

Design Supply Chain Strategy for Sentra Kaos Jalan Suci Bandung

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ABSTRACT

Sentra Kaos Jalan Suci Bandung is area where many small medium garment industry that produce and sell t-shirt mainly custom design for local and national costumers. Generally the owner of that industry still using traditional approach to manage their business which supply chain is one of them. Lack of knowledge on supply chain management make owners have difficulty to fulfill quantity and delivery dates for customers. These problem commonly happens in small medium industry at Sentra Kaos Jalan Suci Bandung. So the importance of supply chain strategy for owner at Sentra Kaos Jalan Suci Bandung is to win competition among garment industry in Bandung or Indonesia are how to minimize inventory and lead time to fulfill customer requirement.

In this research we try to conceptualize simulation model in order to search better supply chain strategy for Sentra Kaos Jalan Suci Bandung. Software ASDN (Agile Supply Demand Network) is applied in this research to capture existing supply chain model and proposed new supply chain model with 3 scenario: current model, procurement trough "Koperasi", splitting job to subcontractor.

Result of this research that current scenario lead-times is 7 days, procurement trough cooperatives (Koperasi) and use of subcontractor not significant improve. Highest inbound inventory level found at all retails for current scenarios and procurement trough "Koperasi" scenario at Koperasi itself. Supply chain strategy that we conclude for Sentra Kaos Jalan Suci Bandung are to keep high inbound inventory at expense high inventory cost to fulfill customer needs.

Keywords

Supply Chain Management, Inventory Management

1. INTRODUCTION

Sentra Kaos Jalan Suci at Bandung, which main products are t-shirt, jacket, hat and sweater has long history as groups of small sized make to orders company on garment/apparel industry since 1980s. Most of owners of this company use traditional management or approach in way to procure, manufacture and distribute their products. To keep production target based on customer order, commonly the owner of a company splits their job to other company or they called makloon, but this solution didn't help too much because every company at Sentra Kaos Jalan Suci has limited capacity. Moreover materials procurement trough traditional way that the owner didn't have material planning such as mrp, make production halt because lack of materials.

Supply chain management is the integration of key business processes across the supply chain for the purpose of creating value for customers and stakeholders (Lambert, 2008). To ensure on schedule production and increasing competitive advantage, Sentra Kaos Jalan Suci needs a good supply chain management design from procurement of raw materials on time, optimum production time and on time product delivery to customers.

Supply chain management is expected to resolve problem of company owner at Sentra Kaos Jalan Suci that can help them to see the picture of their business as a whole (comprehensive) and real-time to gain a competitive value for the company, in terms of what they see is right-correctly describe the actual condition of the company right away. For that, minimizing inventory levels, and minimizing the costs arising from upstream to downstream, not including the cost of production is needed in improving the efficiency, sharpen the response, and eventually was able to generate competitive value for the company.

Materials that commonly procured isn't far from Sentra Kaos Jalan Suci such as fabrics from Cigondewah Bandung, cotton yarn, printing paint, and t-shirt accessories from Pasar Baru Bandung. Currently there is a planned among owners of company at Sentra Kaos Jalan Suci to form material cooperatives to improve material procurement process and better pricing. This initiatives arise after material shortage because of material supplier hold their stock from market and increased currency to buy material.

In this paper we looking viable option to design supply chain for Sentra Kaos Jalan Suci (SKJS) that minimize inventory cost and other cost that formed from long business process from supplier to customers without sacrifice product quality. The supply chain design in this paper contain 3 scenario, (1) base condition of SKJS, (2) job splitting trough subcontractor and (3) procurement material trough material cooperatives. ASDN Logistic software will be used to evaluated

2. THEORETICAL BACKGROUND

Supply chain management is a cross-functional approach including regulating the movement of raw materials into an organization, certain aspects of the internal process materials into finished goods, and the movement of finished goods out of the organization and to the final consumer. As organizations seek to focus on core competencies and become more flexible, they reduce the ownership of raw material sources and distribution channels. These functions are increasingly being outsourced to other entities that can make the cost of activities better or more effective.

