

Use of ERP Software in Supply Chain Management for Construction Project

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Abstract—The overall aim of the study is to use ERP software in construction firm to increase the efficiency of project work by using various modules of ERP software like material management, finance, warehouse etc. Need of the study is to show the why supply chain management is important for construction project. Supply Chain Management is a network of facilities that produce raw materials, transform them into intermediate goods and then final products, and deliver the products to customers through a distribution system. The management of the supply chain and the roles of various actors involved differ from industry to industry and company to company. As a result Supply Chain Management (SCM) has become a vital issue for manufacturers, professionals and researchers. It is felt that to manage the supply chain effectively entire structure of supply chain must be understood properly. Today, many organizations acquire and implement ERP to improve their operational performance and create strategic value; however, they fail to achieve these objective due to lack of knowledge and better understanding of ERP and its lifecycle.

Index Terms—Supply Chain Management, ERP Software, Modules, Efficiency, Construction.

I. INTRODUCTION

Supply Chain Management is a network of facilities that produce raw materials, transform them into intermediate goods and then final products, and deliver the products to customers through a distribution system. The management of the supply chain and the roles of various actors involved differ from industry to industry and company to company. As a result Supply Chain Management (SCM) has become a vital issue for manufacturers, professionals and researchers. It is felt that to manage the supply chain effectively entire structure of supply chain must be understood properly Supply chain management (SCM) in the construction industry plays a crucial role in improving the coordination and communication

between every stakeholder in the construction value chain, all while ensuring the quality and profitability of a construction project. With so many places along the supply chain in construction that can either add value through efficiencies or lose value through increased expenses, proper SCM can increase revenues, decrease costs, and impact a company's bottom line. Sadly, disturbances in the supply chain management since the emergence COVID-19 have resulted in the increase of materials cost and more delays in projects, as the availability of materials becomes a big hurdle.. More so, there's an increasing fear amongst general contractors that costs will continue increasing over the next 6 months of 2021, according the most recent report from Dodge Data. A typical supply chain for a construction project includes engineers, architects, prime contractors, material suppliers, and specialty subcontractors who come together to work on a single project. The supply chain is a network of organizations involved, from the supplier of the supplier until the client of the client, on the different processes and activities that produce value in the form of products and services for the final client. Its major components are the suppliers' network, the transformation unit and the clients' network

II. PROBLEM STATEMENT

Successful implementation of SCM is seen as closely dependent upon the need for breaking down barriers not only between internal departments and business processes, but also across companies within the whole supply chain. It is found that SCM encompasses planning, manufacturing and operations management necessary to bring a product to the market place, from the sourcing of materials to the delivery of the completed product. This section would provide insights on the aspects and the issues that are to be

managed in supply chain .Another main issue is that not possible of showing the data of all ERP modules because it is very vast and also contain confidential data.

III. OBJECTIVES

The objective of this paper are as below

- 1.To study various research paper with related to supply chain management.
- 2.Study about supply chain management.
- 3.Detail study various modules of ERP software.
- 4.Use ERP software in project for supply chain management.

IV.CHALLENGES FOR SCM IN CONSTRUCTION

a).The lack of a proven or standardized SCM model for the construction industry makes it challenging to be implemented effectively. One of the most common challenges for SCM in construction is the lack of integration and collaboration between all the parties involved.

b).Design changes, inaccurate calculations, and lack of trust among the stakeholders can be a hurdle in the effective implementation of SCM. Poor quality of materials and equipment, inadequate training of subcontractors and workers are some of the other challenges. Further, there are no tools to efficiently measure the performance of all the parties involved in the project.

V. LITERATURE REVIEW

1).(Aziz Muysinaliyev, Sherzod Aktamov 2014)
Supply chain Management has assumed a significant role in firm's performance and has attracted serious research attention over the last few years. In this paper attempt has been made to review the literature on Supply Chain Management. A literature review reveals a considerable spurt in research in theory and practice of SCM. We have presented a literature review for 29 research papers for the period between 2005 and 2011. The aim of this study was to provide an up-to-date and brief review of the SCM literature that was focused on broad areas of the SCM concept

2).(Mr. Thorat Arvind D, Satish M. Waysal 2017)

Supplier selection is the vital decision in construction supply chain. The supply chain of construction industry is primarily fragmented and needs through integration in the downstream. The extent of integration in downstream depends on the supplier selection practices of the supply chain. This study put forwards the argument that the supplier selection is the pre requisite for downstream integration in construction supply chain. This work we proposed to understand the mechanism of suppliers selection in Construction. supply chain management. This study also investigate the various supplier selection criterion to integrate and analyse effect of suppliers/ subcontractors construction supply chain. A survey study of supplier selection issue in construction supply chain', we have tried to find out the factors on which suppliers are selected in construction industry in today's scenario. We think that the supplier selection is a prerequisite for integrating them in the supply chain. A client would prefer to select a supplier who is trusted and who can be capable to maintain good quality and consistent supply of materials throughout the life of the project and also the supplier should be open for long term relationship. In our study we collected the primary data relevant to our study through questionnaire. On the basis of the responses that were collected Relative Importance Index (RII) for each option for all the questions were calculated. Based on the RII values we have concluded about the various factors that play an important role in selection of suppliers in construction industry.

