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The Effect of Supply Chain Management Practices on Corporate Performance in Libya Oil and Gas Industry

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Abstract:
In this article, supply chain management practices (SCMPs) are examined to see whether they affect the performance of the Libyan oil and gas sector. The research is quantitative and is based on a survey using simple random sampling and data collection via a standard questionnaire. The surveys were sent to 479 individuals employed in the Libyan oil and gas sector, with an average service experience of 16 to 20 years. There were 86.6 percent of men and 13.4 percent of women in the sample. Descriptive statistics and structural modelling systems are used in conjunction with Smart PLS software to evaluate hypotheses about the relationship between variables. The findings of this research show that SCMPs are greatly and positively linked to the performance of Libyan oil companies. Financial performance (FP) was significantly and positively affected by three SCMPs: Strategic Supplier Partnering (SSP)[1], Logistics Management (LM)[2], and Information Sharing and Quality (IS & Q)[3]. As well as non-financial performance (NFP), of Libya's petroleum industry was significantly and positively affected by two SCMPs: SSP[1] and LM[2]. The findings of the study can be used to improve the oil and gas supply chain performance, and they show that more SCMPs can lead to better company performance. Furthermore, supply chain directors will learn about the implications of efficient and high-quality supply chain implementation practices in their companies' supply chains, such as: strategic supplier partnering, logistics management, information sharing and quality, and materials procurement and inventory management. This study complements the literature by looking at the association between supply chain management techniques and firm performance in the oil and gas industry.

Keywords: Information sharing, strategic supplier partnering, procurement, logistics

1. Introduction

If you want to maximize the supply chain's impact on the entire company's profitability, you must pay close attention to supply chain practices. This requires the creation of an expressive performance evaluation structure for assessing company performance. The elements that influence performance measurements in the petroleum supply chain will be examined in this study. In today's economy, supply chains are competing rather than individual businesses. To be in a competitive and challenging environment, businesses must have effective connectivity at both ends of the supply chain of their complex business network linkages. As a result, all sectors are seeing an increase in the importance of Supply Chain Management (SCM). and across the whole value chain. SCM has garnered a lot of courtesy from consultants and researchers owing to the advantages it provides for operational performance in recent years (Sundram et al., 2011). The results of the competition showed that suppliers and customers had an influence on a company's performance (Jawaad & Zafar, 2020). Because of this, businesses have attempted to increase the efficiency of their supply networks. (Hanafi, Saleheen, and Habib, 2018). Previously published research by (Bstieler, Hemmert, and Barczak, 2017). showed that the ability to make power decisions is associated with supply chain performance. By concentrating on the efficiency and potential advantages requested by supply chain participants, (Wang, Pfohl, Berbner, and Keck 2016) development plan should be compared to the performance of the supplier network. (Cho, Ke, and Han, 2019) also contend that supply chain logistics can be both cooperative and competitive. Petroleum is the most valuable energy resource in the world. Oil has been Libya's main business since the 1950s, and it has aided the development of other industries in the country. Market changes, client expectations, and technical improvements can all have an impact on an organization's competitiveness, necessitating continuous ideas for implementing supply chain management in the oil and gas industry.

According to (Singhry and Abd Rahman 2019), the theory of the exchange of social favours considers supply chain management. Supply chain management, as a unified approach to managing resources and commodities, information and cash flow, can be tailored to meet the needs of a wide variety of organizations. (Mohelská and Sokolová, 2014), (Reche, Junior, Estorilio, and Rudek, 2020) It is a set of methods to bring together suppliers, manufacturers, warehouses, and department stores to create the needed items at a predetermined price, in specific circumstances, at a specific time and

place for delivery to the customer. In supply chain management, the ultimate goal is to provide the best possible customer service at the lowest possible cost to the organization. Because a customer uses the outcome of a procedure, customer service must be a prioritization in organizations. As a result, overall chain spending could be reduced and consumer needs met better (Hsiao, Chen, and Chin, 2017).The focus is on the transfer of materials, information, and money from vendors to customers, as well as cash flow from consumers to sellers in supply chain management. Supply chain agreements, which demonstrate all members of the supply chain connections and coordination of partners' goals, have grown in popularity in recent decades (Jadhav, Orr, and Malik, 2019). Despite the benefits of supply chain management practices, implementation is difficult due to obstacles like 1) a lack of commitment to the establishment of an effective supply chain, as well as failure to recognize the value of supply chain cooperation, 2) a lack of trust, and 3) a lack of common objectives across all examples of supply chains, and 4) insufficient information systems (Surey, Haseb, Andamp, Hartans 2018), 5) You must participate in a large number of supply chains, which can lead to tense relationships between supply chain members. A direct consequence of this is that customer service has moved to the top of the supply chain list of management priorities. When it comes to supply chain management practices, one of the most significant aspects to look for is supply chain unity. In the context of the supply chain unit, the capacity of a company to connect with partners and important suppliers is dependent on its organization, inter-organizational policy, as well as other elements, methodology, and behaviour. This is a technique that must be followed in order to satisfy the consumer's obligations (Vijayasarathy, 2010). Several researchers have looked at the link between SCMPs and company performance, with the results indicating that there is a favourable relationship between the two. Examples include (Green, K.W., Inman, R.A., Sower, V.E. and Zelbst, P.J. 2019 who tested a comprehensive operations and supply chain management (SCM) model with just-in-time (JIT), supply chain market orientation, and total quality management (TQM) as antecedents and green supply chain management practises (SCMPs) and agile manufacturing practises (AMPs) as consequences.

