

# A Model for Empowerment of Small- and Medium-Scale Enterprises with the Cluster Approach Influencing the Performance of Small- and Medium-Scale Enterprises at the Weaving Industry Centers

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## ABSTRACT

The empowerment of Small- and Medium-scale Enterprises can be done by enacting the Small- and Medium-scale Enterprises centers as the entry point. This approach is based on the notion to provide services to them in more focused, collective, and efficient ways. In this way, although the resources are limited, they are able to reach the small- and medium-scale enterprises extensively. Furthermore, to develop the centers, the cluster approach is applied. Cluster is a network of internal and external cooperation.

**Keywords:** Centers, cluster, internal cooperation and external cooperation, infrastructure, performance, Small- and medium-scale enterprises, and empowerment model.

## 1. INTRODUCTION

In an attempt to improve the national economic growth, the government encourages the performance of economic agents including the Small- and Medium-scale Enterprises. According to Law of the Republic of Indonesia, Number: 20 of 2008 regarding Micro-, Small-, and Medium-scale Enterprises, the performance of the Small- and Medium-scale Enterprises can be improved through empowerment efforts.

One of the approaches which is very much recommended by related parties, particularly the Ministry of Cooperative and Small- and Medium-scale Enterprises is the development of small- and medium-scale enterprise centers. The empowerment of the Small- and Medium-scale enterprise centers is done by enacting them as entry point based on the notion to provide services to them in more focused, collective, and efficient ways. Although the resources are limited, they are able to reach the small- and medium-scale enterprise centers more extensively. This development can be done through the cluster approach.

## 2. LITERATURE REVIEW

According to Law of the Republic of Indonesia Number: 20 of 2008 regarding Micro-, Small-, and Medium-scale enterprise, empowerment is defined as an effort synergically done by the Central Government, Local Government, Business World, and society through the growing and development of the Micro-, Small-, and Medium-scale Enterprises so that they are able to grow and develop as strong and independent businesses.

According to ADB (2001), cluster is a business network. Regulation of the State Ministry of Cooperative and Small- and Medium-scale Enterprises of the Republic of Indonesia Number: 23/PER/M. MUKM/XI/2005 regarding Guidelines for Growing and Developing of the Centers of Small- and Medium-scale Enterprises, cluster includes industrial network (core industry, which becomes the focus of attention; industry, which supplies raw materials, supporting materials, and accessories; and related industry, which uses the same resources as the core industry), parties or agencies which produce technology, bridging institutions (such as consultants) and buyers; all of which are interconnected in a chain of value enhancement process.

According to Ceglie and Dini (1999:2) in Tambunan (2006), cluster is an internal cooperation relation among companies and an external cooperation relation between the companies and the external economic agents such as Large-Scale Enterprises, banks, and Business Development Services. See Figure 1 below:

