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Master of Business Administration

MBA Thesis

The Implementation of Supply Chain Management
Case Study of Saudi Construction Industry

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ABSTRACT

The supply chain's performance is deteriorated by current practices used in Saudi construction industry, which are not only rife with challenges impeding effective project delivery. For the Saudi construction industry, supply chain management (SCM) is a relatively new concept. The Supply Chain Management approach offers many advantages in materials of how projects are completed, including synchronizing customer requirements with material and information flows laterally along the Supply Chain, until a balance between client satisfaction and cost is attained. The three different objectives of the study are to identify the Supply Chain Management components and the extent to which they were being used in construction projects, to evaluate the difficulties in implementing Supply Chain Management practices in such projects, and to look into the crucial success factors for Supply Chain Management implementation in construction which were used to gauge the degree to which these practices were being used. The study used a quantitative method to gather data through a carefully constructed questionnaire, adopting the survey research method. The collected data was analyzed using the ranking method in conjunction with the Relative Importance Index (RII), Mean Item Score (MIS), and other data. The research's findings showed that sharing and using knowledge and skills, as well as cutting waste, were the main Supply Chain Management elements that construction professionals in the industry applied in practice. The main challenges impeding the implementation of Supply Chain Management in the Kingdom of Saudi Arabia construction industry have been recognized as the inability to integrate organizational internal procedures effectively and the transient nature of relationship relationships. Additionally, establishing a long-term working partnership and fostering a robust information flow between participants in the chain were found to be the two most critical factors for the effective delivery of Supply Chain Management in the implementation of construction projects in Saudi Arabia. The study suggests that professionals in KSA's construction industry fully adopt the Supply Chain Management system while also considering the challenges preventing its implementation, as doing so will enhance project delivery.

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CHAPITER ONE INTRODUCTION

Introduction

Since it permeates most other sectors and transforms a variety of materials into the physical, economic, and social infrastructure required for socioeconomic development, the construction industry is acknowledged as a crucial and necessary component of the economy's growth. Anaman emphasized the role and objective of the thriving construction industry in the economy, highlighting the vitality of the industry's activities in achieving the country's socio-economic goals of creating housing, expanding infrastructure, and generating employment. Its significance cannot be overstated; hence it is imperative that this powerful economic sector operates at peak efficiency.

The performance of the supply chain is hampered by challenges the Saudi construction industry is currently encountering. Although the construction industry has the potential to become one of the largest construction markets and should have an impact on the economy, it has less of an impact than other sectors. Oyewobi, and Akanmu claim that the construction industry significantly contributes to the growth of the GDP, increasing its contribution from 2.88% in 2010 to 3.22% in 2011. Therefore, the construction sector's nominal GDP contribution in 2014 was 3.67%, in 2017 it was 3.12%, and in 2018 it was 4.04%, all of which are low compared to the other economic sectors. These challenges to the application of the dynamic construction industry are numerous, and some of them are controlled as major practices, such as client-side scope creep, corruption, insufficient funding, inflation, and more specifically from a supply chain management perspective, wastage due to myopic control, longer lead times being unable to meet construction period materials, poor project planning and control leading to variations, supplier failure due to late delivery, lack of collaboration, and so on.

Research Problem

The delivery and organisation of their SC, which is fundamental to the effective project of construction projects, presents significant challenges for Saudi construction companies. The building sector's contributions to a combined Supply Chain Management system are large and crucial for boosting competitiveness. For the SC to remain competitive, information, supplies, and money must flow smoothly. However, given the nature of the dynamic

construction industry and the business practices currently in place, there are numerous challenges that not only prevent successful project delivery but also degrade supply chain performance. For the successful Supply Chain Management managers, they should concentrate on the barriers and bridges together rather than on a single inhibitor or facilitator. The short-term, project-based approach used in the construction business, together with projects with clear relationship and ending points, has inhibited the development of the project delivery process as well as the emergence of more complicated relationships. The current approach used in the dynamic construction industry will frequently lead to issues like insufficient construction site logistics, a lack of internal and external communication, and a lack of trust among parties in the SC, which causes delays and cost overruns and jeopardizes construction projects. However, by integrating the SC as a whole, these issues can be reduced, allowing them to compete on both the domestic and international markets.