Furthermore, information exchange is an essential component of supply chain management practises that may have an impact on the overall performance of the supply chain. Several studies, like (Vijayasarathy's 2010), have demonstrated the importance of high-quality data in the design and delivery of services. Sharing data demonstrates a dedication to quality and a grasp of what customers truly want (Sener, Barut, Dag, & Yildirim, 2019). Workforces must understand the demands of consumers in order to attain the highest level of excellence, (Kim & Choi, 2016). In this situation, data exchange could provide a better insight of the client base preferences. Finally, capable people use partner relationship management as a critical tool for enlisting the help of others. Regardless of whether or not other people's ventures succeed, this will help them. Collaboration agreements should place a premium on superior supply chain networks. Strong links boost supply chain performance in terms of Inventory speed, responsiveness, delivery time, product and process length, and expenses are all important factors to consider while developing a new product. (Dubey, Gunasekaran, Childe, Papadopoulos, Luo, & Roubaud, 2020).

When it comes to developing a true competitive advantage for services and goods in a constantly crowded market, supply chain management is essential. (Ben-Daya, Hassini, & Bahroun, 2019). Despite increased focus on supply chain management, there is a gap in the body of knowledge when it comes to offering and introducing diverse dimensions such as materials procurement and inventory management (MP & IM) and logistics management (LM), information exchange, and partner relationships that can help improve supply chain management practises (Nazifa & Ramachandran, 2019). Although some organisations recognize the value of incorporating SCPs, they often do not know what to do since they do not grasp what comprises a full set of supply chain practises (Li et al., 2006). As a result, it is required to define the supply chain practises that apply to Libyan major operator firms that own major oil fields, as well as oil and gas processing facilities, manufacturing plants, and vast supply chain sections with several departments in various places. Logistics and transportation operations, material warehousing facilities, marine and shipment facilities, cargo facilities, procurement staff, and office facilities are all part of the supply chain department at such a site. As a result, organisations will be able to recognize and concentrate on areas that need improvement. Organizations will likewise gain a better understanding of SCPs, which will help them improve their presentation and keenness. Using textual analysis and the views of industry professionals and academics, we've created this report. Four main practises were chosen for all of the issues discussed above: Information sharing and quality (IS & Q), logistics management (LM), and materials procurement and inventory management (MP & IM) are all examples of management functions. As a consequence, the purpose of this research is to find out how these SCPs affect financial and non-financial organisational performance. As a result, the goal of this study is to fill a gap in the literature by investigating the influence of alternative methods on operational success. Customer satisfaction as well as financial success are important considerations. objectively. The goal of this study is to see how different SCPs affect organisational effectiveness.

2. Literature Review

2.1. Management Performance

A company's performance is described by (Harmon, Fairfield, and Behson 2009) as the capacity of the organisation to fulfil its objectives and to maximize shareholder value by integrating economic, environmental, and social activities into its strategic plans. External issues such as crude oil supply and demand, as well as oil price volatility, expensive transportation, and significant unpredictability affect this sector. To maximize the potential of supply chain operations in enhancing overall company performance, it is necessary to pay specific attention to supply chain performance management (Shi M, Yu W. 2013). According to (Anatan 2014), SCMPs have a substantial impact on obtaining a competitive advantage. This research will look into the elements that influence how performance measurements are chosen in the oil and gas industry. Performance management requires accountability and transparency in order to build a

clear understanding of expectations. (Carla Tardi, September 20, 2021). A number of researchers have tried to explain the term 'performance. Financially, performance shows a company's ability to grow within its economic restraints (Huang & Liu, 2009; Alayemi and Akintoye, 2015) without getting into more debt (Ross, Westerfield, and Jordan, 2010). Many definitions of organisational performance have been proposed by experts in organisations and in general, several scholars have employed financial performance to quantify OP in their past literature. Many others, on the other hand, have calculated and measured an enterprise's completion and production using non-financial performance. The researchers employed the FP in the current investigations after seeking contradictions. The phenomenon of how companies manage to achieve their desired goals is called 'business performance. Despite the fact that there have been countless studies on OP in the past, there is currently no universally accepted standard for measuring OP. Some academics use financial performance as a metric for determining OP. Others use non-financial performance to assess an organization's performance. (Muhammad K., Khalila, Rashid K., and Sajjad N. 2018). To quantify OP in this study, we used both monetary and non-monetary criteria.

2.1.1. Financial Performance

In the literature, various authors have defined financial performance. In a broad sense, financial performance relates to how well a financial goal has been reached. According to (Verma 2008), it assesses the monetary impact of a firm's policies and operations as well as its general financial health over an extended period of time. It can also be used to compare companies in the same industry, sector, or industry. Financial performance, according to (Will Kenton 2021), has been defined as subjective assessment of a company's ability to generate money from its core method of operation. Generally speaking, the phrase is used to describe a broad assessment of a company's long-term financial well-being. All of the organization's operations and strategic actions are regarded as part of its performance (Wheelen, Hunger, Hoffman, and Bamford, 2017). For accounting purposes, organisations are more concerned with correctly quantifying performance. Performance measurement is necessary for establishing plans and evaluating their achievement. (Miklós, Hossam, Janos, József, and Judit2019). According to Huo 2012), financial performance must be the primary metric of supply chain success for firms because it optimises shareholder profit. In the literature, there are two primary methods for determining financial success. Subjective measures are the first method in which performance is evaluated and compared to competitors based on respondents' assessments and expectations. The objective kind employs absolute performance measurements such as financial ratios. As Miklós. P, Appiah-Adu, K. Hossam, János, József, and Judit point out, the concept of performance is complex. The qualitative and quantitative notions, it is said, are more extensive and encompassing than the performance concept. However, (Flynn, Huo, and Zhao 2012) pointed out the drawbacks of depending primarily on financial performance indicators.

