



CONFERENCE PROCEEDING

ICITSBE 2012

**1ST INTERNATIONAL CONFERENCE ON INNOVATION
AND TECHNOLOGY FOR
SUSTAINABLE BUILT ENVIRONMENT**

16 -17 April 2012



Organized by:
Office of Research and Industrial
Community And Alumni Networking
Universiti Teknologi MARA (Perak) Malaysia
www.perak.uitm.edu.my

PAPER CODE: GM 29

PERFORMANCE SUPPLY CHAIN MANAGEMENT ON CONSTRUCTION SITE: A RESEARCH PROPOSAL

Shahela Mamter, Wan Nur Azma Izzati Wan Amran and Mohd Esham Mamat

Faculty of Architecture, Planning and Surveying, Universiti Teknologi MARA (Perak), Malaysia
shahe789@perak.uitm.edu.my

Abstract

In general, the term 'supply chain' is used to describe the linkage of companies that turns a series of basic materials, products or services into a finished product for the client. But in the construction industry, a supply chain comprises the network of organizations involved in the different processes and activities which produce the materials, components and services that come together to design, procure and deliver a building. The purpose of this research are to explore the performance of construction supply chain on construction sites and also to investigate the wastages and problems found caused by parties involved in the supply chain. The research employed a mixed mode approach, implemented through literature review, informal interviews and questionnaire survey, to analyze the performance and to access the implementation of supply chain management on construction sites. This research will produce better collaborative relationships and also establish long term relationships among all members of the supply chain. The research aims to achieve a more successful cost management and better delivery of good underlying value to the client.

Keywords: Supply chain management, Construction industry, Performance, Construction Site.

1. Introduction

The construction of a large industrial project involves complex process and also many parties. All construction companies, be they client, main contractor, designer, surveyor, sub – contractor or supplier are therefore part of a supply chain. Because of the project based nature of construction and the way that procurement normally operates, they are usually members of different supply chains on different projects. Supply chain management involves the management of the activities involved in the chain to ensure best value for the customer and to achieve a sustainable competitive advantage. With the increase of competition and technology enabling, many firms turning to supply chain management as a central part of strategic competence, which is believe would be able to create competitive advantage (Othman. A.A & Abd. Rahman. S., 2010).

According to the site construction, have scheduling to control the activities at the site to avoid the delay. Due to delays causing severe cost implications, large-scale projects are compressed with clients encouraging contractors, and providing performance incentives for early completion, quality of work and adherence to safety rules and regulations (Bubshait, 2003). Compression of such projects, mainly due to delays caused by under-estimation of the amount of work required and the high levels of uncertainty, also cause cost overrun due to tasks being carried out out of sequence and rework (Howick and Eden, 2001). Construction supply-chain management offers new approaches to reduce the cost of and increase the reliability and speed of construction at the site. The performance supply chain can be defined at this paper.

2. Problem statement

Based to ANON (2010), said that 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.

Management of supply chain relationships is, however, especially problematic in project based industries due to; the discontinuity of demand for projects, the uniqueness of each project in technical, financial, and socio-political terms, and the complexity of each project in terms of the number of actors (e.g. subcontractor and supplier) involved (Skaates et al., 2002).

3. Research objective

The research is to achieve the following objectives:

- 1) To establish definition of supply chain management.
- 2) To access implementation of supply chain management on construction site.
- 3) To analyze of performance supply chain management on construction site.

4. Research Question

The research question the way of to gain the objective research. The questions are:

- 1) What is the supply chain management?
- 2) How to access implementation of supply chain management on construction site.
- 3) How the performance of supply chain management in construction site can be analyze?

5. Literature Review

5.1 Definition

Most industry used the supply chain management for example in Business, Logistic, Retailer, and also in Construction. So that has many the definitions from these industries. But, the focus is in Construction Industry. Other people or industry can definite all about the supply chain and supply chain management.

According to the Kim, 2005 stated that a supply chain is an interrelation, through which information, physical goods and services flow back and forth, consisting of business entities that undertake value – creating activities involved in supplying necessary materials, transforming various suppliers into valuable goods and services and distributing the final outputs to the customer markets. But in supply chain management he says is the study of how to manage the supply chain in an optimum way to create the maximum value for the customers.

Each partner in a supply chain is responsible in a process for that in adds value to a deliver a product. A supply chain is a network of partner who collectively convert a basic commodity (upstream) into a finished product (downstream) that is valued by end customers, and who manage returns at each stage (Alan & Remko, 2008). Supply chain management involves planning and controlling all the process from raw material production to delivery or to completed towards to the client or customer. That's why Alan & Remko, 2008 mention the supply chain management is a planning and controlling all of the business process from end customer to raw material supplier – that link together partners in a supply chain in order to serve the needs of the end user. According to the Vrijhoef Ruben et.al, 2005 stated that the term “supply chain” refers to the stages through which construction materials factually proceed before having become a permanent part of the building or other facility. It covers thus both permanent supply chains, that exists independent of any particular project, and temporary supply chain, configured for a particular.

5.2 Concept of Supply Chain Management

In supply chain management has own concept to apply at the construction site. To indentify the concept must know the definition of supply chain. The supply chain has been defined as ‘the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer’ (Christopher 1992).

