it is difficult for researchers to develop and adapt risk management practises over time for companies relying on supply chain for their business (Hofmann, 2012). An empirical case study on how risk management affects supply is lacking, even though many studies have been done on the various stages of the risk management process, including risk identification, risk measurement, risk assessment, mitigation, control, and monitoring.

The theory of the Balanced Scorecard has been studied theoretically by various scholars (BSC). Research shows that BSC's perspective is not widely adopted in the oil and gas sector (Lyu et al. 2016; Al-Qubaisi & Ajmal, 2018), while

other scholars have been more skeptical about the role of BSC on procurement performance

and are trying to prove the more clear-cut relationship between BSC and organisational performance (Aminaimu & Yudi, 2019). Thus, this study established the association between BSC and supply chain performance at O&G companies, and the challenges faced in implementation of the Balanced Scorecard in ADNOC. Thereby, the aim is filling this gap and extending the knowledge on BSC in O&G industry, explaining the relationship between the BSC and procurement performance.

4. Discussion

Supply chain risks could cost companies a lot of cost (Dias et al., 2021). Lean Six Sigma and Just-in-Time methods have all raised methods for dealing with supply chain risk as a result of factors like increasing spatial distribution of supply chains, increasing dependence between organisations, shorter life cycles of ever-smaller products (Kern et al., 2012; Zhao et al. 2013). The concept of supply chain risk management developed from the convergence of risk management and supply chain management due to the importance of these two topics (Blos et al., 2009) Furthermore, the

supply chain risk management contributes to business sustainability by raising the likelihood of projects accomplishing their strategic goals and facilitating a transition in corporate strategy from a short- to medium-term perspective to a long-term perspective (Dias et al., 2021). Moreover, the relationship between risk management and supply chain have been examined from different perspectives. For example, Wu et al. (2006) and Khan and Burnes (2017) proposed that risk management in supply chain should be performed in at least three stages, with methodologies varying from author to author. Other authors (Dias et al., 2021) advocate for more than three stages in their approaches. In addition to that, supply chain risk management is divided into seven stages, according to Ritchie and Brindley (2007). De Oliveira et al. (2017); Santos & De Oliveira (2019); and ISO 31000, suggested that supply chain risk management is a systematic process for controlling risk in order to achieve sustainable supply chain. Simply said, performance measurement entails following a set of criteria to determine whether procurement is accomplishing its goals. Procurement management requires strategic measures to determine the effectiveness of procurement initiatives and decisions in achieving organisation goals. (Wittig, 2003). Metrics that can be used to measure the efficiency and effectiveness of an action are called performance metrics by Neely et al. (2005).

5. Conclusion and Recommendations

Research shows that risk management has a major impact on procurement performance. Multiple sourcing, feasibility study, stakeholder management, risk guarantees, risk appraisal, and risk sharing all contribute to the management of procurement risks, which include financial risks and technology risks. According to the findings of the research, an assessment of the oil and gas sector's procurement mechanism is required in order to better gather data for evaluation. To ensure or reduce political interference in pricing, the study concludes that the risk pricing mechanism should be re-evaluated. To improve procurement performance in UAE's oil and gas sector, this study recommends further adoption of risk management. Further, the study recommends that the oil and gas sector's management review the aspects of risk pricing

and supplier evaluation mechanisms in order to develop mechanisms to alleviate political interference in risk pricing; and to develop mechanisms to enhance the accuracy of data collected in the supplier evaluation process. Additional savings in procurement costs and lead times could be achieved through these measures. Furthermore, the researcher suggests that the findings and policy recommendations will be of vital assistance to the oil company's stakeholders in general, both in the UAE and around the world.

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