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SUPPLY CHAIN MANAGEMENT ADOPTION IN SMALL COMPANIES

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Abstract
The development of supply chain management (SCM) concept is always engaged with international large-size company. Nevertheless, it is realized that today's global competitive market will affect not only internationally large-sized companies but also small-medium sized companies. Therefore, this paper aims to get knowledge of the understanding of SCM concept by the companies as well as the adoption of SCM concept by small companies. The case studies on small companies located in Jogyakarta are examined. Empirical findings showed that all the studied companies confirmed that they are unfamiliar with the terminology of supply chain management; however, one of the studied companies has been implemented the concept of supply chain management concept. It is also found that the barriers towards SCM concept adoption are the resistance to change, simple operations and limited budget. The paper suggests that although the practitioners have already implemented SCM concept, they need a better conceptual understanding of it and new and more systematic approaches to its implementation.

Keywords: Supply Chain Management, Adoption, Small Companies

1. Introduction
In most developing countries, small companies, in which fragmented and large in number, play a very significant role in economic growth. Small companies are more likely to be labor-intensive. They provide job opportunities and create wealth. In this sense, they bring more balanced growth of the regional economy and equity in income distribution.

In today’s world competition, companies are no longer competing in isolation of their partners. The competition is not among manufacturers but among the supply chain, beyond their own organizations. For that reason, the interest on new concept, supply chain management, has been increased since 1980s. Such approach has been applied widely in diverse industries. However, the development of supply chain management (SCM) concept is usually engaged with international large-size company struggling to coordinate internal information and materials. Nevertheless, it is realized that today’s global competitive market will affect not only internationally large-sized companies but also small-sized companies.

Compared with those of large companies, that approach could be applied differently between management activities in large-sized manufacturing and those in small sized manufacturing. Therefore, this paper aims to get knowledge on how supply chain management concept is adopted by small companies particularly in Jogyakarta, Indonesia.

This article is organized into four parts. The first part explores the various definition on supply chain management concept offered in past several years as well as the reasoning on the increase interest on supply chain. The second part is the research methodology describing on how the research had been carried out. The third part is the case studies on three small companies. It presents case study descriptions and explores the company’s profile of studied companies as well as the main characteristics of small companies. The forth part, analysis and discussions, is exploring the meaning of SCM understood by respondents in the studied companies, current business practices and cross company analysis. The last part presents the summary and the possibility of future work.

2. Literature Review
2.1 Supply Chain Management Definition
There are burgeoning literatures that discuss the definition of supply chain management. Below are definitions quoted from many literatures. The APICS Dictionary describes the supply chain as (Cox et al., 1995):

1. the processes from the initial raw materials to the ultimate consumption of the finished product linking across supplier user companies; and
2. the functions within and outside a company that enable the value chain to make products and provide services to the customer

According to the supply chain council, supply chain management encompasses every effort involved in producing and delivering a final product or service, from the suppliers' supplier to the customers' customer. SCM includes managing supply and demand, sourcing raw material and parts, manufacturing and assembly, warehousing and inventory, tracking, order entry and order management, distribution across all channel and delivery to the customers.

According to Stanford Supply Chain Forum, SCM deals with the management of materials, information and financial flows in a network consisting of supplier, manufacturers, distributors and customers.

Quinn (1997) defines the supply chain as “all of those activities associated with moving goods from the raw-materials stage through to the end user. This includes sourcing and procurement, production scheduling, order processing, inventory management, transportation, warehousing, and customer service. Importantly, it also embodies the information systems so necessary to monitor all of those activities.”

Further, Monczka and Morgan (1997) state that “integrated supply chain management is about going from the external customer and then managing all the processes that are needed to provide the customer with value in a horizontal way.”

![Figure 1. Supply Chain Management](image_url)

From these definitions, supply chain could be summarized as all the activities that concerns with flow of materials, information and funds from the point of origin to the point of consumptions. Supply chain management is to coordinate and to integrate all the activities into flawless process. It links all the stakeholders involved in the supply chain to make it competitive.