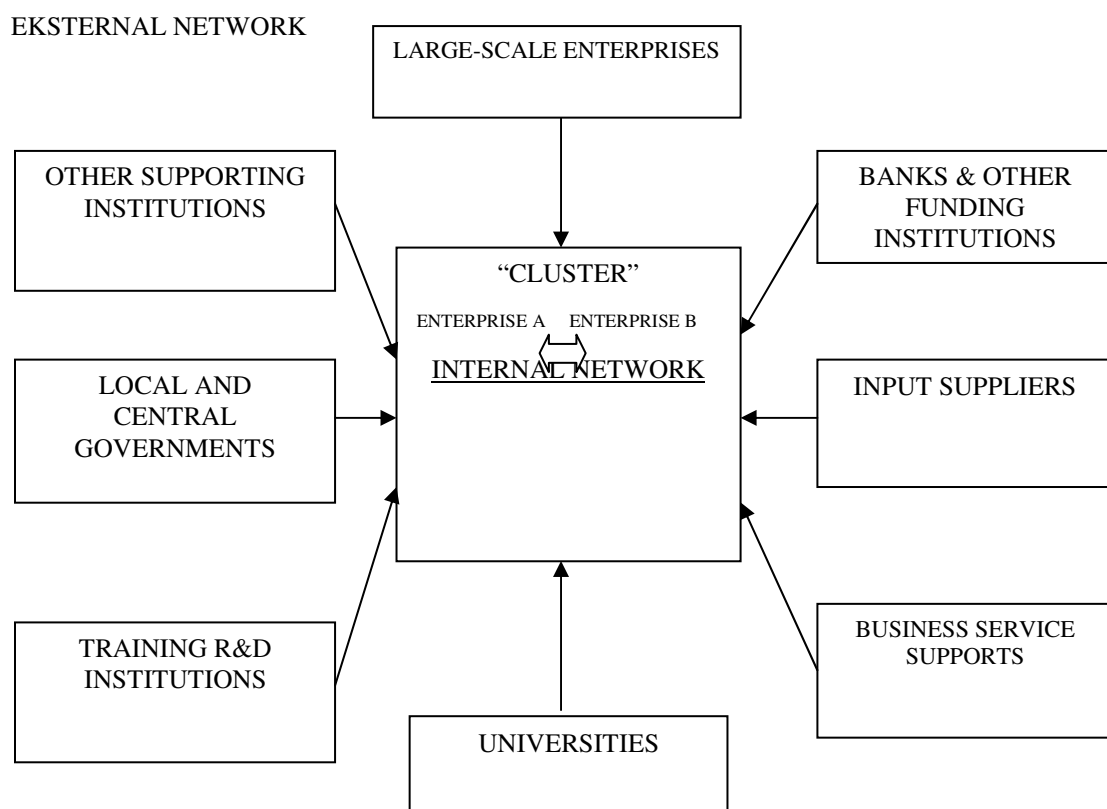


Figure 1: An Illustration in the Internal and External Networks  
 “Network of a Cluster”

Tambunan (2009) claims that the Capacity Building Program of a cluster of Micro-, Small-, and Medium-scale Enterprises can be done through the development of internal and external networks. According to the State Ministry of Cooperative and Small- and Medium-scale Enterprises of the Republic of Indonesia, (2005:4) the principal requirement in order for a cluster to develop healthily is as follows:

Every center to be grown up as a cluster must possess a similar kind of business whose prospect is obvious. There must be at least 50 small-scale business units who conduct the similar business. In addition, the turnover of the whole small-scale business unit must be at least Rp500 million/month. This amount will enable the market of development services to grow healthily, meaning that the supporting industry is encouraged to take part, and there occurs a feasible outlet development. Financially such a total amount of transaction will insure the growth of feasible credit services of cooperative.

The technological touch has enabled the achievement of productivity increase. As generally acknowledged, the principal problem encountered by the Small- and Medium-Scale Enterprises is related to the productivity, or the manpower includes less than 3% of the productivity of the large-scale business of the same sector or only 1.5% of the productivity of the medium scale business. Therefore, the technological touch must become an important element to implement changes in the production process.

Other requirements related to infrastructures, market networks, the availability of funding institutions, and others are additional requirements which provide an attraction to the related cluster through information networks.

Of the aforementioned definitions, it can be concluded that cluster is a business network, which includes internal and external cooperation supported by infrastructures.

The objectives of cluster establishment as stated in Medium-Term Development Plan of 2005-2025 in the field of Cooperative and Small- and Medium-scale Enterprises are to expand business bases and opportunities and to grow new excellent entrepreneurs to encourage the economic growth, the export volume increase, and the creation of employments.

Lestari HS (2006) explains that the study of clusters shows a variety of definitions and types of clusters. For example, Porter divides clusters according to the technological adoptions by their members. He classifies the clusters into (1) technological cluster (the members of cluster are aware of using the science and modern technology) and (2) *know-how* cluster (the members of cluster use their experiences and knowledge from generation to generation). *Technical Assistance Asian Development Bank (TAADB)* classifies the cluster

according to the dynamics of its members, namely: (1) viable cluster and (2) *dormant* cluster. In other literatures, most of them classify the cluster into (1) regional cluster (focusing more on the business grouping into one region with a clear limitation or (2) business cluster (focusing more on the cooperation network among the enterprises in order to share competencies and resources). The present study employs the latter classification, that is, the business cluster which focuses on the internal and external cooperation networks (particularly those running the business in the weaving industry field).