3).(Gentjan Mehmeti 2011)

The purpose of this paper is to create a better understanding of what Supply Chain Management (SCM) is how it has evolved and the factors that have influenced its evolution. Through examining the literature, this paper will highlight the evolution history of SCM and the factors that have affected it. According to this paper, the evolution history of SCM can be segmented into four stages: 1) the pre SCM stage, 2) the creation stage, 3) the integration stage and 4) the globalization stage. In the last part of the paper will be discussed the factors that have affected the evolution process of SCM. Some of these factors are: the firms focus on cost reduction; increased global competition; the firm focus on increase efficiency and performance; consolidation of trade liberalization policies and the globalization movement; increasing

retail concentration - centralization and power; and increased companies focus on customer satisfaction

4).(Luoer Liao 2019)

With the continuous development of China's economy, the competition among enterprises in various industries is becoming fiercer, the construction industry is no exception, and how to improve their competitive advantages in the fierce competition is the main problem of current construction enterprises. Implementing supply chain management in construction enterprises can effectively improve the competitiveness of enterprises and help enterprises achieve economic benefits. The management level of the supply chain has a great impact on the quality of construction projects and has certain risks, construction enterprise must guard against these management risks.

5).(Revie Rajendra Kumar Shukla 2011)

Supply Chain Management is a network of facilities that produce raw materials, transform them into intermediate goods and then final products, and deliver the products to customers through a distribution industry to industry and company to company. As a result Supply Chain Management (SCM) has become a vital issue for manufacturers, professionals and researchers. It is felt that to manage the supply chain effectively entire structure of supply chain must be understood properly. This paper attempts to provide the reader a complete picture of supply chain management through a systematic literature review. It presents main activities of supply chain and the step-by-step approach for understanding a complete picture of supply chain.

6).(Karoline B. Osnesa , Julie R. Olsena , Polyxeni Vassilakopoulou , Eli Hustada. 2018)

This paper reports on a literature review focusing on challenges during post-implementation of enterprise resource planning (ERP) systems in a multinational context. Through an extensive literature search across multiple databases, we identified 20 articles which address issues in this context. Global demands prove to be a key challenge and source of conflict between parent and subsidiary companies: frequently, parent companies seek control through standardized solutions, while local subsidiaries aim to sustain local processes and routines. The primary focus is to shed

light on these contradictive objectives unfolding in this context and identify research areas that need more attention in future ERP post-implementation research

7).(Milind Tapsi , Dipali Patil, Patil Ashish, Shaikh Tanveer Ajiz, Sonawale Pranit, Shaikh Tanveer Shahnawaz 2019)

Supply Chain Management (SCM) is a concept that has flourished in manufacturing, originating from Just-In-Time production and logistics. Today, SCM represents an autonomous managerial concept, although still largely dominated by logistics. SCM endeavours to observe the entire scope of the supply chain. This Project is aimed to focus towards the adoption and implementation of Microsoft Primavera in Construction work. The theoretical findings are based on the literature review of the existing papers. In This Project MS Primavera is used to analyse the effective time in which the internal plaster should be ideally completed. The Internal Plastering of a Residential Building (G+4) is taken for analysing. The time taken for the plastering work on site is compared with the analytical result of the software. The difference between the time taken on site and result obtained shows the effective time in which the plastering work should be completed. The readings obtained from the site have been used for calculation of effective time. Analysis of time use along the process in order to get insight in the time build up. The methodology used in the project includes the use of MS Primavera Software for calculation. The basic objective of the project is to study the use of Supply Chain Management in Civil Engineering. The Scheduling of time using Primavera to get greater efficiency and to enhance flexibility. Optimizing value chain and improving customer service is the key objective of the project. The Supply Chain Performance is measured on Delivery, Quality, Time and Cost.

VI. PUBLICATION PRINCIPLES

1).Aziz Muysinaliyev, Sherzod Aktamov provide an up-to-date and brief review of the SCM literature that was focused on broad areas of the SCM concept

2).Mr. Thorat Arvind D, Satish M. Waysal present factors on which suppliers are selected in construction industry in today's scenario on the basis of survey

3).Gentian Mehmet highlight the evolution history of SCM and the factors that have affected it. According to this paper, the evolution history of SCM can be segmented into four stages: 1) the pre SCM stage, 2) the creation stage, 3) the integration stage and 4) the globalization stage

4).Luoer Liao find that the management level of the supply chain has a great impact on the quality of construction projects.

5).Revie Rajendra Kumar Shukla gives main activities of supply chain and the step-by-step approach for understanding a complete picture of supply chain

6).Karoline B. Osnesa , Julie R. Olsena Polyxeni Vassilakopoulou, Eli Hustada identify research areas that need more attention in future ERP post-implementation research

7).Milind Tapsi , Dipali Patil, Patil Ashish, Shaikh Tanveer Ajiz, Sonawale Pranit, Shaikh Tanveer Shahnawa keep focus towards the adoption and implementation of Microsoft Primavera in Construction work

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