2.2. Increase Interest in Supply Chain

The issues of SCM has been rapidly increase since 1980s. Some reasons of the increase on the interest on supply chain are below (Lummus, 1999):

1. the fact that few companies continue to be vertically integrated. Companies have become more specialized and search for suppliers who can provide low cost, quality materials rather than own their source of supply
2. increased national and international competition
3. realization by most companies that maximizing performance of one department or function may lead to less than optimal performance for the whole company

Hence, the critical to managing the supply chain is managing the link between each node within the chain to synchronize the entire supply chain so that the effective and efficient flow of material, information and funds will be achieved.

3. Methodology

The research methodology was chosen to capture the views of practitioner in small companies on supply chain management adoption. The sources for the analysis are the literature review as well as case studies. The literature review is conducted through all the stages of the study to provide strong literature background.

Meanwhile, a case study is defined as an investigation of a contemporary phenomenon within real life context and the boundaries between phenomena and the context are not strict (Yin, 1994). The rationale of selecting case studies in this research is because it is flexible method and emphasize in the context that this research is regard to exploratory research by developing and refining the theory (Yin, 1994).

The approach used is multiple cases and abduction or a systematic combining method where data collection and analysis is done simultaneously. This methodology is chosen since this allows taking new
ideas, important unseen empirical facts and new theories into account (Dubois, 2002). However, the approach has to be addressed with care due to the risk of losing track and generating a chaotic working environment.

The primary ways to collect data were by two semi-structured interviews in each case studied company as well as by documentary analysis. The interviewees were the general manager and/or the owner of the company. Validity and reliability have been gained by using multiple sources of evidence, establishing chain of evidence, having key interviewees review case study report and developing case study database (e.g. Ellram, 1996). The results of the analysis are adopted only after the verification by the interviewees.

4. Case Studies

The case studies are conducted in small companies located in province of Jogjakarta, Indonesia. The case study aims to gain empirical knowledge on how the concept of supply chain management adopted by small companies. Small companies are classified as enterprises which have the range of employees of 5 - 19 people (BPS). According to SMEDC (Small Medium Enterprise Development Centre), Gadjah Mada University, small companies has sales asset of 25-250 million and yearly sales counts for 250 millions - 1 billions. In this research, we refer small company as companies that fall on classification defined by both BPS and SMEDC.

All the studied case companies are manufacturing companies. The particular profile of studied case company are presented in the table below.

<table>
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<th>Table 1. Studied Case Company Profile</th>
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<td><strong>Companies' age</strong></td>
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<td><strong>Number of employees</strong></td>
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<td><strong>Product</strong></td>
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<td><strong>Market</strong></td>
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<tr>
<td><strong>Order trigger</strong></td>
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<tr>
<td><strong>Business strategy</strong></td>
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<td><strong>Business activities</strong></td>
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</tbody>
</table>

Based on the preliminary studies that had been conducted on small companies in Jogjakarta, the main characteristics of small companies are:

1. One man show or single fighter; it means only one man, could be manager or owner, who manage almost all of the operation so that the decisions is heavily depending on one man. This will lead to over confidence of the owner/manager

2. Unavailable of employee's job description and job specification. This leads to no control on employees work

3. The market orientation is local (generally)

4. Lack of financial support; this results into the enterprises failure to optimize operation, which means productivity remains low or cannot be increased

5. The reliance on traditional skills and technologies and small business size which does not allow flexibility for innovation

6. Many owners and managers feel that they do not have any support from the government and the public institutions

Those characteristics will lead to different management approach, activities and/or policy compared to large-sized companies.

