



System Design of Supply Chain Management (SCM) to Increase Productivity: SMEs in Indonesia

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ABSTRACT

SMEs have an important role in economic growth in developing countries. However, SMEs have many obstacles in carrying out business processes. Capital is a major problem for SMEs, limited information and access to investors are the main reasons for these problems. In addition to the problem of capital, raw materials are one of the obstacles that SMEs have. The Covid-19 pandemic has reduced the supply of raw materials, this is due to the policies implemented by the government to overcome the spread of COVID-19. SMEs in the craft sector feel this impact. They are very depressed by this pandemic, they have to reduce the amount of production, and even have to stop producing. In addition to raw materials, SMEs are faced with sales problems. At the beginning of the pandemic, many SMEs experienced a very sharp decline, but SMEs have the flexibility to survive in these conditions. Based on these problems, SME supply chain management is needed in SME business processes, where supply chain management is expected to help SMEs to overcome problems such as constraints on raw materials, capital, distribution and sales, so that they can survive and continue to grow. Utilizing information technology, a supply chain management system design for SMEs is made, which is expected to be implemented in an application utilizing information technology.

Keywords: *SCM, SMEs, System Design*

1. INTRODUCTION

SMEs have an important role in the economy in Indonesia, where 99.99% of business units in Indonesia are SMEs. SMEs absorb almost 97.24% of the workforce. SMEs have the ability to survive and improve performance during the economic crisis, because of the flexibility in adjusting the production process, the ability of SMEs to be able to develop with their own capital, the ability to repay loans and the few SMEs involved with bureaucracy [1]. SMEs have unique characteristics compared to large companies [2].

- Size: Due to SMEs' small size, the market targeted by SMEs is smaller, so it is not attractive to large companies.
- Focus. Focus on execution is very effective compared to large companies because large companies are more dispersed.
- Business specialization: SMEs are more specific in their business in a narrow field.
- Entrepreneurial persons: SMEs attract more entrepreneurial employees

- Speed: SMEs are faster in decision-making and faster implementation.

The development of SMEs is a very important factor to improve the performance of SMEs. However, there are still many obstacles that SMEs in Indonesia have. Capital is the main factor faced by SMEs in addition to sales. So that investment is the main factor besides the sale and openness of SMEs is very important to give confidence to investors [3]. On the capital factor, SMEs have difficulties in finding investors to invest in, in addition to having difficulty borrowing capital through banks. This is a serious problem for SMEs to be able to develop their business. In addition to capital, the availability of raw materials is one of the inhibiting factors for SMEs to increase the amount of production. Apart from these two factors, sales are another problem for SMEs. Various challenges in human resources, capital, and knowledge are also faced by SMEs [4]–[7]. The use of information technology that is still lacking among SMEs and supply chain management that has not been formed is a factor that makes SMEs difficult to develop.

In the rapid development of information technology, Industry 4.0 adoption brings new opportunities for SMEs, SMEs are more able to innovate and compete in the global market [8]. However, adopting the technology requires a high degree of difficulty [9], because digitization requires several different project managements[10]. To support the adoption of industry 4.0, the use of information technology in a supply chain will greatly support the success of business processes for SMEs.

Although digitalization requires greater resources, digitalization must be carried out to support existing business processes in SMEs to face global competition. In business processes, especially in SMEs, be it production or distribution, other parties will need to be involved. These other parties can be suppliers of raw materials, distributors, collectors, and investors to consumers. Each of these parties has its role in existing business processes, so a supply chain management (SCM) strategy is needed to support existing business processes. Supply chain management is a complete cycle from raw material suppliers to producing the products for consumers. This concept is the key to business processes in integrating from suppliers to end customers, the process will run from upstream to downstream.

This research is to design a supply chain management system for SMEs in Indonesia, to support the business processes of SMEs in increasing their productivity of SMEs so that they can grow. This chain management system will involve several parties such as investors, suppliers, distributors, consumers, and SMEs themselves. The expected results of this research can provide an overview of supply chain management models that can be applied in SMEs so that later it can be used as an integrated system by utilizing information technology in all supply chain management systems for SMEs.

2. RESEARCH METHOD

This research is exploratory research that aims to describe the need for a supply chain system that can be used by SMEs in Purworejo. There were 250 questionnaires distributed with a total of 221 questionnaires returned. Based on the questionnaire, the results of the priority scale of MSME constraints in carrying out their business processes are obtained, where these constraints are part of the supply chain system found in SMEs. Capital is the main problem for MSMEs with a percentage of 36.56%, followed by raw materials at 23.26%, sales at 25.98%, and other problems at 14.20%. Based on the problems faced by SMEs, interrelated components are obtained in the supply chain management needs of SMEs to deal with SME problems. Components related to SME supply chain management can be seen in fig 1.