The effect is to increase the number of organizations involved in satisfying customer demand, while reducing management control of daily logistics operations. Less control and more supply chain partners led to the creation of supply chain management concepts. The objective of supply chain management is to improve trust and collaboration among supply chain partners, thus improving inventory visibility and speed the movement of supplies.

Several models have been proposed for understanding the activities required to manage the movement of materials on organizational and functional boundaries. SCOR is a supply chain management model promoted by the Supply Chain Council. Another model is the SCM Model proposed by the Global Supply Chain Forum (GSCF). Supply chain activities can be grouped into strategic level, tactical, and operational. Process Classification Framework SM high-level, enterprise-neutral industrial process model that allows organizations to see their business processes from cross-industry perspective.

Beamon [1] provides list of literature that divide supply chain design into (1) Deterministic Analytical, (2) Stochastic Analytical, (3) Economic Models and (4) Simulation Method. Using simulation as supply chain design has advantage to evaluate proposed supply chain model without interfering current operation and make allot of possibility to improve.

3. RESEARCH METHODOLOGY

In order to design supply chain for Sentra Kaos Jalan Suci, we use simulation approach to simplified design and give us freedom to experiment on direct implication on parameter change. Flowchart of the research as figure 1.

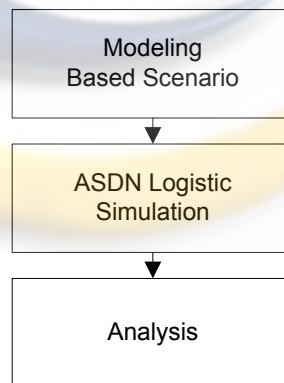


Figure 1 Research Flowchart

Modeling base scenario is conducted with using preliminary data from interview with company owner at Sentra Kaos Jalan Suci. Data that we gathered on this stage is current supply chain network, procurement system and production system. Then we make base model that captured current Sentra Kaos Jalan Suci supply chains. We make 2 proposed scenario from base model that include material cooperatives and subcontractor like figure 3 and 4.