Moeheriono (2009) claims that performance is a work achievement or a work result. The performance of A Small- and Medium-scale Enterprise is measured by using the Likert scale of 1 – 5 with the performance indicators of liquidity ratio, rentability ratio, sale performance, and production performance. The criteria of Small- and Medium-scale Enterprises taken are in accordance with those of Small- and Medium-scale Enterprises mentioned in Law of the Republic of Indonesia Number: 20 of 2008.

The internal cooperation of collective Small- and Medium-scale Enterprises can reach the economic scale exceeding that of individual Small- and Medium-scale Enterprises. In addition, the cooperation also improves the collective learning process in which their ideas and knowledge can be interchanged and shared among them. Furthermore, the external cooperation of the Small- and Medium-scale Enterprises will get various resources, knowledge and technology. With the prevailing infrastructures, the Small- and Medium-scale Enterprises can do production, distribution, and business communication activities. The existence of the internal cooperation, the external cooperation, and the infrastructures are expected to improve the performance of Small- and Medium-scale Enterprises.

### 3. RESEARCH METHOD

The population of this research was all of the weaving industry actors in the following five weaving industry centers, namely: The Weaving Industry Center of Kediri, the Weaving Industry Center of Tuban, the Weaving Industry Center of Gresik, the Weaving Industry Center of Lamongan, and the Weaving Industry Center of Jombang. The Weaving Centers had 25, 40, 45, 50, and 30 business actors respectively. Thus the total number of population was 190 business actors. The samples of the research were taken by using the simple random sampling, meaning that the samples were taken in such a way that each unit of the research or the elementary unit of the population had the same opportunity to be taken as a sample of the research (Rianse dan Abdi, 2008:195).

“The samples of the research were determined by using the sampling table developed by *Isaac* and *Michael* with the error rate of 5 %”. (Sugiyono, 2010:87). From the sampling table, the samples of the research were then obtained. The samples consisted of 170 business actors in East Java. They were 23 business actors of the Weaving Industry Center of Kediri 23, 36 business actors of the Weaving Industry Center of Tuban, 40 business actors of the Weaving Industry Center of Gresik, 44 business actors of the Weaving Industry Center of Lamongan, and 27 business actors of the Weaving Industry Center of Jombang.

The data analysis to investigate the effect of the clustering factors as to improve the performance of the Small- and Medium-scale Enterprises was done by using Principal Component Analysis (PCA).

Principal Component Analysis is a technique to form new variables, which are linear combinations of original variables. The maximum number of the new variables is the same as the number of original variable, and each new variable does not have correlation one to another. The procedure of PCA basically aims at simplifying the observed variables by reducing their dimensions (Sharma, 1996). The new variables formed are called Principal Components. The value of the Principal Components is called the Principal Component Score. The effects of which on the dependent criteria variables (Y) are regressed or analyzed by using panel data analysis.

### 4. RESEARCH RESULT

#### 4.1 Internal cooperation factors influencing the improvement of performance of the Small- and Medium-scale Enterprises in East Java.

The cooperation established includes joint production, sub-production, raw material procurement, product technique, and product design. Marketing cooperation is done in the forms of promotion, public relations, personal selling, sale promotion, and distribution, and resource cooperation is conducted in the forms of production training, marketing training, administration/bookkeeping training. All of the weaving industry centers still conduct Research and Development (R& D) in the formal form such as informal talk (chatting). Of all the samples of the research in Kediri, Lamongan, Gresik, Tuban and Jombang, none of them gives any choice of R & D cooperation forms such as product quality, product competitiveness, consumer taste, and identification of competitors' strategies. The business actors usually conduct the R & D individually in the form of small research activities on certain aspects such as product pattern and design.

