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# The Implementation of Supply Chain Management to Improve Competitiveness of Creative industries in central Java

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## Abstract

The study of competitiveness of large scale and micro small and medium entreprises (MSMEs) has attrached some researcher. However, the existing study still in general in nature, by neglecting survive strategy, competitive capacity in the creative industries including supply chain management. Hence, this study attempts to identify supply chain in providing the goods and services for an improved competitiveness of creative industries in Central Java. The population of this study was all of the small and medium creative industries in central java. The data was gathered using the purposive sampling method. The samples analyzed were 102 creative industries distributed in Regency of Semarang, Klaten, Brebes, Pati, Kebumen, Magelang and Rembang. A questionnaire survey was conducted to study the. The discriminat analysis in this study was conducted by classifying MSMEs into high performing MSMEs and low performing MSMEs. This study employed test of equality of group means by using F test. The study revealed that there was difference among the variables of strategi pemasok partnership, information level, information quality and finance, product development, inventory management and planning and controlling (sig value less than 0.05.) In conclusion, There is a believe that if the seven variables are improved, enterprises performance will improve. It is recommended that a comprehensive model of improving the quality of supply chain management practice of creative industries focusing on the improving strategic supply chain, information quality, production and transportation is developed.

***Keywords :*** *supply chain management, creative industries, goods and services, competitiveness*

## I. Introduction

In today's globalization era, every company in every scale, starting from large, medium to small, needs a strategy to survive or even win a competition. The competition seems so tight on the small and medium industries which are creativity-based. This is because the innovations resulting from the process will find it easy to get away existing creative products.

Indonesia consists of thousands of islands with fertile lands supported by beautiful nature and ornamented with a variety of rare species of flora and fauna. Ethnic diversity, traditions, culture and language play an important part in completing the potential growth of creative industries that are currently contributing to the gross domestic product (GDP) worthed Rp 104.6 trillion. Indonesia needs to continue developling creative industries. The reason is that creative industries contribute to economy significantly. Moreover, they create a positive business climate and build up the nation's image and identity. On the other hand, the renewable resources based creative industries create innovation and creativity which lead to a competitive advantage of a nation as well as providing a positive social impact.

To improve competitiveness in creative industries, a company management, either internal or external, is neeeded. The relationship between suppliers, customers, and company itself, must be managed properly. The management includes how suppliers take responsibility on product quality, good and long-term relationships between suppliers and customers and on time products distribution from upstream to downstream up to the final customers. This is where management needs to be taken into account. If there is an error in the distribution of goods and services, it will make the quality of goods and services decline. And this weakens the competitiveness capacity. To improve the distribution of goods and services, as well as sharing information and finance, from upstream to downstream in the creative industries sectors, it requires a comprehensive management.

The challenges for the government in relation to small and medium businesses on the basis of creative industries are to give support to the creative industries perpetrators to be tough and independent entrepreneurs in developing their businesses and are also able to face the globalization era as it is in the current reform, where

employers should be able to increase productivity, efficiency with which goods and services produced have high competitiveness, in line with the dynamic development and economic growth, it will open business opportunities that can be exploited by the perpetrators of the creative industries in developing themselves. To develop the potential of the products and services as the results of creative industries, a high competitiveness capacity is needed. The capability of high competitiveness can be determined from the strategy used to win the competition. Through efficient, proper and adequate logistics management, it will be used as a tool to enhance the competitive advantages. One approach to managing the logistics network is using *supply chain management.* The implementation and practice of *supply chain management* for the provision of goods and services is indispensable for the creative industries sector, in order to improve the competitiveness of the industries that will give an impact on business performance.

There are many studies which have been conducted to develop creative industries in order to have competitive capacity, especially in global markets, including a study on *supply chain management.* Among other studies are the ones conducted by Cainato et al (2016), Potter (2015), Bin & June (2012), Li-li et al (2011), Lin Lue et al (2011), Chang et al (2012) and Li Xinran et al (2013). These studies have focused more on the factors influencing the implementation of *supply chain management,* as well as how the perceptions of small and medium entrepreneurs towards the application of *supply chain management.* This study was conducted to identify the *supply chain* in the provision of goods and services in order to improve the competitiveness of creative industries in the region of Central Java province. The identification and the relationship between *supply chain management* practice of providing goods and services to enhance the competitiveness of creative industries by the business performance in Indonesia is still very interesting to study.