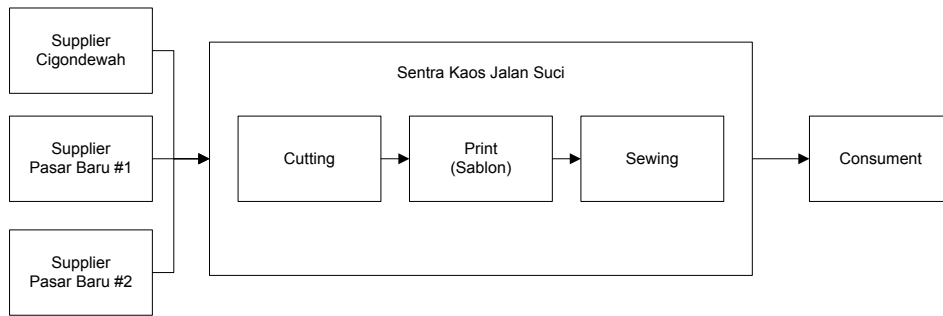


Figure 2 Base Scenario of Sentra Kaos Jalan Suci Supply Chain

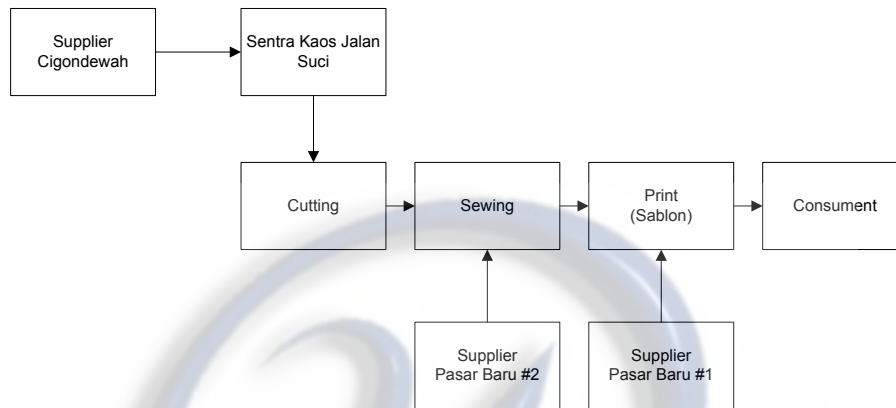


Figure 3 Subcontract Scenario

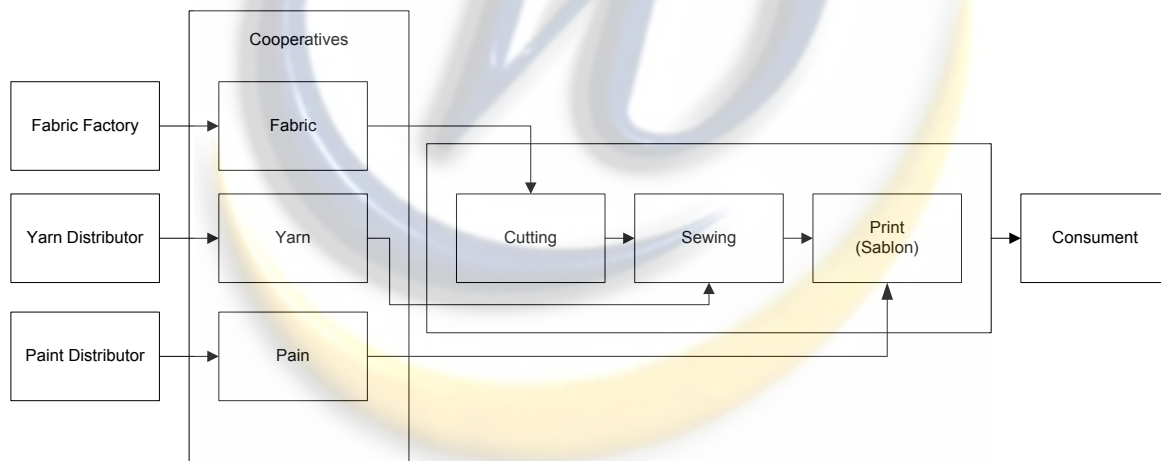


Figure 4 Cooperatives Scenario

Following tables 1, 2 and 3 contains data for supplier, manufacture (Sentra Kaos Jalan Suci) and Consument.

Table 1 Supplier Data

	Supplier		
	Cigondewah	Pasar Baru	Supplier Cat
Product	Fabric Cotton Combed 100%	Yarn Cotton 100%	Paint Netral AG
Price (Rp)	11000/1.1meter	2400/50meter	4150/ 250gram
Cost (Rp)	7000/1.1meter	2000/50meter	3500/ 250 gram

Table 2 Manufacture Data

Manufacture	Sentra Kaos Jalan Suci	Print (Sablon)
Product	T-Shirt	Printed T-Shirt
Price (Rp)	25000/ pcs	30000/ pcs
Cost (Rp)	19520/pcs	28000/ pcs
Lead-times	0.03 days	0.05 days