2.1.2. Non-financial Performance

Non-financial performance characteristics such as client, learning, and development perspectives all had an impact on the company's financial success, while internal business processes have had little effect on financial performance. Learning and growth have an impact on internal business processes, and internal business processes have an impact on customers. Information openness has little effect with regards to the link between non-financial and financial performance. According to the research, companies must boost customer satisfaction as well as growth based on employee engagement and strategic alignment to increase their financial success. (Lampung, Al Madani, 2019). According to studies, both financial and non-financial performance assessments are vital and complement one another in minimising information. There is an imbalance in the relationship between management and stockholders. As a result, there is a growing need for services. It encourages businesses to develop internal stages of change performance reviews that include non-financial metrics such as a fair and balanced scorecard (Hoque & Adams, 2011). We discovered that the derivation of a firm's non-financial performance metrics has an indirect and significant impact on the financial performance of the organisation when a quality-based approach is used. Furthermore, non-financial performance metrics disclosure has only a positive effect on quality-oriented enterprises' operational financial performance. (Mohamed Omran, Ashraf Khallaf, Kimberly Gleason & Yasean Tahat 2019)

2.2. Oil and Gas Supply Chain Management Practises

The oil and gas industry are one of the most profitable in the world, with an average of $3.3 trillion a year. However, in order to maintain its output levels, the country must accept new technologies. It has a number of developmental challenges, including operational barriers, a lack of operational experience, strategic planning, and inadequate information technology implementation. (Bashir R. B. Abuzwida 2019). An industry's three segments are upstream, midstream, and downstream. Midstream businesses transfer crude oil from wells to refineries, while downstream enterprises process and sell finished items. To extract petroleum, drilling companies collaborate with oil and gas exploration and production companies. Publishers perform relevant construction and maintenance activities on very well-kept sites. (Michael J. Boyle and Kirsten R. Schmitt Oct 2021). SCM is defined by (Larson and Rogers 1998) as the coordination of operations inside and across vertically linked organisations. It is critical to examine the influence of SCMPs on FP because it is well established that SCM has firm-level implications (Green et al., 2013). It's challenging to come up with suitable metrics for supply chain practise analysis. For example, fewer suppliers, long-term relationships, frequent communication, cross-functional teams, and involvement of suppliers in planning and control are all examples of SCM constructs previously created (Chen and Paulraj, 2004).

The petroleum supply chain is unlike any other. To begin with, it has an extended history because many parties are involved, from oil and gas exploration to the final user, the petroleum customer (Varma et al., 2008). Second, expensive

machinery and equipment and specialised logistics services. Most of this equipment needs skilled personnel to maintain and operate it. Third, because most oil and gas companies are controlled by municipalities, political difficulties affect the sector (Ngoasong, 2014). Fourth, the location of natural oil and gas resources dictates the drilling sites for oil and gas in the upstream sector. Oil fields are found all over the world and their marine life is influenced by human activity. In other situations, it may lack essential comforts, necessitating large logistical costs. Even though the downstream refinery process does not have to be carried out in a faraway place as it does in the upstream sector, environmental concerns have led to some limitations. Furthermore, it must be used in a region with an appropriate energy supply. Refineries are typically located near the shore to make it easy for crude oil tankers to approach them. Fifth, the industry is very risky, requires specific risk management and avoids backsliding (Varma et al., 2008; Mearns et Yule, 2009). This factor must be addressed while managing the supply chain to ensure the safety of people, materials, and the environment.

A company's supply chain is connected upstream and downstream to merchants in terms of supplies, information, and cash flow. As a result, excellent supply chain management can improve the efficiency and competitiveness of the petrochemical system. To put it another way, only a few suppliers are in the system for the delivery of the SCMP, which can be It is clear that an effective application of SCMPs can assist the business in maintaining its competitive advantage while also improving its performance. As a result, establishing and retaining a competitive edge through good SCM has become a popular strategy. (Yang et al., 2019; Liao et al., 2018. For example, large oil companies expect a well-coordinated supply chain rather than internal chain duties to become the main source of performance improvement (Ahmad, Brito, Rezaei, and Tavaxszy, 2017). Despite the fact that Libya's petroleum requires more prominent SCM techniques, papers show that many oil businesses are worried about their supplier networks. Furthermore, only a tiny number of companies feel they can enhance supply chain performance. (Ahmad et al., 2017). According to (Zaid, Jaaron, and Bon 2018), SCM methods are important for managers in the organisation who oversee the improvement of SCM. For big oil companies, for example, some people find that a well-coordinated supply chain is beneficial. Instead, homework will become the most important source of performance improvement (Ahmad, de Brito, Rezaei, and Tavasshy, 2017). Despite the fact that the Libyan oil industry requires larger SCM technologies, the researchers suggest that many oil companies are concerned about the adequacy of their supply chains. In addition, just a tiny number of companies believe they have the essential competencies to improve SC performance (Ahmad et al., 2017). Increased integration and improved supply chain management capabilities are becoming increasingly important as petroleum firms shift away from maintaining all essential capacity internally and towards a higher percentage of outsourcing (Basheer, Siam, Awn, and Hassan, 2019).

Academics such as Li et al. (2006), Tan (2002), and Cook et al. (2006) note that these processes are critical both upstream and downstream of CS. According to (Jermsittiparsert, Sutduean, Sriyakul, and Khumboon 2019), SCP is linked to charge or purchaser reaction, which may be used to assess the outcomes of corporate tasks, such as target achievement and financial outcomes. In this way, all of an endeavour's decisions will be made with the goal of lowering costs. As a result, supply chain management costs such as operating and inventory costs might be used to assess the exhibition. Walton (1996) asserts that consumer responsiveness, however, is tied to SCP and can change in response to changing customer expectations and demand.