Research Aims & Objectives

In order to improve project delivery in KSA, the research's implementation is to examine the level to which supply chain management practices are being used in the thriving construction industry.

The following are the objectives of this research:

- To recognize SCM's elements and the level of project in construction projects.
- To determine the difficulties in implementing Supply Chain Management techniques in construction projects
- To look into the critical success factors for Supply Chain Management implementation in the construction industry.

Research Question

- Which SCM elements are used and to what level on construction projects?
- What challenges face SCM implementation in construction projects?
- What are the critical success factors for implementing SCM in the construction implementation?

CHAPTER TWO LITERATURE REVIEW

Introduction

For businesses who are new to the field or are just starting to build a supply chain, this is an introduction to the principles of supply chain management. There are several examples that demonstrate how beneficial it is for business to collaborate in a forward-thinking and cooperative manner with the businesses that you "supply" and "purchase" to and from. Construction businesses recognize the advantages of such an approach and strategy for both themselves and their clients. The structured method offered by supply chain management (SCM) offers these agreements a distinct structure.

The goods and services provided by these numerous businesses or organizations in the construction supply chain typically account for about 80% of the cost of a construction project. The manner in which these goods and services are procured and to be properly managed, has a profound impact on the projects results - not only in terms of usefulness for all parties and profitability, but also in the manner in which the finished facility meets the reasonable quality, cost, and requirements of the customer.

Supply Chain Management Concept

Over the past century, the history and origins of Supply Chain Management have changed from labor-intensive processes to the contemporary management of international networks, which was once thought to have its roots in logistics management. Supply Chain Management was recognized in the early 1980s as a result of the advancement and expansion of computer technology.

SCM, according to Lambert & Cooper (2000), is the incorporation and combination of all key business procedures from the consumer (end user) all the way up to the first supplier that offer the product, services, and information that bring value to customers as well as stakeholders.

Despite the fact that Lambert and Cooper's definition of "Supply Chain" seems to encompass all of the various members (stakeholders) in the Supply Chain, Mentzer et al. (2001) felt that their definition of "Supply Chain" more accurately described three or more companies and

businesses as a group directly associated and involved with upstream as well as downstream services and products leading to customers. They felt that their definition of "Supply Chain " more accurately described Supply Chain as a group directly associated and involved with up

Supply Chain Management is described as a long-term partnership across marketing channels with the aim of lowering inefficiencies, costs, cost, and redundancies in the marketing channels as well as establishing creative strategies and methods for gratifying targeted clients. According to Benton and McHenry (2010), "CSCM is a network of various independent organizations that are linked together (upstream and downstream) with a strategic management of information flows, tasks, activities, and processes, producing value that is delivered to the client as a finished project."

The term "supply chain" is used to identify or describe the network of businesses that joins together to produce finished products for their customers out of a variety of raw materials, products, or services. All construction companies (connected supply chain) are thus a part of the supply chain, including the principal contractor, suppliers, designers, engineers, surveyors, subcontractors, and cost engineers. Due to the typical projects of procurement and the short duration and clear end of construction associated with project-based work, there are frequently multiple members of various SC working separately on the same projects. Each company in the chain has a client, or the group to which these services are offered. However, when the supply chain is integrated, the objective and emphasis of knowing and acting solely in the interests of the actual "project client" is realized. Comparing this definition to the others, it offers a comprehensive understanding of Supply Chain Management.

The management of the flow of goods and services, which encompasses all of the processes that transform raw materials into finished products, is known as supply chain management (SCM). It is the process of actively simplifying the supply-side activities of a company in order to optimize the value provided to customers and achieve a competitive advantage in the market.

Supply chain management, often known as SCM, refers to the efforts made by suppliers to design and put into action supply chains that are both as effective and cost-effective as is humanly possible. The entirety of an endeavor is encompassed by supply chains; this includes production, product development, and the information systems required to direct these activities. In most cases, supply chain management makes an effort to exercise centralised control over or establish links between the manufacturing, shipment, and distribution of a product. Companies are able to save unnecessary expenses and speed up the delivery of their

products to customers if they effectively manage their supply chains. This is accomplished through maintaining a more stringent control on the company's internal inventories, manufacturing, distribution, and sales, as well as the inventories held by the company's vendors.