## II. Theoretical Framework

### Creative Industry

Starting from the early 1980s, an idea of creative city emerged as an important consideration in cities around the world to solve urban problems, especially related to unemployment, poverty and the improvement of environmental quality. However, it

then develops further, not only are artists related to creative industries, but also all those related to new innovations in various fields including scientists, entrepreneurs, and other groups to develop creativity-based economy. Industry refers to the process of creating goods and services which are *value added.* While creative is derived from the word '*create'* meaning the process of creating something. Therefore, *Creative Industries* focuses on the creation of goods and services by relying on expertise, talent, and creativity as intellectual properties. It is an integral part of creative economy (Wibisono, 2010). According to the trade department of the Republic of Indonesia (2008), creative industry is an industry derived from the utilization of individuals' creativity, skill and talent to create welfare and job fields through the creation and utilization of the individuals' creativity.

Creative industry may contribute to some aspects of life, not only in terms of purely economic standpoint, but it can also be a positive impact on other aspects such as improving the nation's image and identity and fostering the nation's innovation and creativity. It refers also to an industry which uses renewable resources as well as results in positive social impacts. Each country builds creative economic competencies in their own ways according to their existing capabilities. There are several purposes of the creative industries' development, such as the development of industries which put their focuses more on the basis of: (1) the field of creative cultural industry, (2) creative industry, (3) intellectual property rights such *copyright industry.* In Indonesia, creative industries play a significant role by the great amount of the contribution to the gross domestic product in 2002 - 2006 by 6.3%, equivalent to Rp. 104.6 billion rupiah (constant value) and Rp. 152.5 billion (nominal value). The industries have recruitted labors of 5.4 million with a participation rate of 5.8%. If viewed from exports side, in terms of the sub-sectors classification, the role of creative economies towards the total export, of which the average rate in 2002 - 2006 was 10.6% (the study of Indonesia's creative industries, 2008).

**Supply Chain Management**

Supply Chain Management is a set of approaches to streamline the integration of suppliers, manufacturing, warehouse and storage, so that the goods are produced and distributed in the right amount, right location, right time, costs minimization and

service provision to customer satisfaction (simchi- levi, 2003). According to Kalakota (2000), *Supply Chain Management* is a '*parachute process*' where products are created and distributed to consumer from a structural point. A *supply chain* refers to a complex network of relationships where organizations maintains their colleagues business to obtain source production in distributing it to consumers. The goal of every supply chain is to maximize the overall values produced (Chopra, 2001). The integrated supply chain will increase the overall value produced by the supply chain.

*Supply Chain Management* seeks to achieve global optimization. It is a process to find the best strategy for the whole *supply chains (systemwide).* It is very challenging to design and operate a *supply chain* with low overall cost, and maintained service level as well. There are 3 kinds of things that have to be managed in the *supply chain:* first, the flow of goods from upstream to downstream, for example, raw materials which are delivered from the supplier to the factory, after the completion of production shipped to distributors, retailers, and then to final customers. Second, the money flow and such flowing from downstream to upstream, and the third is the flow of information that occurs from upstream to downstream, or vice versa. The integration of *the supply chain* is done to coordinate activities along the supply chain so as to improve the performance *of supply chain members.*

*Supply chain* consists of all organizations and related processes in the supply of a particular product or service, from the first '*upstream'* stage, extracting raw materials up to the '*downstream'* stage, and meeting final customers. The *Supply Chain Management* focuses on customers as the starting point and the final activities within and outside the company. If the products or services offered to the final customers do not have good *features,* good *quality,* good *price,* and good delivery *timing,* the supply chain will then fail in its mission. It will not be able to compete more effectively with another alternative supply chain. Thus, every company must seek, not only to improve the competitiveness of individual companies (such as: *quality, cost, delivery lead-time,* etc), but also to improve the competitiveness and performance of all companies in the supply chain. To be successful as a member / part of a supply chain and make the supply chain work as a unit, the companies must now build a strategy to set union / collaboration with suppliers and customers of their companies. This includes sharing

information, working together to reduce prices and cutting time and building a total quality into all stages of the supply chain.

Supply Chain Management is an inter-functional approach *(cross function)* to manage the movement of raw materials into an organization and the movement of finished goods out of the organization toward the final consumers. As the corporation to focus more on their core competencies and more flexible, they have to reduce their ownership of raw material sources and distribution channels. This function increases to lack resources to other companies involved in satisfying consumer demands, while reducing management control of daily logistics. Less control and *supply chain* partners are addressed to the concept making of the supply chain. The purpose of *supply chain* management is to improve trust and collaboration among *supply chain* partners, and to increase clear inventory and to improve inventory acceleration.