2.2.1. Strategic Supplier Partnering SSP

Strategic Supplier Partnerships (SSP) are long-term relationships in which each party's strategic and operational skills are combined to bring considerable benefits to both parties (Li, Ragu-Nathan, et al., 2006; Li, et al., 2005). Forming strategic the importance of developing connections with creative suppliers is widely acknowledged. and effective method of innovation (Oke, Prajogo and Jayaram, 2013). These buyer-supplier relationships have the potential to grow into a cooperation with a crucial supplier, involving shared objectives, collaboration, organization, and issues are all important aspects of every project. activities (Qrunfleh and Tarafdar, 2013). Information sharing, integration, and responsiveness are all possible with these types of cooperation (cf. Qrunfleh and Tarafdar, 2013).

(TóthKirály, Orosz , Márki, Rigó, and Bthe 2019) argued that corporate organisations should value the importance of teamwork and task division. A relationship is essential to supply chains in this way. Partnership, according to (Storey and Kocabasoglu-Hillmer (2013), is a technique for establishing a long-term relationship with suppliers. As a result, businesses could improve their business plans. In this way, the partnership aids in the improvement of an organization's performance from various angles. They may boost solitary passion as well as offer the hazards of their responsibilities through coordinated effort and task division. According to (Barak and Javanmard 2020), In order to bring Libyans together, careful strategy planning and strong partnership preparation are essential. Accordingly, the study framework will look at the interaction between supply chain management approaches (the development of partner relationships, information sharing and quality, material purchasing/inventory administration, and logistical operations) and Libyan firms' performance in the petroleum sector.

2.2.2. Information Sharing and Quality IS&Q

When it comes to SCMPs, information exchange and quality are extremely crucial, and they have been employed as exogamic notions in past SCM studies. (W. Wijetunge, 2017). (Moberg, Cutler, Gross, and Speh, 2002). Furthermore, information (quantity element) phases should be thorough in delivering vital and confidential information to a firm's supply chain supplier is prohibited, (Hassan and Alanazi, 2018). Information might range from managerial activity to market and consumer data, (Wijetunge 2017). Furthermore, some academics believe that exchanging data with other supply chain partners could become a key source of FP. (Wijetunge and M. S. Irshad, 2017).

Information sharing across businesses is reliant on a continuous and highly secure channel that transmits messages from one company to the next in a comprehensive and transparent manner. Internal functions are extended to

the system for distributing materials and then to multiple organisations through information sharing in order to establish a system for exchanging data between participants in order to improve supply chain efficiency (Ojha et al. 2019). Although flawless data sharing benefits enterprises, precise data interchange is required, one of the key aspects that lowers corporate performance is inadequate, mutilated, and fragmented information sharing, as well as concerns like scope planning uncertainty (Wang, Hu, Gong, Ren, and Xiao 2020).

The extent to which the flow of information and interchange is accurate, timely, sufficient, and compelling is referred to as information quality (IQ). (Ragu, Li, Nathan, et al., 2006). According to Dabrowski (2018), and (Saxena and Lamest 2018), IQ has become a critical problem in the information age, and it plays a significant role in distinguishing between usable and redundant information. According to several studies, a more efficient supply chain is made possible by effectively managing the quality of information at all levels of an organisation. (Lyons, Coleman, Kehoe, and Coronado, 2004; Moberg et al., 2002; Li et al., 2005).Furthermore, according to (Dabrowski and Maravilhas 2018), information quality is an important competitive weapon for organisations in the twenty-first century. The definition of intelligence, on the other hand, is a source of debate. In the literature, IQ has been defined in a variety of ways; (Gustavsson and Jonsson 2008), for example, defined it as a concept of 'suitability for use.' Another commonly accepted meaning of intelligence is 'information that is fit for use and fulfils the goal for which it is intended' (Laumer et al., 2017; Bossé & Rogova, 2019). Furthermore, according to (Forslund and Jonsson 2007), distinct information quality deficiencies might affect the usefulness of forecasts and their potential to influence supply chain performance. As a result, managers will be able to make accurate business decisions that will help them manage their supply chains more effectively (Raisinghani & Meade, 2005).

2.2.3. Logistic Management LM

The oil business deals with a lot of money, whether it's in the form of investments or expected earnings. Companies, on the other hand, are under pressure to improve their efficiency by refining their operations in line with increased public standards and heightened environmental awareness. The world has become more competitive (Ebrahimi et al., 2018). Transportation logistics is one area where this is critical (Hussain et al., 2006). Methods to ensure that all resources and goods are delivered at the proper time in a timely manner are known as supply chain management, which is how logistics is defined (Feng et al., 2017). The firm's or a partner's logistics system or natural calamities can create delays or interruptions in the logistics process. (Tse et al., 2016). Upstream logistics, which comprises supplying the facilities (mainly oil wells) with the supplies needed to extract oil, and downstream logistics, which entails conveying the extracted petroleum to buyers (Aas et al., 2007). The topic of logistics in the upstream has received little attention (Aas et al., 2009). Furthermore, the majority of the literature on upstream logistics has focused on offshore production and vessel routing (Aas et al., 2007; Fagerholt and Lindstad 2000; and Weare Halvorsen et al., 2012).

2.2.4. Material Procurement and Inventory Management MP&IM

Material procurement necessitates a thorough examination of multiple vendors and the use of sound judgement to guarantee that materials are secured in the proper quality, quantity, time, price, and source (Chand, 2016). Identifying supplies, searching for suppliers, vendor interviews/comparison/selecting suppliers, order placements and vendor performance evaluations are all steps in the material procurement process in the construction industry. (Tunji, Rapheal, Adedeji, Ayim, Patience, Afolabi, Ojelabi and Olayeni 2017). Managers in charge of material purchasing operations have four basic techniques to select from, depending on the approach. These strategies include establishing a dependable procurement process, utilising procurement data, taking use of outsourcing contracts and building collaborative partnerships with third parties (M.F. Laradi) (2017). For material procurement activities, there are two phases of risk management approaches to be performed successfully, the ability to determine and identify hazards in materials procurement, as well as the company's ability to effectively mitigate these risks, is essential. The research has managerial, methodological, and theoretical implications. (M.F. Laradi) 2017).