Supply Chain Management Parts

The manager of the supply chain works hard to reduce costs and prevent shortages as much as possible. The work entails more than just managing logistics and purchasing purchases of supplies. According to Salary.com, supply chain managers "oversee and manage entire supply chain and logistic operations to enhance the effectiveness of the organization's supply chain while minimizing the costs associated with it.

Planning

Planning is typically the first step in the SCM process, and its goal is to match the available supply with the demands of both the manufacturing and the customers. Businesses need to anticipate what their requirements will be in the future and then act accordingly. This pertains to the raw materials that are required during each stage of the manufacturing process, the capacity and constraints of the equipment, as well as the manpower requirements that are necessary throughout the SCM process. When gathering information and developing plans, large organizations frequently rely on the modules of ERP systems.

Sourcing

Strong ties with vendors are absolutely necessary for efficient supply chain management processes. Working with different suppliers to supply the raw materials that will be used in the manufacturing process is an essential part of sourcing. A corporation might be able to plan ahead and collaborate with a supplier to source things before they are needed. Nevertheless, the needs for sourcing will be varied from one industry to the next. In general, SCM sourcing entails making sure of the following things:

- The manufacturing specification required for the creation of items can be satisfied by the raw materials available.
- The prices that were paid for the goods are consistent with the expectations of the market.

- The capability of the vendor to deliver urgent materials in the event of unexpected occurrences is available.
- This particular vendor has a well-proven track record of meeting customers' needs in terms of timely and high-quality product delivery.

Manufacturing

The transformation of raw materials into something new, whether through the use of machinery, human labor, or any number of other external forces, is at the core of the process of supply chain management. Although it is not the final stage of supply chain management, this finished product is the end aim of the manufacturing process. However, it is not the final stage. The process of manufacturing can be broken down even further into subsidiary steps such as assembling, testing, quality control inspection, or packing. During the manufacturing phase, a company has a responsibility to remain vigilant regarding any waste or other controllable elements that may lead to variations from the initial plans. For instance, if a company is consuming more raw materials than expected and sourced for owing to a lack of staff training, the company needs to either find a solution to the problem or go back to the earlier stages in the supply chain management process.

Delivering

After the completion of production and the conclusion of sales, a corporation is obligated to deliver the products to the purchasers of such goods. Because the customer has not yet had any direct experience with the product up until this point, the distribution process is frequently considered to be a contributor to the brand image. When a firm's supply chain management (SCM) processes are strong, the organisation possesses solid logistic capabilities and delivery routes, which allow for the timely, secure, and cost-effective delivery of items. This includes having a backup or diversified way of distribution ready to go in the event that a primary mode of transportation is rendered temporarily inoperable. How, for instance, would the record snowfall that has been occurring in places where distribution centers are located affect the delivery process at a company?

Returning

The management of the supply chain comes to a close with the provision of support for product returns and for returns made by customers. It's bad enough when a customer has to return a product; it's even worse when the company made a mistake that caused the return to

be necessary in the first place. This process, which is sometimes referred to as reverse logistics, requires the organisation to verify that it possesses the capabilities necessary to handle returned products and accurately assign refunds for returns that are received. Whether a product is carrying out a product recall or a consumer is merely dissatisfied with the item in question, the transaction that occurred between the business and the customer must be rectified. There is a school of thought that views customer returns as a form of interaction between the customer and the company. However, intercompany communication to identify defective items, expired products, or non-conforming goods is a highly significant aspect of customer returns. This is because defective products are more likely to be returned by customers. The process of managing the supply chain will be considered a management if the root reason of a customer return is not addressed, which increases the likelihood that additional returns will be made in the future.

Construction Supply Chain Management

The concept of Supply Chain Management first became popular in the middle of the 1990s, when the construction industry was undergoing rapid approach. Despite the importance of supply chain management to the development of many countries and the expansion of their economies, its adoption in the construction economy has been fairly slow. In contribution to contributing between three and six percent of the global GDP, the construction industry globally employs more than 111 million people. The industry is beset by numerous failures and performance barriers. The most recent procurement strategy includes effective components for cooperation, integration, and collaboration. SCM is a theory or concept that describes how businesses should manage their supply chains to maximize strategic benefits, advantages, and returns. Its objective is to coordinate customer wants and requirements with the flow of materials and information throughout the SC until a balance between cost and client satisfaction is achieved. This refers to the knowledge and coordination of supply chain participants, coordinating their activities, learning what the construction will need to satisfy the client, producing services including the supply of products of greater value and quality, and lowering the costs of organizations applying these principles.