All of the weaving industry centers still conduct innovation cooperation in the formal form such as informal talk (chatting). In addition, none of them give any choice of product innovation cooperation forms such

as raw material modification, product design/pattern, product display, and new product. The craftsmen usually conduct the product innovation individually, and the innovation is usually in the form of raw material modification such as modification from thread to silk, from synthetic or cotton weaving to semi-silk weaving or silk weaving, from *goyor* sarong to variety of fabrics, from *goyor* sarong to other products such as pillowcase, table cloth, and doormat.

The showroom cooperation is held in the forms of showrooms owned by the local governments of the regencies/cities, showrooms owned by the provincial government of East Java province. However, all of the weaving industry centers have never held outlet cooperation. None of the weaving industry centers in Kediri, Lamongan, Gresik, Tuban and Jombang gives any choice of outlet cooperation forms such outlets in the business sites, outlets in markets, outlets in the centers, and outlets owned by the local governments. The craftsmen usually have their own outlets either at homes/business sites or at markets /shopping centers. The exhibition cooperation is done in the form of fair by the local governments of regencies or cities, the provincial government, the central government, private institutions, business associations.

All of the weaving industry centers conduct e-commerce cooperation in the informal form such as informal talk (chatting). None of the samples in Kediri, Lamongan, Gresik, Tuban and Jombang gives any choice of e-commerce cooperation forms such as sale, purchase, payment and advertisement cooperation through internet. All of the weaving industry centers conduct the raw material supply cooperation in the informal form such as informal talk (chatting). None of the samples in Kediri, Lamongan, Gresik, Tuban and Jombang gives any choice of raw material supply cooperation forms such as affordable raw material purchasing, quality raw material purchasing, credit facility, and discount facility. The product distribution cooperation is done by seeking establishing cooperation with exporters, wholesalers, agents, and retailers.

#### **4.2 The external cooperation factors influencing the performance improvement of Small- and Medium-scale Enterprises in East Java**

The cooperation with Universities is conducted in the forms of technical training of production, human resource training, management training, and entrepreneurship training. The cooperation with non-governmental organizations is done in the form of financial administration training. The cooperation with Multinational Corporations is held in the form of entrepreneurship training. The cooperation with Business Development Services is done in the forms of training services, technical assistance/accompaniment program, and technology and business proposal. The cooperation with Large-Scale Enterprises is done in the forms of exhibitions, plasma cores, and general trades. The cooperation with Bank/Bank of Indonesia is conducted in the forms of banking product information, credit provision, human resource training, and administration/finance training. The cooperation with Micro-Finance Agencies as well as with cooperatives is done in the form of working capital credit provisions. The cooperation with government is done in the forms of capital provisions/soft loan facilities (Local Governments), exhibitions (The Office of Cooperatives and Small- and Medium-scale Enterprises), human resource training (Bank of Indonesia), training/technical assistance/accompaniment program (Business Development Services), and management training and exhibition (State-Owned Enterprises). The cooperation with exporters is done in the forms of sales and sub-productions.

#### **4.3 Infrastructures:**

The infrastructures include electricity, transportation, telecommunication, and clean water. The infrastructures at the weaving industry centers in Kediri, Lamongan, Gresik, Tuban and Jombang are 100% available, meaning that all of the centers have very adequate infrastructures for the operation of the Small- and Medium-scale Enterprises activities such as production, distribution, and communication activities.

#### **4.4 Performance of Small- and Medium-scale Enterprises in East Java**

The tabulated data show the following: (In Kediri) Following the establishment of internal and external cooperation and the availability of infrastructure support of 91.30%, the respondents experience the improvements in Current Ratio of 91.30%, Cash Ratio of 95.65%, Equity Retanbility of 95.65%, and Economic Rentability of 95.65%, the improvement in sales of 91.30%, and the improvement in production.

(In Lamongan) Following the establishment of internal and external cooperation and the availability of infrastructure support of 95.45%, the respondents experience the improvements in Current Ratio of 95.45%, Cash Ratio of 93.18%, Equity Retanbility of 93.18%, and Economic Rentability of 97.72%, the improvement in sales of 95.45%, and the improvement of production.