5. Analysis and Discussions

The analysis is answering the main objective of this study, how supply chain management concept is adopted by small companies. The first part will present some comments and personal opinions of respondents regarding on how supply chain management concept is understood. The second part is the current business practices and the last part is cross-company analysis.
5.1. Meaning of Supply Chain Management by Studied Companies

All the studied companies confirmed that they are unfamiliar with the terminology of supply chain management. Nevertheless, once they have been explained the definition of supply chain management and its elements, two respondents responded very positively. The respondent from company A however excused that the company does not need to apply the concept of SCM fully due to the simple process, lack of financial resources and resistance to change. The respondents from company B realized that the concept of supply chain management is needed to apply entirely in the company due to the complexity of the process and the need of intensive flow of information among the stakeholders. On the other hand, the respondent from company C claimed that the company has already adopted the supply chain management concept.

5.2. Current Business Practices

The cross company analysis is aiming to understand concerning the current approach applied by all the studied companies towards SCM. Each company will be analyzed in terms of product type, supplier management, production system, distribution and then the results will be contrasted to understand different approach applied in different circumstances. The first analysis is to understand the type pf product to determine the type of supply chain (Sopha, 2005). Subsequently, the SCM element of supplier management, operation and distribution will be discussed.

Case Company A

The final product sold by company A could be categorized as innovative product due to the nature of product that is relatively short cycle time, highly customized and short lead time (Fisher, 1997). The supply chain type that fits to innovative product is responsive supply chain. This is in line with the business strategy used by the company.

In managing its supplier, the company has 5 suppliers. The suppliers are chosen based on merely the price offered by supplier. There is no contract agreement with the suppliers. However, the company has already applied the supplier classification. The supplier classified based on the profit impact and the supply risk into strategic suppliers, bottleneck supplier and non-critical suppliers. This approach is more and less the same as proposed by Kraljic (1983).

The production is the combination of make-to-Order (MTO) and Make-to-stock (MTS). Due to the high customization product, most of the production trigger by order. The company however also produces to stock. The rationale of this is to maintain the availability of product in retailers to avoid stock out. This approach is due to the business strategy of responsiveness.

The distribution function is supported with frequent and small transportation. To deliver product outside the city, the company outsource the third party logistics (3PL). The marketing people are mostly freelancers of 60 people that aim to drive up sales.

Case Company B

Different from those of company A, the final product sold by company B could be categorized as physical function product due to low product variety and long lead time. The customer is willing to wait for the product. The supply chain type that fits to physical product is physical efficient supply chain. However, the company has not determined the business strategy yet. So that it seems unclear in which the company is going to. This could be due to lack of competition since in the market, there is only few manufacturers that produce the same product.

The company has the main and the second supplier. The second supplier is assigned once the main supplier could not fulfill order given by the company. The suppliers are chosen based on merely the price offered by supplier. There is no contract agreement with the suppliers but based on trust. In fact, the supplier is usually could not accomplish the order based on the specified time.

The production is following the methodology to make-to-stock with the production rate of level production. Yet, in the peak season the production strategy is using chase strategy in which chasing the increase in demand. There is problem on production scheduling that made the company have many stock at one time and stock out at the other time.

To handle the distribution, this company outsource entirely to third party logistics (3PL).

Case Company C

The final product could be categorized as physical function product. This fits with the supply chain type of physical efficient. However, the business strategy set by the company is responsiveness. The respondent argued that the company tried to find the best fit between responsiveness and operational efficiency.

The company has five manufacturing plant in which is placed in different cities (decentralized manufacturers). The placed are chosen based on the availability of raw material and the nearness with the
suppliers. All manufacturing plants are placed closely to their supplier. The company's relationship with the supplier is based on partnership so that there is intensive coordination with the supplier raw in relation to material order, quality, price and shipment scheduling. In turns, most of the suppliers deliver the goods on time with the quality and price that had been agreed by company C and supplier ahead of time.

The production is the combination of make-to-Order (MTO) and Make-to-stock (MTS), however it is dominated by MTO. The company produces to stock to anticipate the customer order to avoid lost of potential customer. This approach is in line with the business strategy of responsiveness.