The supply chain management can be more effective and extremely effective in the construction industry, despite the procedures are very huge different. Engineers, designers, construction managers, surveyors, and contractors rarely consider the Supply Chain

Management as a whole, despite the fact that Supply Chain Management -related decisions are often made on a daily basis and that transactions and activities take place there. In construction, the term "SC" refers to the network of partners, the complete chain of stakeholders, and the collaborators who work together on both individual items and throughout a company's business life. SC includes the following parties in any project:

- The owner
- The designer
- The planner
- The architect
- The engineer
- The general contractor
- The construction manager
- The subcontractors
- The suppliers
- The manufacturers
- The distributors

Constituents of a Supply Chain may also include the workforce, accounting, equipment and tool fleet operations, etc. during the course of a company's commercial existence. In any construction project, the Supply Chain may be thought of as the owner at the top, followed by the designer, the contractor, the specialty contractors/subcontractors/suppliers, etc., producing multiple points of SC. Demand can be thought of as rolling down the chain in one way, starting with project briefs that contain information, moving on to working drawings, prepared schedules, work orders, etc., and flowing in the opposite direction with goods and materials.

In the construction, all phases of the project involve procurement and activities related to procurement in some form. Due to the unavoidable complexity and division or splitting up of processes in construction, including its price, it may not always be possible to supply resources like raw materials, labor, equipment, and other services on time or in the required quality and quantities.

Supply Chain Management Characteristics

According to Amade research, the following characteristics are crucial: building relationships based on trust, reliance, and dependency; long-term relationship maintenance between

partners in the SC; continuous performance measurement in the SC; quality management; SC finance; information technology (IT); supply base management; supply chain orientation; and top management's duty to the cause. The key Supply Chain Management features listed in the manner they appear based on importance as they will help or benefit in achieving and actualizing the significant success needed must be adequately taken into account and stressed when delivering and carrying out construction projects effectively and successively with the supply chain management approach. Additionally, it is predicted that these capabilities will help construction organizations by enabling them to effectively analyze, assess, and manage the advancements and gains brought about by the use of Supply Chain Management practices and businesses.

The Construction Industry in KSA and Its Challenges

Because of contractual obligations and engagements, the majority of construction actors at the time overreached their capabilities. The construction business had a very high rates of construction activity during the "oil boom" era (Amade et al., 2012). Later, it became apparent that the quality of the projects that were completed during that time had degraded. Construction activities were then associated with poor planning from the initial stages to the delivery of the work, which to the clients is perceived as projects carried out below par. The majority of the nation's construction projects are currently in a condition of abandonment, which has been compared to a junkyard of billion-dollar projects.

The Saudi construction industry accounts for over 70 percent of the country's total fixed capital formation, which is equivalent to 1.4% of GDP. It has been estimated by Inuwa, Usman, and Dantory (2014) that the construction industry in the Kingdom of Saudi Arabia employs the most construction workers of any country in the Middle East and North Africa (MENA), with a total of eight million (8,000,000) workers, which accounts for approximately 25% of the total workforce in Saudi Arabia. According to Isa, Jimoh, and Achuenu's findings, the construction industry in Saudi Arabia has also witnessed a substantial rise in construction contracting. Construction contracting is dominated by foreign firms, and there are relatively few indigenous establishments (2013). In point of fact, according to Oyedele (2013), it is neither structured nor regulated because of the level of complexity and diversity it possesses. According to Ojo, the operating environment in Saudi Arabia is unquestionably hampered or hindered from both a policy and a political standpoint. They stressed this issue in their study. The general business climate in the construction environment was evaluated by the World

Bank utilizing some specific strategic metrics, and it was further reported that despite all of these obstacles, KSA also very admirably compares to the large emerging global markets, such as Brazil and India.