## III. Research Method

The population of this study is all small and medium creative industries-based enterprises in Central Java. Sampling was done by a two-stage *random sampling* method. *Purposive sampling* method was taken because this study required intensive interaction with research subjects, in which the research subjects were selected based on the researcher's consideration *(judgment)* on the location of the subject and the subject's willingness to engage in this study. The consideration in selecting the sample of small and medium creative industries-based enterprises was the willingness of small businesses to get involved in this study. The final samples were 102 creative industries, which were spread throughout Semarang regency, Klaten, Brebes, Pati, Kebumen, Magelang, and Rembang.

**Operational Definition and Measurement of variables**

Table 1

Operational Definition and Measurement of variables

| Variables | Indicators |
|---|---|
| Product development | Conducting market research, designing new products, involving suppliers in the design of new products |

| | |
|---|---|
| Partnership supplier strategy | Selecting suppliers to evaluate supplier performance, making the purchase of raw materials and components, monitoring the supply risk, fostering and maintaining relationships with suppliers |
| Planning and Control | Demand planning, demand forecasting, capacity planning, production planning and inventory |
| Production | Execution of production, quality control |
| Distribution | Distribution network planning, delivery scheduling, finding and maintaining relationships with company shipping services, monitoring service level increment distribution center |
| Financial | Determination of payment terms, exchange funds methodology, invoicing, reconciliation |
| Information Quality | Accuracy, timeliness, time adequacy, exchange of credible information |
| Information Level | The information to be communicated among partners built into one network |
| Customer relationship | Managing customer complaints, increasing customers' satisfaction, building long-term relationships with customers |
| Transportation | Frequency, route, contracting |
| inventory management | number, location, scheduling |
| Storage, handling & packaging | Adjustment of products packaging, the storage period, storage costs |
| Purchase | Terms of purchase, negotiations skills, company's strategic ability to translate into election system and supplier evaluation |

**Methods of Data Collection**

The method used in collecting the data is as follows: the data collection with *in-depth interviews* and the delivery of questionnaires through mail surveys or individuals so that the content vagueness of the questionnaires can immediately be responded. To

improve the quality of these research findings, in-depth interviews with the creative industries-based small enterprises were conducted through direct visits or by phone.

**Methods of Data analysis**

The data analysis was done by using discriminant analysis, which was to determine which predictor was the most dominant in the *supply chain management* practice. In some similar number of variables, it was tested for grouping activities of *supply chain management* practice into one variable which led to certain activity of *supply chain management* practice.

## IV. Findings and Discussion

### Discriminant Analysis of the Factors Determining the Performance of Creative Industries-Based Small and Medium Enterprises (SMEs)

The discriminant analysis of the factors determining the performance of creative industries-based SMEs in Central Java was firstly conducted by determining the category of SMEs' performance into high-performing SMEs (code 1) and low-performing SMEs category (code 0). The SMEs' performance in this study refers to employment growth, production growth, capital growth and profit growth. Each growth was calculated by subtracting the current performance with the performance at the time the SMEs stood (initial performance) divided by the initial performance and multiplied by 100 percent. This kind of performance measurement was done because the written records of each SME did not exist, so it was easer for the researcher to inquire the initial and present performance.

The growth of each item of the performance was counted together resulting in a total SMEs performance. Based on the total SMEs performance, the category of the SMEs performance was taken into account. The average of the total SMEs performance became the midpoint which differentiated between the high and low-performing SMEs. If the scores of the performance were higher than the average, the SMEs were grouped into the high-performing SMEs and conversely, when the scores of the performance were lower than the average performance, the SMEs were grouped into the low-performing SMEs.

Furthermore, to determine the score of the independent variable which determines the performance, the average score of each independent variable was needed. To calculate the score of each independent variable was by accumulating the

score indicator of the independent variables and its average score was then made. This average score became the basis for calculating the discriminant analysis. This was mainly because each independent variable had a number of different indicators.

**The variables included in the equation**

Based on the variable entered / removed table, it was noted that only 5 variables included, namely: *Strategy of partnership supplier, transportation, product development, information on quality and production*. Therefore, based on the discriminant analysis, the high or low SMEs performance was affected by their roles in the development of the partnership supplier strategy, planning and control, transportation, product development, information quality and production, information on quality improvement, production and product development. Meanwhile, the other variables such as the level of information, customer relationship, financial, inventory management, purchasing, planning and control, as well as distribution activities were not the variables which affected the SMEs performance.