In manufacturing industry, the supply chain is like at the below. The flow chart show the supply chain is operating in manufacturing. The chain is from supplier until to the customer. But in construction site is more different from the manufacturing or other industry. But, for my study the supply chain will start at the tender action until completion of the project and the next delivery to the client. This is refer to the RIBA of Work (1964) that stage start from inception which is briefly from the client, feasibility, outline proposal, scheme design, detail design, production information, bill of quantities, tender action which is start the supply chain on the construction site, project planning, operations on site and the last completion of the project.

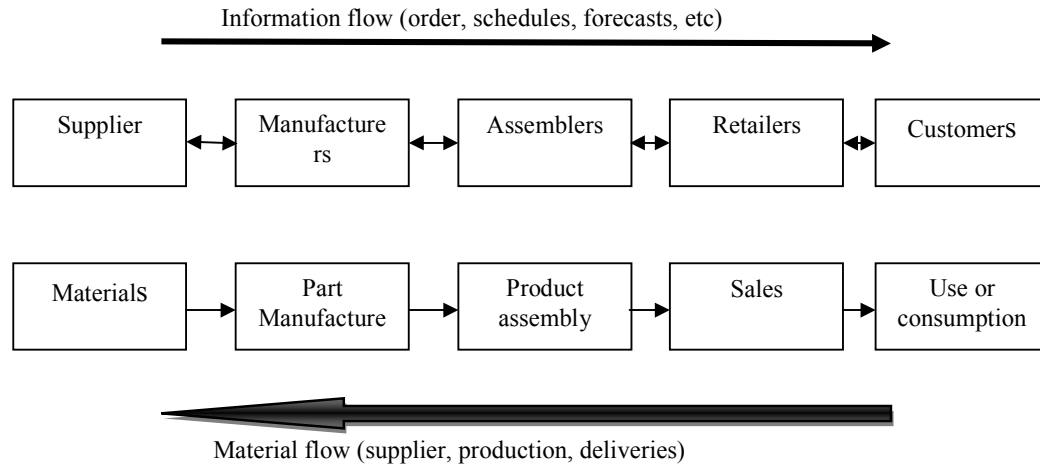


Figure 1: Generic configuration of a supply chain in manufacturing (Source: Vrijhoef and Koskela, 2000)

6. Methodology

The survey of this research will involve compilation of information from primary and secondary sources, which some are featured for literature review. Secondary source data consists of information taken from websites, books, articles, journals and other sources of information. The process of collected the primary data which through the questionnaire distribution. At least 100 questionnaires will manage to be distributed to contractor and project manager based organizations which registered with CIDB and PKK. In order to determine the ranking level for performance of supply chain management on construction site, the four points Likert-scale system will be use.

7. Conclusion

The aim of this research is to study about performance of construction supply chain at construction site. The research will also investigate waste and problems found caused by parties involved in the supply chain. Overall, the supply chain management a process to deliver a good product to the client with involves a lot of parties especially in the construction site. The performance can be fully gained if there is a firm collaboration between other parties at the construction site.

References

- Bubshait, A.A. (2003), "Incentive/disincentive contracts and its effects on industrial projects", *International Journal of Project Management*, Vol. 21 No. 1, pp. 63-70.
- Bryman, A. (1995), *Research Methods and Organization Studies*, Routledge, London.
- Christopher, M. (1992). *Logistics and Supply Chain Management: Strategies for Reducing Costs and Improving Service*. Pitman Publishing, London, UK.
- Dainty, A.R.J., Briscoe, G.H. and Millett, S.J. (2001), "New perspectives on construction supply chain integration", *Supply Chain Management*, Vol. 6 No. 4, pp. 163-73.
- Geoffrey, B., & Andrew, D. (2005). *Construction Supply Chain Integration: An Elusive Goal?*, 319 - 326.
- Howell, G.A. 1999: What is lean construction – 1999. Presented at Seventh Annual Conference of the International Group for Lean Construction, IGLC-7, Berkeley, CA, 1999
- Howick, S. and Eden, C. (2001), "The impact of disruption and delay when compressing large projects: going for incentives?", *Journal of the Operational Research Society*, Vol. 52, pp. 26-34.
- Othman, A.A & Abd. Rahman, S (2010). *Supply Chain Management in the Building Construction Industry: Linking Procurement Process Coordination, Market Orientation and Performance*
- Skaates, M.A., Tikkanen, H. and Lindblom, J. (2002), "Relationships and project marketing success", *Journal of Business & Industrial Marketing*, Vol. 17 No. 5, pp. 389-406

Sandelands, E. 1994: Building supply chain relationships. *International Journal of Physical Distribution and Logistics Management* 24, 43–44.

Strategic Forum for Construction (2002), *Rethinking Construction: Accelerating Change*, consultation paper, Strategic Forum for Construction, London.

Vrijhoef Ruben & Lauri. K (2005). *Understanding Construction Supply Chains: An Alternative Interpretation*, 1-15.

Vrijhoef, R. and Koskela, L. 1999: Roles of supply chain management in construction. Presented at 7th Annual Conference of the International Group for Lean Construction (IGLC-7), Berkeley, USA, 1999