Supply Chain Management Perspective

The management of material supply chains by building contracting enterprises in the Lagos metropolitan area has employed the best hands-on method in sourcing for their construction works required materials, according to Saka and Mudi's 2007 study of the practices and challenges of Supply Chain Management by building contracting companies in the Lagos municipal area. Despite the fact that it has been reported, the majority of construction project workers still struggle with the lack of creativity in the management of the "material supply chain," most likely as a result of a lack of research knowledge in Supply Chain Management in the Saudi context. A movement or operation on SCM awareness should be developed to educate all stakeholders in the C.I., according to Ojo et al. (2014), who also endorsed Saka and Mudi's (2007) arguments. They claim that the Saudi C.I. has very poor comprehension and awareness of the concept of SCM. The three local literatures above (research work limited to KSA construction environment) can be used to infer generally that the major bent of Supply Chain Management in the Saudi C.I. is primarily focused on buildability-related concerns.

Olaniyan et al. (2015) further observed from their research survey that inadequate infrastructure in IT is perceived to be the most severe restraints to the participation of quantity surveyors in Supply Chain Management matters, whereas a lack of knowledge of buildability related concerns being the last constraint. In addition, Olaniyan was optimistic that there is potential for progress when it comes to the implementation of Supply Chain Management methods within the Saudi building and construction industry based on the relevant research that has been undertaken up to this point. It is necessary to do additional research in all 36 federal states before concluding that the Saudi construction industry suffers from a dearth of Supply Chain Management to any significant degree. Despite this, it is clear from the facts presented in the scant and restricted body of literature that there are still elements that put the implementation of supply chain management at risk and make it more difficult. These concerns include a lack of original thought and ignorance.

CHAPTER THREE RESEARCH METHODOLOGY

Introduction

The research technique is presented in this section. This comprises the research design, the method audience, the method, the size, the method, the data collection, the analysis, and the presentation of the data.

Research Design

The plan for data collection, measurement, and analysis is called the research design. This research used a quantitative approach with a survey design method. Data were gathered using a well-structured questionnaire as collection of the quantitative method.

Research Participants

A research population is typically a sizable group of people or objects that serve as the principal collection of a scientific inquiry. It is also referred to be a clearly defined collection of people or objects that are recognized to share similar traits.

Sample Size

An approachable portion of the target population is the sampling frame, from which a sample can be shown. Sufficient precautions will be taken to ensure that the sample's characteristics are indistinguishable from those of the population as a whole. According to the corporate affairs office, there are 100 registered construction firms in KSA, making up the sampling frame for this research. Each of these firms employs important building professionals like architects, engineers, quantity surveyors, project managers, and builders, among others.

Sampling Approach

Sampling methods help to collect elements from the population. Based on the statistical power needed to reliably report significance or non-significant, a variety of methods can be employed to estimate the sample size. Due to difficulties in obtaining useful data from each of the KSA-based construction enterprises, the sampling technique for this research used

simple random sampling approaches, which involved selecting respondents at random from the whole population for the quantitative approach to data collection.

Data Collection Methods

The well-structured questionnaire used in the quantitative approach was divided into sections for data collection from respondents. The research objectives were captured in the questionnaire's two sections (A and B). Section A considered data on the various construction firms as well as general information on the respondents. While the respondents' responses were graded using a 5-point Likert scale in section B, which encompassed all the factors taken into account based on the research's objectives. A total of 87 copies of the questionnaire were successfully given to different construction industry professionals in KSA, and 63 of those copies were successfully retrieved, or 61.76% of the total number of responses needed. This gave a broad overview of supply chain management (SCM) implementation in KSA's construction industry. The percentage is calculated using the average response rate, which is calculated as the number of respondents divided by the total number of survey recipients and multiplied by 100. With 57% of respondents, in-person surveys remain the most effective survey method (Nigel Lindemann, 2019).

Data Sources

With the aid of a well-structured questionnaire that was distributed to the proper employees of the numerous construction firms in KSA, primary sources of data were obtained for this study. Additionally, secondary sources of data were collected from important literatures linked to the study, including books, magazines, blog postings, conference papers, earlier research projects, and journals.

Data Analysis Method

Utilizing point Likert scale, the responses received or gained from the administered questionnaires were analyzed. Depending on their comprehension, respondents were asked to select any alternative. Using the mean item score and relative importance index, questionnaire responses were examined. The two methods mentioned above were combined with the ranking method of data analysis.