Table 2

Variables Entered / Removed (a, b, c, d)

| Step | Entered | removed | Min. D Squared | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Statistic | Between Groups | Exact F | | | |
| | | | | | Statistic | DF1 | DF2 | Sig. |
| 1 | Partnership SupplieR Strategy | | .748 | 0 and 1 | 17 840 | 1 | 100,000 | .000 |
| 2 | Planning and Controlling | | .990 | 0 and 1 | 11 690 | 2 | 99,000 | .000 |
| 3 | Transportation | | 1317 | 0 and 1 | 10 258 | 3 | 98,000 | .000 |
| 4 | Product development | | 1,672 | 0 and 1 | 9667 | 4 | 97,000 | .000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 5 | | Planning and Controlling | 1,578 | 0 and 1 | 12 289 | 3 | 98,000 | .000 |
| 6 | Information on Quality | | 1,879 | 0 and 1 | 10,862 | 4 | 97,000 | .000 |
| 7 | Production | | 2,130 | 0 and 1 | 9749 | 5 | 96,000 | .000 |

Source : Processed primary data, 2016

Then, based on the *Eugenvalue* calculation that generated *canonical correlation* at 0.580 or determination coefficient was 0.3364, or 33.64%, it was known that 33.64 percent of the performance variable could be explained by the formed discriminant model which only five variables existed: the development of *partnership supplier strategy*, transportation, product development, *information quality* and production activities. Meanwhile, the rest 66.34 percent was explained by other variables which were outside of the model.

TABLE 3

**Eigenvalues**

| Function | Eigenvalue | % of Variance | Cumulative % | Canonical Correlation |
|---|---|---|---|---|
| 1 | .508[a] | 100.0 | 100.0 | .580 |

a. First 1 canonical discriminant functions were used in the analysis.

Furthermore, according to Wilk's Lambda calculation, it was known that the Wilks' Lambda score was 0.663 and chi-square amounted to 40.037 with the probability score (sig) of 0.00 which was lower than 0.05. It was identified that there were significant differences between the two groups (low-performing SMEs and high-performing SMEs) on the discriminant model. Therefore, the low-performing SMEs performed differently from the high-performing SMEs did.

Table 4

**Wilks' Lambda**

| Test of Function(s) | Wilks' Lambda | Chi-square | df | Sig. |
|---|---|---|---|---|
| 1 | .663 | 40.037 | 5 | .000 |

**Dominance of Factors Determining SMEs Performance**

Among the twelve independent variables considered as the determinant of SMEs performance, in fact there were only five variables that determined the SMEs performance. They were *the partnership supplier strategy*, transportation, product development, *information quality* and production activities. Seven other variables namely purchasing activities, information level, planning and control, customer relationship management, inventory management, financial and distribution did not meet the entry requirements of the discriminant model. The sequence where the most dominant variable influenced the SMEs performance among those five variables could be identified by examining the *function* score in the *Structure Matrix* from the discriminant analysis model.

Table 5

**Structure Matrix**

| | Function 1 |
|---|---|
| Partnership Supplier Strategy | .593 |
| Product Development | .563 |
| Information Quality | .543 |
| Information Level [a] | .526 |
| Customers Relationship[a] | .491 |
| Planning and Controlling [a] | .407 |
| Finacial [a] | .328 |
| Inventory Management [a] | .308 |
| Production | .224 |
| Purchasing [a] | .220 |
| Distribution [a] | .169 |
| Transportation | .105 |

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions
Variables ordered by absolute size of correlation within function.

a. This variable not used in the analysis.

In the matrix structure, It is shown that the variables marked "a" were the ones which could not be used in the discriminant analysis, whereas the other variables which were unmarked "a" were the ones accounted for in the model of discriminant analysis, which were the partnership supplier strategy, product development, information quality, production and transportation. By lining up the coefficient of these variables in accordance with their magnitude order, it could be known which variables were the most dominant determining the SMEs performance in the creative industry. Here's the magnitude order of the variable coefficients chosen:

Table 6

The order of variable dominance of the SMEs performance

| Variable | Coefficient |
|---|---|
| Partnership Supplier Strategy | 0.593 |
| Product development | 0.565 |
| Information Quality | .543 |
| Production | .224 |
| Transportation | 0,105 |

