

Analysis of Supply Chain Management on Audio System Product at CV. Cipta Mekar

M. Ilham Syahrul Arrazi¹, Eka Ludiya^{2*}

¹Student, Faculty of Economic and Business, Universitas Jenderal Achmad Yani, Cimahi, West Java 40531, Indonesia

²Lecture, Faculty of Economic and Business, Universitas Jenderal Achmad Yani, Cimahi, West Java 40531, Indonesia

*Corresponding Author:

Email: eka.ludiya@lecture.unjani.ac.id

Abstract.

This study aims to analyze the supply chain management performance of audio system products at CV. Create Bloom. Another objective is to find out the material flow, information flow, and product flow run by CV. Cipta Mekar. The research method used is descriptive qualitative, using purposive sampling technique. Data collection techniques in this study were observation, interviews and documentation. In addition, performance assessment is carried out using the Scor Model. The results showed that the material flow did not run properly. The flow of information with a circular communication pattern and the simultaneous dissemination of information did not go well. In the product flow there is a shortage of stock and there is no quality control process. The results of the Scor Model show that the daily inventory performance is not good. In this case, there are still many things that need to be improved in the supply chain management of audio system products on CV. Cipta Mekar.

Keywords: Supply Chain Management, Material Flow, Information Flow, Product Flow and Scor Model.

I. INTRODUCTION

The Organisation for Economic Co-operation and Development (OECD) has been predicted growth world economic will be drop until 1.5% on 2020 in the worst-case scenario. This supply chain management issue has two side causes of Corono virus. First, companies have difficult to monitoring both long-term and short-term demand and inventory closely due factories are closed and the economy is slowing. Social distancing regulation that has been implemented of government to suppress the rate of transmission of the Covid-19 outbreak have had a greater or lesser effect on economic activities in various sectors, including the electronic goods buying and selling sector. Even a number of electronic trading centers had to close their business activities for several months. The growth rate of the electronics market was quite hit by the Covid-19 outbreak [1].Supply chain management has been booming on the world business as a one of the main concern management company over the last decade [2]. The clear reason is 70% of company sales revenue, company average, had been spent it for supply chain activity from buying material until distribution and finish good service of end customer. Generally, the application of the Supply Chain Management concept in a company will provide the benefits namely customer satisfaction, increased income, reduced costs, higher asset utilization, increased profits, and a larger company.Production flow activity that CV. Cipta Mekar have been beginning from procurement that buying from supplier. Next the supply will be assembled become a finish good like CCTV, audio system, language laboratory, and the products will be delivered to customer with the service from CV. Cipta mekar.

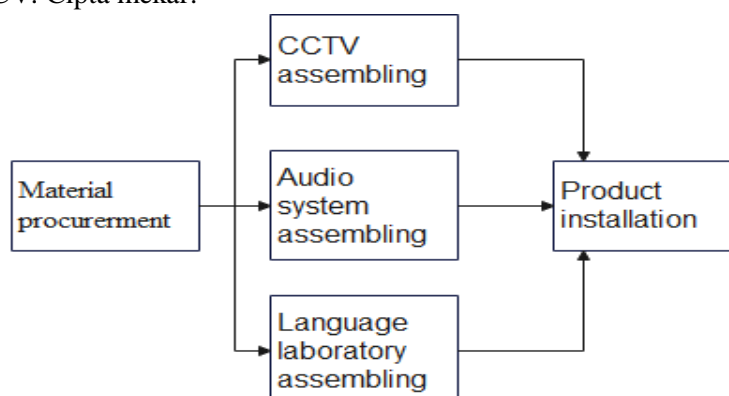


Fig 1. Production flow of CV. Cipta Mekar

On operational activities have the most problematic that is part of assembled audio system there are availability of raw material, delayed delivery of raw material and shortages of raw materials from suppliers, causing of the product flow to be hampered and consumer satisfaction to decrease due they have to wait for raw materials to become available. The following is data on suppliers of raw materials for audio system products at CV. Cipta Mekar. There's also have a problem with the availability of raw materials obtained in repair and replacement services for damaged audio system products due to misinformation between consumers and companies. Customer ignorance about they products request causes the flow information to be hampered. Problems with the availability of raw materials hamper repair and replacement services for damaged goods. Based on the description above, it shows that the central issue in this research is supply chain management activities for audio system products carried out by CV. Cipta Mekar was disrupted due to the availability of raw materials, product flow and information flow which was less effective and efficient.

II. METHODS

This research using qualitative research with a descriptive approach this method will analysis the object in depth to get more result that emphasize meaning rather than generalization, as well as describing the results that have been obtained from the CV. Cipta Mekar audio system products. This variable research will be developed into sub-variable, next sub-variable will be developed into indicator, this variable used as a guideline of interviews for obtained and collecting data for this research. Below is the table of operational variable for operationalization in supply chain management (SCM) analysis research for audio system products at CV. Cipta Mekar.