CHAPITER FOUR RESEARCH FINDINGS AND RESULTS

Introduction

This part is intended to provide general information about the responders, such as their position among stakeholders, educational background, number of completed projects, years of experience, and professional qualifications. Including the data collected during the research process to fulfil the research's objective.

Research Data

From all questionnaires that were distributed at random to professionals working for construction companies in KSA. The number of responses that were successfully obtained and approved for analysis was 63, or 61.76% of the total number of respondents needed.

The Respondents' Standing among The Stakeholders

The positions of the various professionals among stakeholders are displayed. It reveals that 18% of the respondents fell under the consultant’s class, 6% fell under the manager class, 24% fell under designers, 44% fell under contractors/subcontractors, and 8% fell under suppliers. That suggests that the respondents were legitimately obtained from the various key roles that building professionals play during the course of carrying out a project, as well as from their standings among stakeholders, making the respondents qualified to provide high-quality data in relation to Supply chain management in the construction industry in KSA.

Respondents' Professional Qualifications

The respondents' professional backgrounds are displayed. It demonstrates that 35% of respondents were architects, 24% were quantity surveyors, 14% were engineers (civil engineers, structural engineers), 17% were builders, and 10% were other building

professionals like land surveyors, planners, building services engineers, and general contractors. This suggests that the responders have the necessary data to offer insightful information on the subject.

Academic Background

The respondents' academic backgrounds are displayed. It reveals that 10% (6) of respondents have a doctorate, 27% (17) have a master's, 52% (33) have a bachelor's, and 11% (7) have other less-highly-skilled degrees and credentials. This suggests that the respondents have the necessary skills to offer comments on the topic matter in the construction industry that are at least arguably sufficient.

Supply Chain Management Implementation Success Factors

To look into the critical success factors for Supply Chain Management implementation in the construction industry. The different critical success factors for the implementation of supply chain management in construction projects that emerged from a review of the literature were rated by the respondents on point Likert's Scale, according to the extent to which they concur that these factors are required for the successful implementation of supply chain management in the construction industry.
The use of information technology was ranked as the least critical factor for the successful implementation of Supply Chain Management in the construction industry in KSA, while establishing long-term working partnerships, fostering strong information flow between parties in the chain, developing trust-based relationships among suppliers in the SC, and transparency in financial management creating a strong link between the supply chain.

Discussion of Findings

The results of the analysis showed that although construction enterprises have not fully implemented the Supply Chain Management system along the supply chain, it is not being completely disregarded or overlooked. These construction professionals practice or use one way or another numerous component that make up Supply Chain Management as a whole (one integrated system). The findings showed that Supply Chain Management elements like

managing suppliers in the supply chain, integrating project delivery, management to a common goal, sharing and using knowledge and skills, long-term integration and partnering, and information sharing were widely used in practice by construction professionals, implying the existence of a foundation for potential implementation of the Supply Chain Management system as a widely recognized method or approach in the construction industry in Abu Dhabi. This is in line with study by Amade et al. (2017), which identified some essential Supply Chain Management aspects that must be used to successfully complete construction projects. Despite the relationship that the study did show that the inability to properly integrate organizational internal procedures, temporary nature of party relationships, organizational resistance to change, lack of trust inside and outside of the organisation, and diverse objectives were the main challenges limiting the SCM system application in the construction industry. This is in line with study by Ahmed et al. from 2002, which found that organizational opposition to the concept of Supply Chain Management and the difficulty to integrate a company's internal procedures were the main factors in the slow growth of supply chain management. It is realistic to start with a small project of the chain, integrating their internal functions efficiently with the aim of integrating all suppliers in the chain and achieving a true SCM system. Supply Chain Management is of great importance when taking into account the benefits of SCM on the delivery of construction projects, but the nature of the construction industry itself makes it very difficult to adopt such practices. The findings therefore indicate that the SCM system be recognized, understood, and acknowledged as a significant approach or method to be utilized in the delivery of construction projects, taking into account how it might be applied fully in the construction industry in KSA.