Sources: processed primary data, 2016

The findings showed that the SMEs performance in the creative industry was very sensitive towards the first three variables, namely partnerships supplier strategy, product development and quality information because the coefficient magnitude was almost the same. However, the partnerships supplier strategy was the most distinguishing variable *(the most discriminant).* It was the factor that differentiated whether the SMEs were high or low performing. The product development and information quality were the next important differentiating variables. The next distinguishing variables were the production and transportations (*the least discriminant*). The both last variables were the important differentiating factor which still needed to be considered in improving the SMEs performance, although their importance level was still under the partnership supplier strategy, product development and information quality. Thus, if the target of the SMEs development in the creative industry was to improve the high SMEs performance, it would then be the parties related to SMEs Management itself, government, universities and certain institutions interested in developing SMEs in the creative industry, the main factor that needed to be

developed was the implementation of partnership supplier strategy, and then the product development and information quality in the next stage. The production and transportation activities also needed to be developed, but their importance was still lower than the third factors above.

**Discriminant Model Validity**

The validation of the discriminant model is required to determine whether or not the discriminant model formed was totally valid. If the formed model were valid, it would then really be used to predict the SMEs performance.

Based on the classification result table, it could be known that in the original part, the preliminary data of SMEs had low performance as much as 64 SMEs and in the discriminant model remained at 50 SMEs. Meanwhile with the discriminant model, those were originally grouped as high performing SMEs turned out to be the members of high performing SMEs group as much as 14 SMEs. Likewise, the group of high-performing SMEs, which remained at the high-performing group of 29 SMEs and those became low-performing groups were 9 SMEs. Therefore, the accuracy of the predictions of this model was: (50 + 29) / 102 = 0.775 or 77.5%. This accurate rate was quite high, so that the discriminant model used above could be utilized as the discriminant analysis. In other words, the interpretation of some tables listed above was valid to be used. In addition, based on Leave-one-out cross validation method, it was known that the data classification accuracy to the group amounted to 72.5%, which was high enough so that the model could be used as the discriminant analysis.

Table 7

**Classification Results[b,c]**

| | | SMEs performance | Predicted Group Membership | | |
|---|---|---|---|---|---|
| | | | 0 | 1 | Total |
| Original | Count | 0 | 50 | 14 | 64 |
| | | 1 | 9 | 29 | 38 |
| | % | 0 | 78.1 | 21.9 | 100.0 |
| | | 1 | 23.7 | 76.3 | 100.0 |
| Cross-validated[a] | Count | 0 | 48 | 16 | 64 |
| | | 1 | 12 | 26 | 38 |
| | % | 0 | 75.0 | 25.0 | 100.0 |
| | | 1 | 31.6 | 68.4 | 100.0 |

a. Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.

b. 77.5% of original grouped cases correctly classified.

c. 72.5% of cross-validated grouped cases correctly classified.

## V. Conclusion

If the measurement is mainly attached to the comparison of the SMEs performance in the beginning of the business and the real present condition, the creative industry based SMEs in Central Java will then be growing so well. The employment has increased about 200 percent, 270 percent in the production growth, the capital grows about 471 percent and profits rises by 469 percent. In general, the creative industry based SMEs have implemented pretty good supply chain management. Therefore, their performance is quite good, especially those related to the growth of labors used, the production level, the capital and the profits obtained. There is a noticeable different performance shown by the low-performing SMEs and the high-performing SMEs in relation to determinants of performance.

The attributes that most distinguishes the performance of high and low performing SMEs lies in partnership supplier strategy, product development and information quality, and then the production and transportation activities. Among the 12 variables that affect the performance of SMEs, 7 attributes such as purchasing, information level, planning and controlling, customer relationship management, inventory management, financial and distribution are not the variables that differentiate the performance of the both groups. Their attitude towards the nine variables is relatively similar. The discriminant model which has turned out to be valid can be used because the accuracy is relatively high (77.5%) and the cross validation is quite high as well (72.5%). Therefore, the SME management can take a variety of relevant strategies based on the discriminant model.

**Suggestions**

1. If the target of the SMEs development in the creative industry is to improve the high SMEs performance, then the parties involved, such as the SMEs Management itself, government, universities and certain institutions interested in developing SMEs in the creative industry, the main factor that needs to be developed is the implementation of partnership supplier strategy, and then the product development and information quality in the next stage. The production and transportation activities also need to be developed, but their importance is still lower than the third factor above.

2. The findings also suggest the needs of a comprehensive model in improving the quality of supply chain management in the creative industry which focuses on developing supplier partnership supplier strategy, product development, information quality, production and transportation. The five variables are the very sensitive variables toward the changes in the SMEs performance in the creative industry.

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