

# Effectiveness of Practicing Supply Chain Management in Construction Site

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**Abstract.** Construction Supply chain management comprised of the network of organization involved in the different processes and activities which produce the material, components and services that come together to design, procurement and deliver a building. It also consists of different organizations involved in the construction process including client/owner, designer, contractor, subcontractor and suppliers. This paper shall present on the implementation of supply chain management in construction and the effectiveness of practicing SCM in construction site. A field study is done from the viewpoint of contractor and consultant then analysed by using average index methods and presented in a statistical analysis. From the analysis, it reveals that effectiveness of practicing the SCM give a lot of good performances and granted benefits to contractor. The statistical analysis produced first ranking effectiveness of SCM is can minimize waste of material and labor for construction project.

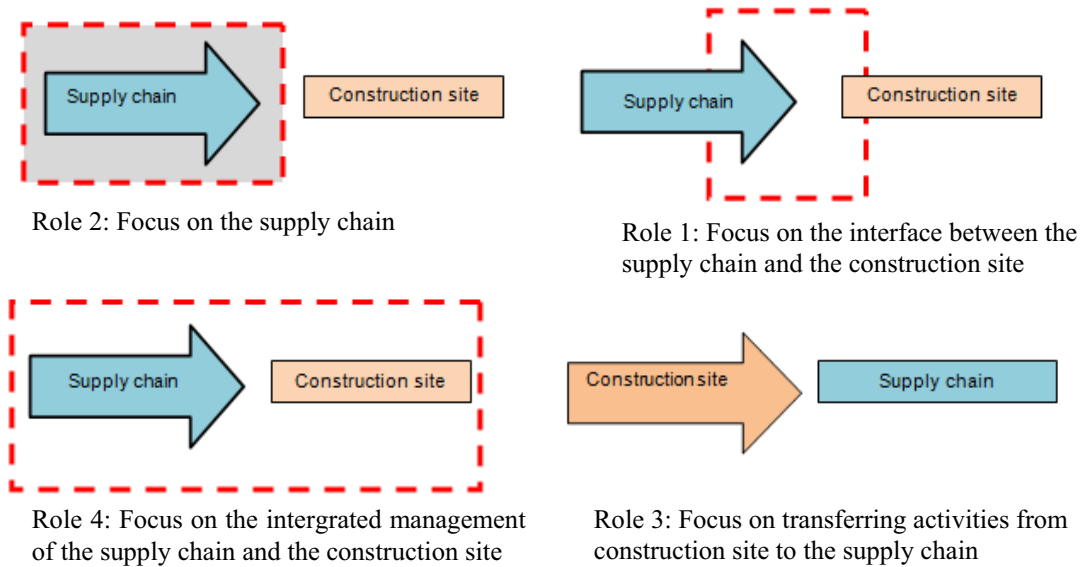
## 1 Introduction

Construction supply chain management is more concerned with the coordination of discrete quantities of materials (and associated specialized engineering services) are delivered to specific construction projects. Construction supply chain (CSC) embodies all construction processes, which starts at the initial demands by the client/owner, to design and construction, maintenance, replacement and eventual demolition of the projects. It also consists of different organizations involved in the construction process, including client/owner, designer, contractor, subcontractor, and suppliers.

Most construction projects today struggle with the same problems that have faced the industry such as no centralized source of information and resource management, multiple parties involved on each project - resulting in constantly changing people and companies on each job-site, multiple projects occurring simultaneously - resulting in redundant and costly duplication of processes and activities; and multiple Customers - even different departments within the same organization can result in different rules being enforced on each project - resulting in higher management and administrative costs.

The purpose of supply chain management normally involved during construction planning and scheduling system is central to the acquisition of subcontracting and materials in an effective construction environment [1]. Therefore Bankvall [2] found that the concept of SCM in construction is the relation between the actors of project and remains in it networks of project activities in it network resources remain to carry out the activities required to complete the building.

Figure 1 describes the four major roles in the construction of SCM are recognized, depending on whether to focus on the supply chain and the construction site [3]. First role SCM is focus may be on the impact of the supply chain in site activities. The goal is to reduce the cost and duration of site activities. Second roles might be on supply chain with aim to reduce costs, especially those related to logistic, lead time and inventories. Third roles may focus on movement activities from site to the early stages of the supply chain. The goal is again to reduce total cost and duration. Normally contractor initiates this third and fourth role. Fourth role is focusing in an integrated management and supply chain improvement and production site.



**Figure 1:** The four roles of SCM in construction (Vrijhoe, 2003)

## 2 Construction Supply Chain Management in Malaysia

In relation to the Malaysian Construction Industry Master Plan (CIMP 2006-2015), apparently the key problem is meeting the government's and the industry's needs to adopt innovative approaches and standardisation of components in order to enhance their performance in a competitive global market. Malaysian construction supply chain management involves the management of activities in the chain to ensure best value for the customer and to achieve a sustainable competitive advantage. With the increased of competition and technology it allows many firms transformed to supply chain management as a central part of strategic competence, which is believe would be able to create competitive advantage [4].