Inventory management is the method of ensuring that the proper stock is available when needed, location, price, and quantity. As a result, forecasting demand is crucial in supply chain management. The inventory is crucial to keeping the facility working smoothly and minimising downtime. The availability of productive equipment is critical to the oil and gas industry's production. Stocks, on the other hand, are used by businesses to reduce shutdown and maintenance costs. The availability of the machines that are being maintained is linked to the service in the spare parts sector. The most expensive assets are maintenance, repair, and operating inventories, which require significant expenditure. To keep the oil and gas generating plant operating, it performs scheduled and unscheduled maintenance. (Usman, Bashir Khawar, Abdul Razaullah, Catalin, Muhammad 2020). Maintenance costs, which use spare parts, are one of the major sources of production costs. Keeping spare parts for maintenance demands a significant capital expenditure, particularly in the energy and transportation industries.

As a result, management plans both the upkeep of the plant and the storage of spare components to reduce production costs. (Shen, Liu, Cheng, and Li 2017) (E. Uhlmann; M. Bilz; B. Baumgarten, 2013). As a result, inventory management presents a significant challenge for enterprises in terms of decreasing access to inventory while increasing service levels for maintenance issues. (Turrini and L. Meissner 2019).Traditional models and guidelines for material management can't keep track of the whole cost of replacement parts supply chain networks; nevertheless, considering warehouse site optimization and effectively integrating it is the most effective method of reducing overall costs. (Cardenas-Barrón; A.A. Shaikh; S. Tiwari 2020),(Irene; M. Marco; D. Orlando, 2018). However, unexpected equipment breakdown disrupts the demand pattern in a real-world industrial context (a spare parts system), and academics have modified the Harris assumptions to account for this. (Rodrigues and T. A. Yoneyama, 2020).

3. Methodology

3.1. Theoretical Research Framework

This project's theoretical research model, shown in Figure 1, was created. In order to better comprehend SCM's causes and consequences, the causal relationships between SCMPs, management performance, and SCM are presented in the paradigm. The structure's logic is that having a large number of SCMPs results in greater management performance. Because of this four-dimensional view, SCMP is seen as a whole, as shown in Figure 1's SCMP box, whereas firm perform (Shen, 2017) mance is conceptualized as two-dimensional constructions, Financial Management Performance (FM) and Non-financial Management Performance (NFP), correspondingly (Figure 1). These measurements have been investigated and authenticated by a number of academics, and they are thought to be important influences on oil and gas MP. A study framework is provided to demonstrate the hypothesis. Figure 1 depicts the link between several factors. In our methodology, four supply chain management practises serve as independent variables. (Terms used include strategic supplier partnership (SSP), sharing of information and quality (IS&Q), logistic administration (LM), and material purchasing and inventory management) (MP&IM). Furthermore, the study's dependent variable is managerial two aspects of performance are referred to as: FP and NFP. These variables represent the Libyan oil and gas industry. In view of the variables displayed in Figure 1, our study framework is made up of independent interfacing variables and dependent factors. Investigating the link between the independent SCMP variables and the dependent MP variable can help improve the hypotheses in the proposed framework. The following is a breakdown of the study's hypothesis: There are two main Hypothesis H1 and H2 considered in this research based on the demotions of management performance FP and NFP each hypothesis has four sub-hypotheses

- H1 The main hypothesis: SCMPs and finance management performance in Libyan oil and gas firms is strongly and positively linked.
- H1a. Strategic Suppliers Partnering in Libyan petroleum firms, positively and closely linked with financial management performance.
- H1b. Financial management performance in Libyan oil and gas companies is strongly and positively linked to information sharing and quality.
- H1c. Material procurement and inventory management are significantly and positively connected to financial management performance in Libyan oil and gas enterprises.
- H1d. In Libyan oil and gas firms, the performance of logistic management is strongly and favourably connected to the performance of financial management.
- H2. SCMPs are related to non-financial management performance in Libya petroleum companies in a significant and positive way.
- H2a. Strategic Supplier Partnering is significantly and positively associated to non-financial management performance in Libyan petroleum companies.
- H2b. Non-financial management performance in Libyan oil and gas companies is strongly and directly connected to information sharing and quality, as well as to financial management performance.
- H2c. Material procurement and inventory management are significantly and positively connected to non-financial management performance in Libyan oil and gas enterprises.
- H2d. Non-financial management performance in Libyan petroleum firms is strongly and positively linked to Logistic Management.