(In Gresik) (In Lamongan) Following the establishment of internal and external cooperation and the availability of infrastructure support of 95.00%, the respondents experience the improvements in Current Ratio of 95.00%, Cash Ratio of 92.50%, Equity Retanbility of 92.50%, and Economic Rentability of 97.50%, the improvement in sales of 95.00%, and the improvement of production.

(In Tuban) Following the establishment of internal and external cooperation and the availability of infrastructure support of 94.44%, the respondents experience the improvements in Current Ratio of 91.67%,

Cash Ratio of 91.67%, Equity Retanbility of 97.22%, and Economic Rentability of 97.50%, the improvement in sales of 94.44%, and the improvement of production.

(Jombang) Following the establishment of internal and external cooperation and the availability of infrastructure support of 92.59%, the respondents experience the improvements in Current Ratio of 88.89%, Cash Ratio of 85.18%, Equity Retanbility of 85.18%, and Economic Rentability of 92.59%, the improvement in sales of 88.89%, and the improvement of production.

#### **4.5 Construction of the model for empowerment of Small- and Medium-scale Enterprise with the cluster approach on the performance improvement of Small- and Medium-scale Enterprises in East Java**

The data of the research (the scores of internal cooperation, external cooperation, infrastructure, and performance) were analyzed by using the principal component analysis. The result of the analysis gives scores to each principal component (PC) formed (namely: the scores of PC1, PC2 and PC3) and then it was followed by the regression analysis on the performance of the Small- and Medium-scale Enterprises ( $p_{\text{performance}}$ ).

The result of the regression analysis is

$$Y = 67.618 - 0.794 \text{ Score PC1} - 0.647 \text{ Score PC2} + 0.443 \text{ Score PC3}$$

PC1 = In-coo (*Internal cooperation*)

PC2 = Ex-coo (*External cooperation*)

PC3 = Infra (*Infrastructure*)

##### **4.5.1 Procedure of Principal Component Regression**

The principal component regression was done in this research for there were too many independent variables used. This regression was used to reduce them. The value of the principal component regression is  $R^2 = 0.910$  and that of the constants is -36,485. The regression equation is as follows:

$$\text{Performance of Small- and Medium-scale Enterprises (y)} = -36.485 + 0.225x_1 + 0.237x_2 + 0.218x_3 + 0.192x_4 + 0.258x_5 + 0.257x_6 - 0.235x_7 + 0.268x_8 + 0.225x_9 + 0.263x_{10} + 0.242x_{11} + 0.152x_{12} + 0.163x_{13} + 0.151x_{14} + 0.234x_{15} + 0.227x_{16} + 0.221x_{17} + 0.202x_{18} + 0.214x_{19} + 0.231x_{20} + 0.223x_{21} + 0.246x_{22} + 0.124x_{23} + 0.248x_{24} + 0.242x_{25}$$

The partial test shows that 10 factors of the internal cooperation (Cooperation of production, marketing, human resource, research and development, product innovation, showroom, exhibition, e-commerce, raw material provision, and product distribution) have a positive effect and five of them are significant, namely: cooperation of production, research and development, showroom, exhibition, and raw material provision on the performance of Small- and Medium-scale Enterprises, and only one factor (outlet cooperation) has a negative effect on the performance of Small- and Medium-scale Enterprises.

10 factors of the external cooperation (Cooperation with universities, non-governmental institutions, Multi-National Corporations, Business Development Services, Large-Scale Enterprises, Bank/Bank of Indonesia, Micro-Finance Agencies, cooperatives, government, and exporters) have a positive effect and five significances, namely: cooperation with Business Development Services, Large-Scale Enterprises, Banks/Bank of Indonesia, cooperatives, and exporters) on the performance of Small- and Medium-scale Enterprises.

Four factors of infrastructures (electricity transportation, telecommunication, and clean water) have a positive effect and two are significant, namely: telecommunication and clean water on the performance of Small- and Medium-scale Enterprises.