In practise, SCM is applied to prevent issues about abandoned projects and delays. This issues will cause the customer lose the project and project management that are not consistent with plans made before the start of construction is called a real plan only after the contractor gets the Letter of Acceptance. Besides that, practising the SCM in construction site can achieved an integrated supply chain for building and facility standards.

## 3 Methodology

This research collected data by hand questionnaire and distributed to the contractor companies in Kelantan state. The survey has been carried out on the developers registered under Construction Industry Development Board (CIDB) by selecting overall contractor's company available in Kelantan

state to gather relevant data in this study. Overall of 50 contractor G7 company registered under CIDB been chosen for the study .The targeted respondents are the contractor and professionals are involved in construction site. Therefore, 100 sets of questionnaires have been distributed by hand and by using online survey. The numbers of returned questionnaires are 52 respondents. Descriptive statistic will be used to analyze the data.

Questionnaires data will be present in statistical. The data will be analysing using Likert scale calculation. The likert scale questions are analysed using the average index method. Rating scale 1 is strongly disagree to scale 4 is strongly agree.

## 4 Findings and Discussion

For the purpose this study, the author was conducted a field study to the related person. It was calculated to produce the result of listed criteria in the questionnaire. Based on the methodology that had been chosen, the result of the analysis revealed the following:

### 4.1 Five Ways Which Head Among the Company Implement the SCM In The Construction Site

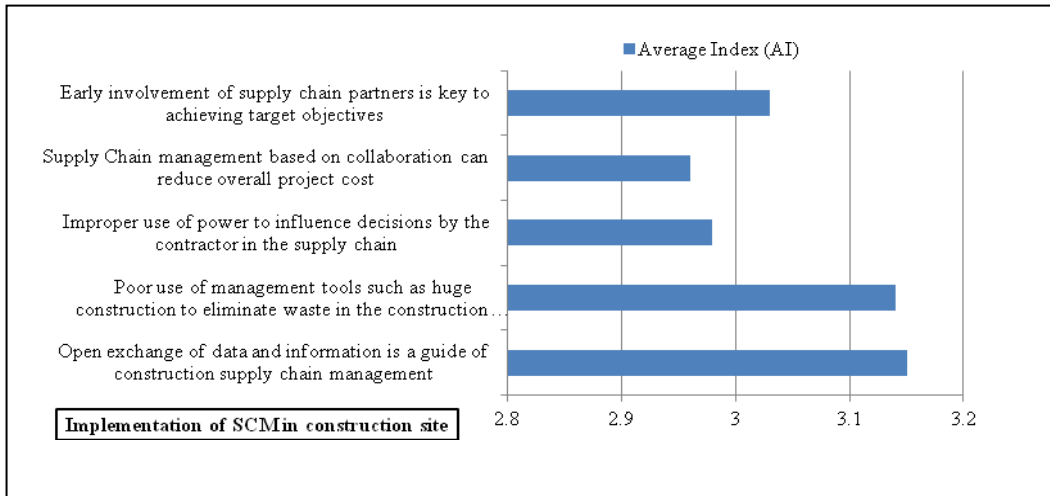


Figure 2: Implementation SCM in the construction site average index

Based on Figure 2 the average index (AI) of implementation SCM in construction site implemented on the open exchange of data and information is a guide of construction supply chain management. Besides a poor uses of management tools such as huge construction to eliminate waste in the construction process followed by early involvement of supply chain partners is input to achieving target in SCM. Next ways is improper use of power to influence decisions by the contractor in the supply chain. The least implementation is the SCM based on collaboration can reduce overall project cost.

### 4.2 Effectiveness of Practising SCM in Malaysian Construction Site

The findings had been shown from table 1.1 that the first ranking after implementation of SCM in construction site is it can minimize waste of material and labour. Second ranking can reduced lead time in construction and got the trust between stake holders, followed by better quality of information. The SCM also can save the cost and time predictability. Besides, SCM will give better on the quantity of information and resources planning.

**Table 1:** Effectiveness of practicing SCM in construction site ranking table

		Average Index (AI)	Ranking	Description
a)	Minimize waste of material and labour	3.23	1	Agree
b)	Reduced lead-time in construction	3.14	2	Agree
c)	Trust between stakeholders	3.10	3	Agree
d)	Better quality of information	3.09	4	Agree
e)	Cost saving	3.06	5	Agree
f)	Time predictability	3.02	6	Agree
g)	Better quantity of information	3.00	7	Agree
h)	Resource planning more better	2.98	8	Agree
i)	Better to predict risks of disruption of construction	2.75	9	Agree

## 5 Conclusion

The study tries to reveal the ranking of an effectiveness of practicing of SCM in construction site. The field study found that highest ranking after implementation of SCM is can minimize waste of material and labour. Therefore the lowest is better on predicting risks of disruption of construction. Besides that, it is difficult to produce green SCM in construction as an initiative for environmental enhancement, and increasing economic performance. The author found the gap of study about the greening of SCM in Malaysian practice that could be the further action for the next study.

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