3.2. Data Collection

(Krejcie and Morgan 1970) recommended a sample group of 384 whereas (Comfrey and Lee 1992) recommended 300. Statistics for Social Sciences technique will be used to analyse the data in this study. A printed quantitative survey questionnaire was used to collect data for this investigation. A questionnaire survey was utilised as the primary method of data collecting. Data was collected across Libya's oil and gas companies by physically handing out questionnaires to five oil and gas companies, three major upstream oil operators, one downstream (petrochemical) company, and one service (contractor) company. For this study, 479 questionnaires were given to the aforementioned firms, 431 sets were returned, and 393 replies were useful for analysis. 38 questionnaires were eliminated from the study because respondents did not answer at least 25% of the questions were incorrect, and several of the responses were outliers. Blank replies were among the unanswered inquiries. due to transportation constraints as a result of the Covid-19 outbreak, as well as issues contacting respondents and the fact that some of them were busy. This study had an 82 percent response rate. Experts assess and evaluate the questionnaire, which is then changed in light of their feedback. The present questionnaire's components are all set up to be graded on a scale of 1 to 5. This scale was used to collect data. Scales for collecting comments on the provided subjects, specifically supply chain management's impact methodologies on management performance in Libyan petroleum firms, according to the survey's demographic information, 86.6 percent of respondents are male, while only 13.4 percent are female. Furthermore, the majority of responders had 16 to 20 years of service experience in the petroleum and natural gas industry.
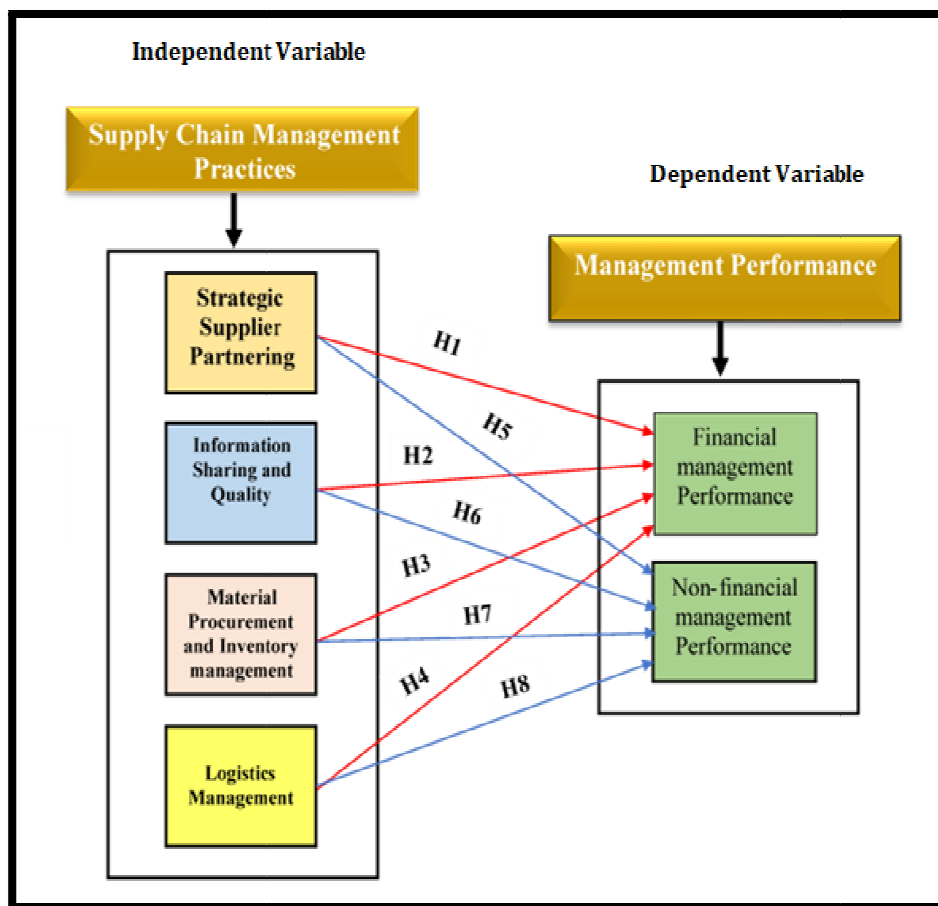
Figure 1: Framework of the Study

4. Outcomes and Analysis of Data

4.1. The Model for Assessment Is Evaluated in This Section

Confirmatory factor analysis was used to verify the data's validity and dependability. The validity of convergent validity, concurrent validity, and divergent validity were all thoroughly studied. In the next section, you will find the findings of the factor analysis, and also measures of accuracy and consistency. Table 2 lists every part of the concept validity and reliability measures. The indicator dependability of a reflective latent construct is the first stage in determining its reliability. The indicator outer loadings are used to assess indicator reliability. (Hair et al. 2016) If an indicator has a load of 0.7 or greater, it is considered reliable. It's also possible to remove indicators from the model if they are more closely linked to other latent variables than their primary one. Table 1: It uses the Fornell-Larcker Criterion to measure discriminant validity. It is demonstrated that the association of the latent construction to any other latent variable is larger than the square root of the AVE for a factor. (Fornell 1981. Lacker, 1981; Hair et al., 2014). All factors in the table met the Fornell-Larcker Criteria for construct validity.

	FP	IS&Q	IT	LM	MP&IM	NFP	SSP
FP	0.811						
ISQ	0.631	0.817					
IT	0.712	0.626	0.794				
LM	0.588	0.496	0.624	0.794			
MP&IM	0.647	0.556	0.698	0.738	0.866		
NFP	0.785	0.557	0.664	0.559	0.591	0.826	
SSP	0.757	0.596	0.678	0.473	0.615	0.667	0.8
With square of the AVE in diagonal (Bold)						

Table 1: The Fornnel-Larcker Criterion for Discriminant Validity

Late Construct	Indicator	FP	The Alpha of Cronbach	rho_A	Reliability of Composites	Extracted Average Variance (AVE)
IS&Q	IS&Q1	0.829	0.834	0.835	0.889	0.667
	IS&Q3	0.791				
	IS&Q4	0.831				
	ISQ6	0.815				
LM	LM1	0.786	0.707	0.707	0.837	0.631
	LM2	0.831				
	LM3	0.764				
MP&IM	MP&IM1	0.898	0.917	0.919	0.937	0.75
	MP&IM2	0.859				
	MP&IM5	0.859				
	MP&IM7	0.815				
SSP	SSP1	0.733	0.858	0.867	0.898	0.64
	SSP2	0.778				
	SSP3	0.814				
	SSP5	0.801				
	SSP7	0.867				
IT	ITU_2	0.708	0.803	0.807	0.872	0.63
	ITU_4	0.837				
	ITU_5	0.813				
	ITU_6	0.812				
FP	FP_1	0.733	0.737	0.747	0.852	0.658
	FP_2	0.826				
	FP_3	0.868				
NFP	NFP_1	0.826	0.845	0.853	0.896	0.682
	NFP_2	0.789				
	NFP_3	0.838				
	NFP_4	0.849				