The overall test shows that the internal cooperation, the external cooperation, and the infrastructures simultaneously have a real effect on the performance of Small- and Medium-scale Enterprises.

## **5. DISCUSSION**

With the existence of internal cooperation, the Micro, Small-, and Medium Scale Businesses cope with all of the weaknesses/constraints in all business aspects such as raw material provision, production process, distribution and marketing, funding, and machinery repair more easily than they operate individually. The Micro, Small-, and Medium Scale Businesses in a cluster will enjoy what is called "economic benefit of agglomeration", which improves the collective learning process, in which ideas and knowledge are exchanged and shared by and for each Small- and Medium-scale Enterprises. The Small- and Medium-scale Enterprises can collectively reach the economic scale exceeding that of individual Small- and Medium-scale Enterprises.

With the existence of production cooperation, the Small- and Medium-scale Enterprises collectively capture the market opportunities, which cannot usually be seized by individual Small- and Medium-Scale. The cooperation will improve the competitive value of the products due to their synergy one to another, improve the production capacity, optimize the human resources, and improve the productivities of workers.

The marketing cooperation can expand the domestic market and export market. The human resource cooperation improves the competencies in viarous fields such as financial and non-financial ones. The research and development cooperation improves the competitiveness of product and human resources. The product

innovation cooperation improves product innovation, new product, new design and patterns. The showroom cooperation becomes the media for product promotion and sale improvement efforts. The e-commerce cooperation becomes efforts to improve sales. The raw material supply cooperation includes the smooth delivery and the ease of payment. The product distribution cooperation utilizes the distribution network.

With the existence of external cooperation, the Small- and Medium-scale Enterprises will obtain various resources, science and technology, and infrastructure.

By the cooperation with universities, Non-Governmental Organizations, Multi-National Corporations, Business Development Services and Large-Scale Enterprises, the Small- and Medium-scale Enterprises will improve the competencies in the fields of production, marketing, financial administration, entrepreneurship, and science and technology. By the cooperation with Banks, Micro-Finance Agencies and cooperatives, the Small- and Medium-scale enterprise will obtain economic resources such as working capital and capital for investment. By the cooperation with government, the Small- and Medium-scale enterprise will get soft loans, training, and training. By the cooperation with exporters, the Small- and Medium-scale enterprise can improve the sales overseas.

With the existence of the infrastructures, the Small- and Medium-scale enterprise can conduct production activities, distributions, and business communications.

The result of the whole test shows that the internal cooperation, the external cooperation, and the infrastructures simultaneously influence the performance of the Small- and Medium-scale Enterprise. This means that to improve the performance of the Small- and Medium-scale Enterprise, the factors of the internal cooperation, the external cooperation, and the infrastructures must be done simultaneously in one package of policy, not in a separate or individual package. To improve the performance of the Small- and Medium-scale Enterprises by establishing the internal cooperation only or without involving the external cooperation and the support of the infrastructures will not make its objectives come into reality. Similarly, to improve the performance of the Small- and Medium-scale Enterprises by establishing external cooperation only or without involving the internal cooperation and the support of the infrastructures will not make its objectives come true, and to improve the performance of the Small- and Medium-scale enterprise by establishing the internal and external cooperation only or without the support of the infrastructures will make its objectives unachievable.

Based on the results of the hypothesis testing, it can be concluded that cluster is a center of the Small- and Medium-scale enterprise which has developed and which has strong commitments to establish internal and external cooperation synergically, supported with the adequate infrastructures. With the existence of the strong commitments to conduct internal and external cooperation supported with the adequate infrastructures, the performance of the Small- and Medium-scale enterprise can improve significantly.

### **5.1 The Formulation of the empowerment model with cluster approach influencing the performance of Small- and Medium Scale Enterprises in East Java Existing Model**

This model refers to the definition of cluster viewed from theory. Cluster is an industrial network/network among business units to share one to another the competencies and resources/internal and external. One of the requirements so that the centers can develop into clusters is that the centers must have supports of adequate infrastructures. Thus, cluster is internal and external cooperation supported with adequate infrastructures.