Due to the international market, the distribution function is supported with different mode of transportations. Since the delivery lead time is not big concern, most of the transportation mode used is shipment. Shipment fits with the needs of company since it provides bigger capacity with the lower price. The company however, also provides with air transportations to facilitate the customers that demands goods delivered in short time. Of course, this is limited only for the small-sized products, for example handicraft or antiques. Meanwhile, the distribution of raw material and work in progress mostly used truck since all the manufacturers are located in the same island, java so that it could be reached by land transportation.

The company C has also already applied e-marketing. The company promotes their products via internet so that it enables people from around the world order the products to the company. However, the internal business process is still conducted manually, paper work.

The company C has already adopted supply chain management. It can be seen from the coordination and integration made among the actors in the supply chain. However, the practice has not been supported by Information Technology except for the marketing function. This is due to the high cost of information technology investment.

The table below is the summary of the empirical findings from the studied case companies.

<table>
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<th>Table 2. Studied Case Company Empirical Findings Summary</th>
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<td>b. Supplier selection criteria</td>
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<td>c. Supplier classification</td>
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<td>d. Supplier relationship</td>
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<td>e. Contract Agreement</td>
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<td>f. Supplier Evaluation</td>
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<td>Production:</td>
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<td>a. Production system</td>
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<tr>
<td>b. Number of manufacturers</td>
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<td>Distribution:</td>
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<tr>
<td>a. Distribution Channel</td>
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<td>b. Transportation Mode</td>
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<tr>
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<td>E-Marketing</td>
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5.3. Cross-Company Analysis

The terminology of supply chain management is still new for the studied companies. For company C, in which claimed that already adopt SCM concept, stated that this concept is crucial due to the need for coordinating complex activities and many actors in its supply chain. It is not the case for company A and B in which the process is much simpler than that of company C. Their business function is managed fragmentally; there is no coordination and/or integration among business activities. However, respondent of company A and B agreed that this concept will make the process run more efficient and effective. Due to financial reason as the biggest problem, this concept cannot be applied.

It is obvious that there are differences between the company that has already adopted the SCM concept and not. The company A and B have things in common in managing their suppliers is that there is no contract agreement with the suppliers. The supplier-customer relationship is based on the thrust. And the suppliers are selected based on the price and there is no record for supplier evaluation. Both companies feel that their supplier performance is poor. Unlike that of company C, the company has very good coordination and management to its suppliers and this leads to the high supplier performances.

The production system adopted by three companies allowed final good inventory to anticipate the customer demand. This is combined by make to order system to reduce final good inventory while still maintaining satisfied demand fulfillment level.
It can be seen from the empirical evidence that there is a trend to outsource business function in which it is not the core business, for example for outsourcing service to deliver goods from third party logistics (3PL). Moreover, the business is conducted manually or by paper work even though the company has already adopted SCM concept.

Last but not least, it can be concluded that the SCM concept could be adopted in small companies, however, there is need a better conceptual understanding of it and new and more systematic approaches to its implementation.

6. Conclusion

The paper aims to get knowledge on how supply chain management concepts is understood and adopted by small companies. The analysis is based on conceptual literature analysis and three case studies of small manufacturing companies. Interesting findings is that the studied companies confirmed that they are unfamiliar with the terminology of supply chain management; however, one of the studied company has been implemented the concept of supply chain management concept. It is also found that the barriers towards SCM concept adoption are the resistance to change, simple operations and limited budget. The paper suggests that although the practitioners have already implemented SCM concept, they need a better conceptual understanding of it and new and more systematic approaches to its implementation.

7. Future Work

Further studies could focus on the validity and application of the findings, for example, testing it in different types of small industries as well as comparative study with large-sized company in which produce the same product.

8. Acknowledgement

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[14] SMEDC (Small and Medium Enterprises Development Center. Gadjah Mada University
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