Table 2: Reliability and Validity of the Construction

4.2. Verification of Hypothesis

Relationship	Coeff
R2 (FP)	0.699
Adj. R2 (FP)	0.693
R2 (NFP)	0.585
Adj. R2 (NFP)	0.577
Q2 (FP)	0.429
Q2 (NFP)	0.367

Table 3: Structural Model Assessment

4.2.1. H1: The Relationship between SCMPs and Financial Management Results
- H1a: The link between SSP and the performance of financial management.

At a constant of 99. The economic results increase by 40.70 percent. Percent for each unit rise in the SSP. We will take a zero percent risk in presuming that SSP has a noteworthy impact on financial performance based on the significance of the t statistic of 12.413, which is less significant than the threshold of 5%.In addition, the effect bulk linked with the regression factor of 0.407 is 0.254, implying that SSP takes a medium influence on the company's financial achievements. As a result, we find that the SSP has a significant favourable impact on financial performance. SSP provides a substantial amount of data for analysing financial performance. The probability of rejecting the 0.1 percent of the time, the null hypothesis is correct.
- H1b: The Relationship Between IS&Q and Financial Management Performance.

With all other variables held constant, IS&Q At 95% certainty, it has a favourable and large impact on financial performance. Increase the value of each unit. Financial performance improves by 12.00 percent in the IS&Q. Depending on the significance of the t statistic of 2.652, which is lower than the level of significance of 5 percent, we will assume that the IS&Q have a substantial influence on financial performance and will take a 0.80 percent risk. The effect size linked with the 0.407 regression is 0.025, indicating that IS&Q has a small influence on financial performance, as shown by the data. This results in the null hypothesis being rejected, but the alternative hypothesis being kept. While the null hypothesis is correct, there is a 0.8 percent chance of rejecting it.
- H1c: The Relationship between MP&IM and Performance of Financial Management.

Assuming that all other factors stay unchanged, MP&IM has a favourable but small effect on financial performance. Financial performance improves by 7.00 percent for each unit increase in the MP&IM. We will take an 8.10 percent there is a danger in believing that MP&IM have a large impact on financial performance, which has a relevance greater than 5 percent, based on the significance of the t statistic of 1.744. As a result, we didn't figure out the null hypothesis. Although the null hypothesis is real, the risk of rejecting it is 8. 1%, which is greater than the criteria of relevance of 5%.

- H1d: The Relationship between LM and Financial Management Performance.

With all other variables held constant, LM has a favourable and substantial effect on financial success at a 95% confidence interval. Each unit increase in the LM improves financial performance by 11.50 percent. We will take a 0.20 percent chance that the LM is correct. Relying on the importance of the t statistic of 3.147, which is lower than the threshold of relevance of 5%, financial performance has a massive effect. As a result, the LM has a considerable and favourable impact on the corporation's economic outcomes.

Hypothesis	Relationship	Coeff	Err Std	T Stat	P Values	F^2	L95% CI	U95% CI
H1a	SSP -> FP	0.407	0.033	12.413	0	0.254	0.344	0.47
H1b	ISQ -> FP	0.12	0.045	2.652	0.008	0.025	0.027	0.204
H1c	MPIM -> FP	0.07	0.04	1.744	0.081	0.005	-0.01	0.149
H1d	LM -> FP	0.115	0.037	3.147	0.002	0.017	0.043	0.188

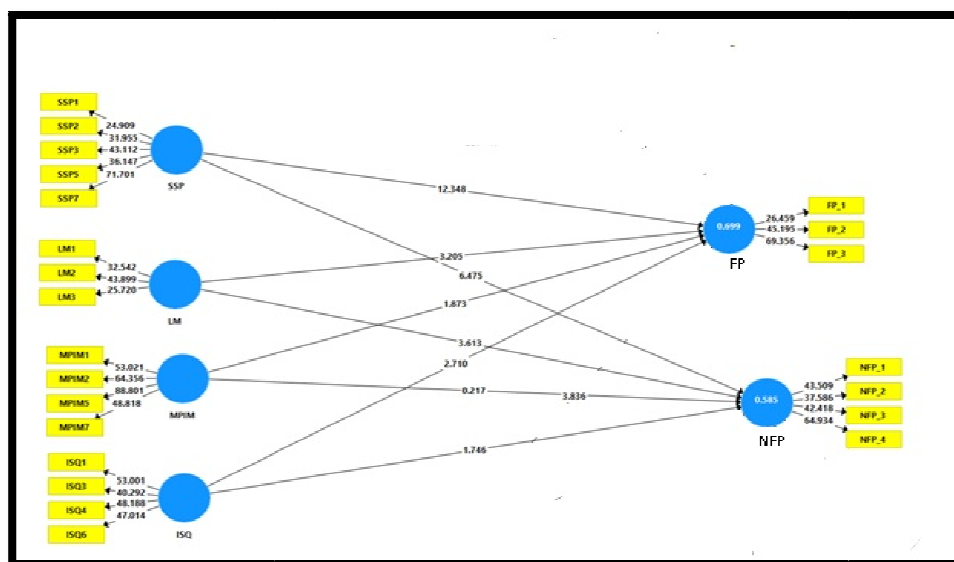Table 4: Verification of Hypothesis One

Figure 1: Structural Model Presents The Structural Model. If The T
Value Exceeds 1.96, the Path Coefficients Are Important