CHAPITER FIVE RECOMMENDATION AND CONCLUSION

Introduction

The key Supply Chain Management components used by KSA's construction industry professionals were sharing and using knowledge and skills, as well as reducing waste, as a result of the identification of 20 supply chain management components to be used in practice. The least used SCM components in KSA's construction business, however, were building information management and advancement of cutting-edge items and procedures. Additionally, fifteen challenges were found to be impeding the implementation of supply chain management, with myopic thinking, multiple layers of subcontracting, and inadequate IT investment being the least significant obstacles. The major challenges were the inability to effectively integrate organizational internal procedures and the transient nature of the relationships between parties. Additionally, it was determined that 12 critical success factors were required for the SCM implementation to be effective. Building a long-term working relationship with partners and fostering a strong information flow between chain participants were the key success factors, while suppliers' dedication to a shared objective of achieving true SCM and top management's support were the least important requirements for the successful implementation of supply chain management in the KSA construction sector.

Recommendations

It is advised that construction professionals in KSA start making deliberate efforts to embrace the Supply Chain Management approach as a whole in completing projects, starting frugally by integrating services of a few suppliers along the chain with the goal of improving and expanding until a full Supply Chain Management is established. Adopting its technique by deepening their understanding of the supply chain management concept, raising awareness in the construction project, and knowledge or understanding how it can be applied effectively in the delivery of construction projects. While keeping in mind the significant challenges impeding its application and how these challenges can be overcome as they have a significant impact on project delivery.

References

- *Ahmed, Azhar & Ahmad (2002). Supply chain management in the construction. Construction Project Management: An Integrated Approach*

- *Amade, Benedict, Akpan, E. O. P., Amaeshi, U. F., Okorocha, K. A., & Ogbonna, A. C. (2017). Delineating supply chain management features in the construction project*

- *Bresnen, N. & Marshall, N. (2000). Partnering in construction: A critical review of problems, issues, and dilemmas. Economics and Construction Management*

- *Croom, S., Romano, P., and Giannakis, M. (2000). Supply chain management: An analytical framework for critical literature review. European Journal of Purchasing & Supply Management*

- *Fantazy, K.A., Kumar, V., Kumar, U. (2010). Supply management practices and performance in the Canadian hospitality industry, International Journal of Hospitality Management,*

- *Hatmoko, J. U. D. and Scott, S. (2006) Simulating the Impact of Supply Chain Management Practice on Construction Project Performance. Proceeding of twenty second annual conference of ARCOM U.C.E Birmingham 4-6, September 2006.*

- *Lambert, D.M. (2008). An Executive Summary of Supply Chain Management: Processes, Partnerships, Performance. Supply Chain Management Institute*

- *Mentzer,J., Dewitt,W., Keebler,J., Min,S., Nix, N., Smith, C., and Zach, Z. (2001) Defining Supply Chain Management, Journal of Business logistics*

- *Olanrewaju O. I., Idiake J.E., Oyewobi, L.O., & Akanmu W. P, (2018). Global Economic Recession: the Effects on the Construction Industry.*

- *Persson, F., Bengtsson, J. & Gustad, O. (2010). Construction logistics improvements using the SCOR model- Tornet case. Advances in Production Management Systems, v*

- *Petrovic-Lazarevic, S., Matanda, M. & Worthy, R. (2006). Supply chain management in the building and construction industry:*

- *Rivera, L., Wan, H., Chen, F. F. & Lee, W. M. (2007). Beyond partnership: The power of lean supply chains. Technologies and methodologies. Berlin: springer publisher.*

- *Stephen Pryke (2007). Introduction. Construction Supply Chain Management, 1–20. london: john wiley and sons publisher.*

- *Stanford, K., Hobbs J.E., Gilbert M., Jones, S.D.M., Price, M.A., Klein, K.K., and Kerr, W. A. (1999) Lamb-Buying Preferences of Canadian Abattoirs and Producer Marketing*

- *Stephen Pryke (2007). An Introduction.the Construction Supply Chain Management.*

- *Sandberg, E. (2007). The role of the top management in the supply chain management practices.*

- *Turner, J.R. (1993)The Integrated Supply Chain Management: What's Wrong With This Picture,. Department of Supply Chain and the Industrial Engineering.*

- *Tey, K. H., Lee, F. W., Mohd, Y. A., and Ismail, S. (2002) "Reviewing the construction supply chain and the challenges and the construction supply chain strategic management," International Journal of the Civil Engineering and the Structures*