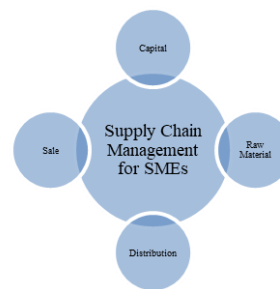


FIGURE 1. Components of supply chain management in SMEs

2.1. Capital

Capital is a classic problem faced by SMEs in Indonesia, this is due to limited access and ignorance of SMEs on where to look for capital loans. However, the government has made efforts in the long-term plan phase II (2010-2014) to increase and promote SMEs by increasing access to capital and implementing policies by giving priority to SMEs. [3]. One of the ways to improve the performance of SMEs is by ensuring alternative funding from investors and other financial institutions so that it is easier for SMEs to get capital from investors or financial institutions. Based on previous research, access to capital is one of the factors that influence the success of SMEs in Indonesia [1].

The government must have a database of SMEs in its area. This allows the government to become a strategic partner for banks to channel their financing to SMEs. [11]. So, support for capital is very much needed for the productivity of SMEs, in this case, SMEs are very depressed with financing, but they have shown their ability to survive. This shows their ability to take advantage of innovation and revolution to deal with existing problems[12].

2.2. Raw Material

In an SME supply chain, raw materials are one of the main components. Raw materials are used as materials for production activities for SMEs, so raw materials must be present in every SME supply chain. During the pandemic that has lasted since 2020, it has become a serious problem for SMEs. A comprehensive pandemic has an impact on large companies from the primary, secondary or tertiary sectors [13]. Many companies cannot reproduce because they are constrained by government policies so they are constrained by raw materials [14]. The difficulty in obtaining raw materials is one of the obstacles faced by Indonesian SMEs, especially SMEs that are engaged in the craft sector. They have difficulty in obtaining raw materials for rattan. According to the Indonesian Rattan Furniture and Handicraft Association, 2011 was a difficult period for

rattan furniture SMEs in Kalimantan because they had to refuse many orders due to the difficulty of obtaining rattan raw materials.[15].

To overcome these problems, the Indonesian government uses business centers and clusters to foster SMEs. The business center here is an activity that is centered on a certain location, where there are SMEs that use the same raw materials or facilities, produce similar products, and have prospects for development as a cluster. However, the existence of these clusters creates unhealthy competition by lowering prices. This condition will worsen the condition of SMEs, for the reason that the government makes clusters to build cooperation and increase bargaining power in several areas such as economies of scale in buying raw materials together, but with unfair competition, their bargaining power decreases.[1].

2.3. Distribution

Industry 4.0 has an impact on a process from conventional to digitalization, a form of innovation with a combination of various technologies forcing companies to find ways to manage their business and position themselves in a supply chain.[10]. They have to start thinking about how to develop a product and the strategies used to introduce it to the market, as well as adjust market action and distribution [16]. In a holistic SCM approach where all networks consist of all parties involved directly or indirectly which include producers, suppliers, retailers, customers, and so on by providing products or services to end customers both from the upstream and downstream sides[17] through physical distribution, the flow of goods and services, information, and finance [18].

Indonesia still has other problems that hinder SMEs. The high price of fuel causes inefficient production[15]. SMEs should also consider transportation, where the transportation system is still poor and often makes the distribution process delayed [19]. However, SCM is undergoing major changes[20] and growing rapidly. The modern SCM concept in economics combines strategic differentiation, value enhancement, increased operational efficiency, cost reduction, supply chain integration, and collaboration, operational excellence, and virtual supply chains[20]. A paper mentions that social media is applied to improve the efficiency and effectiveness of supply chain management in charitable organizations engaged in the distribution of food to poor populations [21].

2.4. Sale

Product sales are an important factor in a trade. Promotion and distribution strategies are one the obstacles in the sales process. In a study, the exit strategy model became an option by running the sales process through a third party[3] to reduce promotional costs and cut

distribution line costs. Utilizing information technology will be able to improve the performance of SMEs in accordance with their business processes. In this case, social media is included in information technology that can support several domains in business processes. For example, the use of social media to promote goods, while purchases can be made at offline stores or websites and e-commerce [22].

3. RESULTS AND DISCUSSION

The supply chain component involves four entities, where the 3 entities are the main components in the supply chain contained in the pre-production to distribution process which includes raw materials, production, to sales. While the capital component is a complement to the supply chain modeling section to support the SME supply chain process. Figure 1 shows the system process flow in supply chain modeling for each entity.