#### **Recommended Model**

The centers of the Small- and Medium-scale Enterprises must possess strong commitments to synergically implement the internal and external cooperation supported with adequate infrastructures so that the performance of the Small- and Medium-scale Enterprises can improve.

### **5.2 The implementation of the empowerment model through cluster approach (input-process-output).**

For example, a center of the Small- and Medium-scale Enterprises obtains an order of uniform from an institution. Due to the production capacity of each weaving business unit, the order is then shared collectively to each member of the center through joint production. This production cooperation among the the Small- and Medium-scale Enterprises units is accompanied with the cooperation of product designs, production tools (Non-Machinery Weaving Tools), human resources, and raw material provisions. The order requires external cooperation such as cooperation with a university in the form of cooperation of product designs, standard production tools, technological development (Machinery Weaving Tools/ ATDM), and human resource training. The cooperation with banks, Micro-Finance Agencies, and cooperatives is held in the form of working capital cooperation. The cooperation of infrastructures is conducted in the forms of information technology, Non-Machinery Weaving Tools, Machinery Weaving Tools, training halls by university and electricity, transportation, telecommunication, and clean water by. The synergy between the internal cooperation and the external cooperation supported with the infrastructures is expected to improve the financial, manufacturing, and selling performances.

## 6. CONCLUSION

The internal cooperation factors which influence the improvement in the work performance of the small- and medium-scale enterprise are cooperation of production, marketing, human resources, research and development, product innovations, showrooms, exhibitions, e commerce, raw material supplies, and product distributions. All of the cooperation has been proven to have a positive effect on the improvement of performance of the small- and medium scale business, and five of them are significant, namely: cooperation of production, research and development, showrooms, raw material provisions. Meanwhile, the cooperation of outlets is proven to have a negative effect on the improvement of performance of the Small- and Medium-scale Enterprises because their impact causes a competition when the consumers purchase the products.

With the existence of the internal cooperation, the micro-, small-, and medium-scale enterprise is easier to deal with all of the weaknesses/constraints in all business aspects including raw material provision, production process, distribution and marketing, funding, machinery repairs, etc. than when it operates individually. The Micro-, Small-, and Medium-scale Enterprises in a cluster will enjoy what is called “the economic profits of agglomeration”. It also improves the collective learning of the related parties in which the ideas and knowledge are shared and exchanged among the small- and medium-scale enterprise units. They can collectively reach the economic scale exceeding the one achieved by individual unit.

The factors of the external cooperation influencing the performance of the small- and medium-scale enterprise units is the cooperation with universities, Non-Governmental Organizations, Multinational Corporations, Business Development Services, Large-Scale Enterprises, Banks, Micro-Finance Agencies, cooperatives, government, and exporters. All of the cooperation is proven to have a positive effect on the improvement of performance of the small- and medium-scale enterprise units, and five of them, namely: cooperation with Business Development Services, Large-Scale Enterprises, Banks/Bank of Indonesia, cooperatives, and exporters have a significant effect on the improvement of performance of the small- and medium-scale enterprise units.

With the existence of the external cooperation, the small- and medium-scale enterprise units can get various kinds of resources, science and technology, and infrastructures.

The factors of the infrastructures influencing the improvement of performance of the small- and medium-scale enterprise units are electricity, transportation facility, telecommunication facility, and clean water. All of the infrastructures are proven to have a positive effect on the improvement of performance of the small- and medium-scale enterprise units, and two of them, namely: telecommunication and clean water have a significant effect on the improvement of performance of the Small- and Medium-scale Enterprises. With the existence of the infrastructures, the Small- and medium-scale Enterprise units can conduct production process, distribution, and business communication. A model (conceptual) for the empowerment of the small- and medium-scale enterprise units has been found and formulated through the cluster approach, that is, the centers of the small- and medium-scale enterprise units must have strong commitments synergically to conduct the internal and external cooperation supported with adequate infrastructures so that their performance improve significantly.

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