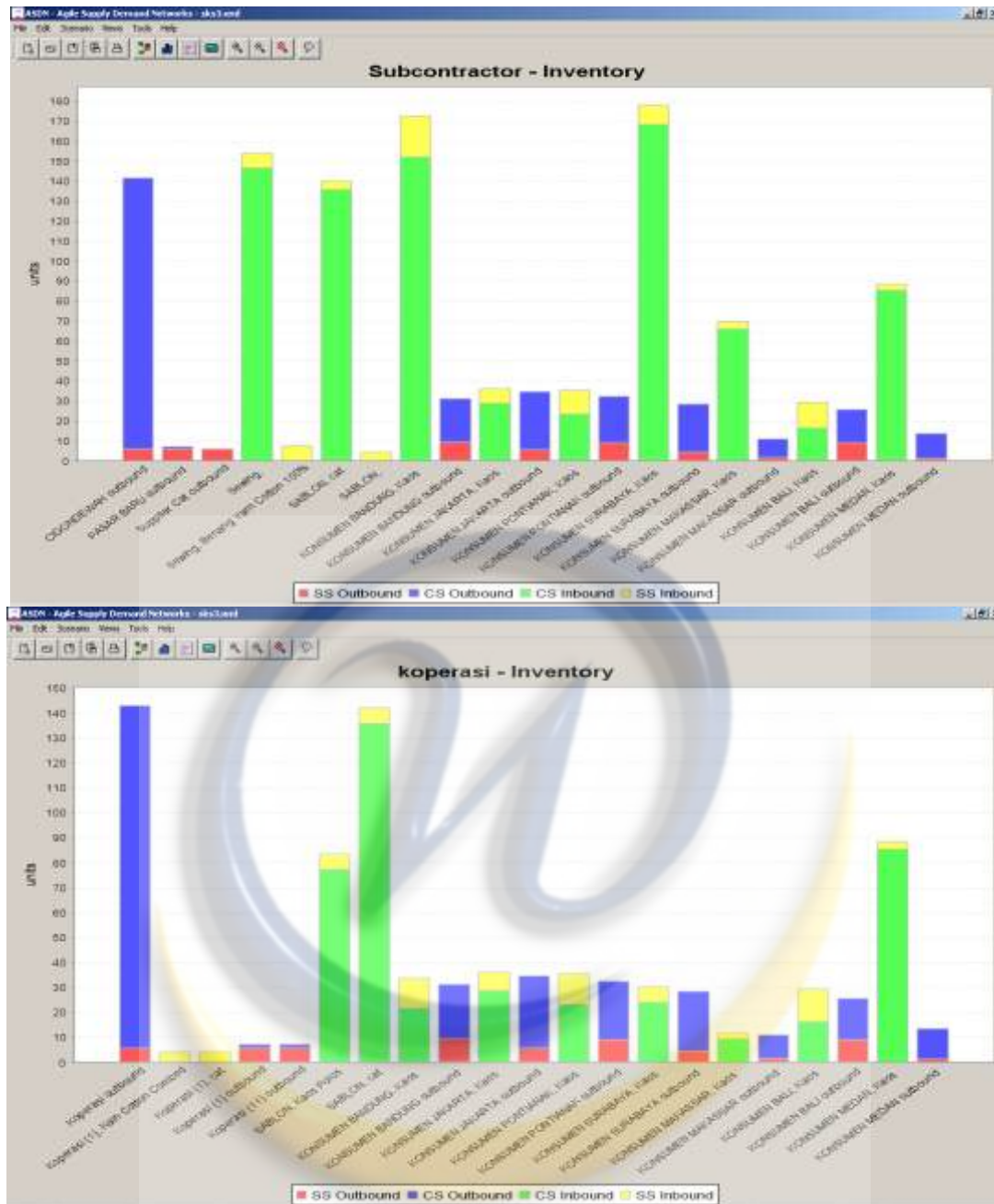


Figure 5 ASDN Model and Output Graph

Result that we have from simulation on three scenarios as shown on figure 6 are total lead times are 7 days for base scenario, 8 days for subcontractor scenario and 9 days for cooperatives scenario. For proposed procurement trough cooperatives not improve total lead times because cooperatives it self only change wholesaler actors from Cigondewah or Pasar Baru. We assumed that cooperatives supplier directly from textile manufacture from Bandung as Cigondewah but from simulation results effectiveness of cooperatives considered low.

On inventory parameters from figure 5 we can see that highest inventory on supplier sides Cigondewah Outbound and Koperasi Outbound for fabric material as primary material for t-shirt product. For company at Sentra Kaos Jalan Suci, highest inventory held by sablon (printing) because that activity is the last operation on making t-shirt including packaging and shipping. For consumer we can see that inbound inventory on some city because of high demand and transportation lead time, so consumer at city level (as sales distributor) have to make stock enough for their sales. Exceptionally from cooperatives scenario, we can see that most consumer have low inventory because company (Sentra Kaos Jalan Suci) become bottle neck for entire supply chain because of lack capacity and material from procurement.

7. CONCLUSION

Result of this research that current scenario lead-times are 7 days, procurement through cooperatives (Koperasi) and use of subcontractor not significantly improve. Highest inbound inventory level found at all retailers for current scenarios and procurement through “Koperasi” scenario at Koperasi itself. Supply chain strategy that we conclude for Sentra Kaos Jalan Suci Bandung is to keep high inbound inventory at expense high inventory cost to fulfill customer needs.

For future research we need to include other area in Bandung or West Java that small medium garment industry can share capacity and create collaborative supply chain.

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