4.2.2. H2: The link between SCMP and Performance in Non-Financial Management

- H2a: The link between SSP and performance in non-financial management

With all other variables held constant, SSP has a significant beneficial impact on non-financial outcomes at a 95% confidence interval. Non-financial performance improves by 32.30 percent for every unit rise in the SSP. We will take a 0.01% risk in believing that the in terms of non-financial performance; SSP has a massive effect on the t statistic of 6.54, which is less substantial than the threshold of 5%. As a result, according to our findings, the SSP has a substantial role in beneficial impact on non-financial performance. With all other variables held constant, SSP has a confident and substantial influence on non-financial execution at a 95% confidence interval. Non-financial performance improves by 32.30 percent for every unit rise in the SSP. Depending on the magnitude of the t statistic of 6.54, which is lower than the threshold of relevance of 5%, we will assume that the SSP has a strong influence on non-financial performance. This suggests that the SSP has a major impact on non-financial performance.

- H2b: The relationship among IS&Q and effectiveness in non-financial organization.

With all other factors held constant, IS&Q has a positive and significant influence on financial success at a 95% confidence range. Increase the value of each unit. Financial performance improves by 12.00 percent in the IS&Q. We will take a 0.80 percent risk in assuming that the IS&Q has a significant influence on financial performance based on the significance of the t statistic of 2.652, which is lower than the threshold of significance of 5%. Furthermore, the effect size associated with the 0.407 regression coefficient is 0.025, indicating that ISQ has a little impact on financial performance. As a result, the null hypothesis is rejected and the alternative hypothesis is retained. While the null hypothesis is correct, there is a 0.8 percent chance of rejecting it.

- H2C: The relationship between MP&IM and performance of non-financial management

Assuming that all other factors stay unchanged, MP&IM has a favourable but small effect on non-financial performance. Non-financial performance improves by 1.10 percent for every unit rise in the MP&IM. We will take an 84.10 percent there is a danger in believing that MP&IM have a large impact on non-financial performance that has a value

greater than 5%, based on the significance of the t statistic of 0.201. As a result, we find that the MP&IM has a small but beneficial impact on non-financial performance. The probability of rejecting the null hypothesis while it is true is 84%, which is higher than 5%.

- H2d: The relationship between LM and non-financial Management performance.

With all other variables held constant, LM affects non-financial output in a significant and beneficial way at a 95% confidence interval. Non-financial performance improves by 15.80% for every unit rise in the LM. We'll settle with 0%. There is a danger in assuming that LM has a substantial influence on non-financial results evaluation on the t statistic's significance of 3.629, which is less than the 5% threshold of significance. As a result, we find that the LM has a materially beneficial effect on non-financial performance. The chance of rejecting the null hypothesis when it is true is less than 1%, which is less than the 5% level of significance.

Hypothesis	Statement of Hypothesis	Decision
H1a	SSP and FP have a strong and beneficial association.	Confirmed
H1b	IS&Q and FP have a strong and beneficial association.	Confirmed
H1c	MP&IM and FP have a strong and beneficial association.	Partially Confirmed
H1d	LM and FP have a strong and beneficial association.	Confirmed
H2a	SSP and NFP have a strong and beneficial association.	Confirmed
H2b	IS&Q and NFP have a strong and beneficial association.	Partially Confirmed
H2c	MP&IM and NFP have a strong and beneficial association.	Partially Confirmed
H2d	LM and NFP have a strong and beneficial association.	Confirmed

Table 5: Summary of the Findings of the Study

- Note: NFP: Non-financial Performance. SSP: stands for Strategic Supplier Partnership. IS&Q: Information Sharing and quality, LM: Logistic Management. MP&IM: Materials Purchasing and Inventory Management, FP: Financial Performance

5. Conclusion and Discussion

The study's purpose was to determine how SCMPs influenced OP in Libya's oil and gas industry. SCMPs at Libyan oil corporation NOC firms, in partnership with partners and suppliers, increase financial management performance, according to the findings. *Strategic Supplier Partnering*, according to the research, has a significant positive influence on financial performance. has a good and considerable impact on financial performance. The findings are consistent with earlier studies. (e.g., Flynn et al., 2010). *Information Sharing and Quality*, as well as *logistics Management*, all have a strong beneficial impact on financial performance. *Material Procurement and Inventory Management*, conversely, they influence financial performance in a modest yet beneficial way. These outcomes may lead to a well knowledge of consumer desires, resulting in increased supply chain efficiency (Vijayasarathy, 2010).

Furthermore, the data demonstrate that SCMPs in Libyan oil NOC firms improve non-financial management performance in partnership with their partners and suppliers. *Strategic Supplier Partnering* has a favourable and considerable influence on non-financial performance, according to the results, such as supply chain member commitment and trust, which can assist oil and gas companies solve their deficiencies and improve supply chain performance as a result. Similarly, *Logistics Management* has a considerable beneficial effect on non-financial performance. Non-financial achievement, on the other hand, has a small but favourable influence by *Information Sharing and Quality*, as well as *Material Procurement and Inventory Management*. These findings corroborate prior supply chain management studies. (Chow et al., 2008; Prajogo and Olhager, 2012).

6. Limitations and Future Studies

The emphasis of this research was on Libyan oil and natural gas firms. Potential researchers should either expand the area of the study to include a broader range of sectors and countries, or do a comparison examination of numerous industries. Additional supply chain performance measures might be studied to increase the value of the exploration results.

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