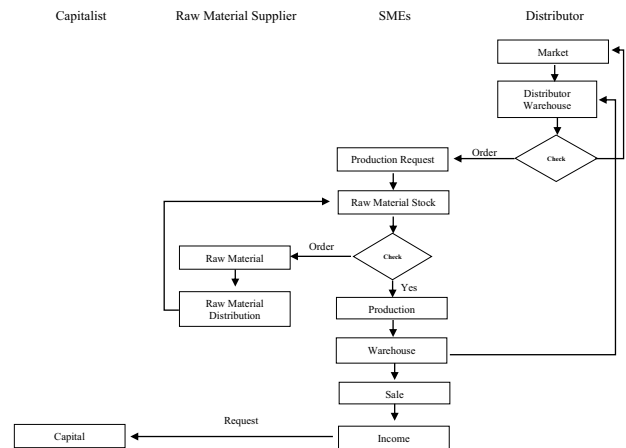


FIGURE 2. Process diagram on supply chain management modeling for each entity

Fig 2 shows that each entity has its own role in SMEs supply chain activities. Suppliers play a role as suppliers of raw materials for the production process for SMEs, distributors have a role in distributing or selling goods produced by SMEs, while investors provide additional capital to increase the productivity of SMEs, where SMEs must submit submissions to investors.

3.1. Supply Chain Management Model Design for SMEs-Raw Material Suppliers

In a supply chain, suppliers of raw materials have an important role in the production process, suppliers provide the availability of raw materials to SMEs during the

production process. Ensure that there is no excess or insufficient stock of raw materials. Fig 3 is the Supply Chain Management Design Model between SMEs and Raw Material Suppliers.

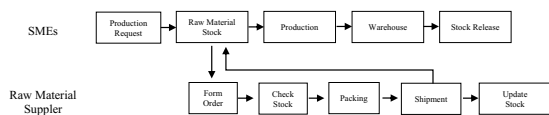


FIGURE 3. Supply Chain Management Design Model between SMEs and Raw Material Suppliers

Fig 3 is the supply chain process that occurs between SMEs and suppliers of raw materials. The process starts from production requests that come from requests for manufactured goods by distributors. Before entering the production process, it is necessary to first check the stock of raw materials. If the raw materials are available, then the production process can be continued. If the stock of raw materials is not available, the UKM must place an order with the supplier by filling in the order form through the existing system. The supplier will check the availability of the material.

If the material is available, the supplier will do the packing, then send the material to the SME and update the stock material. Furthermore, SMEs can carry out production and put the products into the warehouse, then release them to distributors.

3.2. Supply Chain Management Model Design for SMEs-Distributor

In an SME supply chain, distributors have a role in selling products produced by SMEs. However, it is possible that SMEs will sell these products directly to consumers. Distributors in a supply chain for SMEs can provide benefits in cost savings such as marketing costs and distribution costs. Fig 4 is the Supply Chain Management Model Design between SMEs, Distributors, and Consumers.

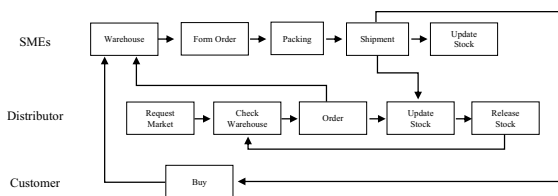


FIGURE 4. Supply Chain Management Design Model between SMEs, Distributors, and Consumers

In Fig 4 can be explained that the distributor acts as a seller by having its own market. Distributor demand depends on market demand which is the distributor's area.

Based on market demand, the distributor will check the availability of goods. If the availability of goods is running low, the distributor will request an order from SMEs by filling in the order form that is already available in the system. SMEs will do the packing and delivery to distributors, then it will be continued by updating the stock of goods owned by SMEs. Meanwhile, the goods that have arrived at the distributor will be updated in stock before the goods are released to the market. In this supply chain, consumers also play a direct role by making purchases directly from SMEs.

CONCLUSION

SMEs have an important role in economic growth in developing countries, so SMEs must be able to survive and thrive. The business model plays an important role in developing the business being run, but most SMEs do not understand the business model that is being run. Supply chain management is a solution for managing business models for SMEs. Supply chain management will help SMEs in running their business so that they can run well. This study introduces the importance of supply chain management for SMEs and provides an overview of the design of supply chain management systems for SMEs. This supply chain management design provides an overview of the solutions to the problems faced by SMEs including the capital, raw material supply, distribution, and sales. With this supply chain system design, it is hoped that SMEs can implement supply chain management in a system by utilizing information technology and producing an integrated system. With this supply chain management design, SMEs in Indonesia are expected to be able to overcome the problems faced by SMEs so that SMEs can continue to grow.

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