Table 1. Operational Variable

Variable	Variable Concept	Sub Variable	Indicator
Supply Chain Management	Supply chain management encompasses the planning and management of all supply chain operations. Importantly, it also includes the coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. Zijm, et all (2019)	Planning of supply chain management	
		1. Material Flow	a. Material flow activity objectives b. Factors considered in material flow activities c. Material flow activity procedures
		2. Product Flow	a. Product flow activity objectives b. Factors considered in product flow activities c. Product flow activity procedures
		3. Information flow	a. Information flow activity objectives b. Factors considered in information flow activities c. Information flow activity procedures
		Implementation of supply chain management	
		1. Material Flow	a. Implementation of material flow activities b. Factors considered in material flow activities c. Implementation of material flow activity procedures
		2. Product Flow	a. Implementation of product flow activities b. Factors considered in product flow activities c. Implementation of product flow activity procedures
		3. Information flow	a. Implementation of information flow activities b. Factors considered in information flow activities c. Implementation of information flow activity procedures
		Evaluation of supply chain management for audio system products. CV. Cipta	Comparing between planning and implementation of supply chain management on product audio systemat

Variable	Variable Concept	Sub Variable	Indicator
		Mekar	CV. Cipta Mekar
		Using model Supply Chain Operations Reference (SCOR)	Measuring supply chain management performance using the Supply Chain Operations Reference (SCOR) model.

On this research, population not important anymore, because researcher used qualitative methode as in researcher just used sample. Sample for this research is head of production department on CV. Cipta Mekar. Data collecting technique used a non-probability sampling with purposive sampling. Data source on this research is Mr. Somantri as owner CV. Cipta Mekar and Mr. Suarna as production staff. Main instrument on this research is the researcher with interviews observation and documentation for collecting data technique. After that, this study using a validity test and reliability test for measuring the data that has been obtained using triangulataion process.

Operation Management

Operations management is the area of management concerned with designing and controlling the process of production and redesigning business operations in the production of goods or services [3]. Operation management is a sequence of activity that cover the entire production process from input until turns into the desired output [4].

Supply Chain Management

Supply chain is the, outlines the requirements for excellence in these activities, and argues that integration (across functions, processes, and even organization is critical to success [5]. Supply chain based on material flow, information, finance and service from supplier [6].

Scor Model (Supply Chain Operations Reference)

With SCOR model companies can implement improvements in their processes quickly, meeting the needs of customers and as an important tool in the evaluation of activities and comparison of companies' performance in relation to the supply chain [7]. The SCOR is a reference model with standardized terminology and processes [8].

III. RESULT AND DISCUSSION

Supply Chain Management on CV. Cipta Mekar

Supplier (Chain 1)

Using third suppliers on CV. Cipta Mekar for fulfilled needs on assembled audio system including the following.

Table 2. Data *Supplier CV. Cipta Mekar Assembled Audio System*

No	Supplier	Raw Material
1	Komtronic Cimahi	Master Kontrol 30 Ch Komtronic Okay Educational
		CLASS SPEAKER 20 W Connector Preamplicifier Mic
2	AKNI Segitiga Emas Plaza Bandung	MIC DUDUK, Dynamic Mic
		Speaker Monitor
		Preamplicifier Mic
		Micropon Dinamic Shure SM 57/Setara
3	Giga Phone Plaza Bandung	Belden 8 Pin network cable
		Electrical network cable 0.75 x 2
		Connection cable Klem,T Dust

After get the supplier of component raw material for making audio system the next step is production.

Manufacture (Chain 2)

On this step there is a place for change the raw material become a finish good. Below is diagram of production step on CV. Cipta Mekar

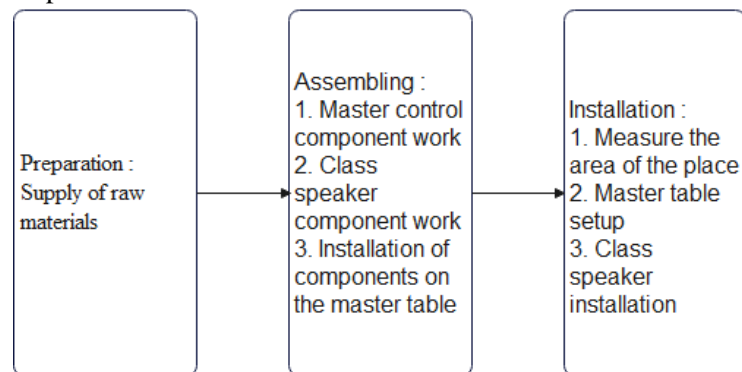


Fig 3. Diagram of Process Production for Audio System Production CV. Cipta Mekar

Konsumen (Chain 3)

On this step there is the last step of operational supply chain on CV. Cipta Mekar production audio system. Who customer gives the information of order quantity, before the companies do the order of raw material to supplier with production amount based on order quantity. After that do a purchase, several consumers become company partners to request repair and replacement services for damaged goods through the company's customer service

a. Planning of Material Flow Activities

Purpose of material flow activity including optimal production, decrease on the time process, and reduce the production damage. After that, factor that will be considered on material flow activity is availability raw material, speed of production, handling raw material, and process production. The last is procedure of planning material flow activity some of which consist of:

1. The company receives an order letter regarding the products and components ordered by consumers.
2. The company provide the budget letter containing a price list according to what the consumer ordered.
3. The customer does a down payment 50% from the price.
4. The logistics department details what raw materials are needed for the production process.
5. The logistics department places orders with raw material suppliers.
6. Supplier provides a note for payment for ordering raw materials
7. After payment has been made by CV. Cipta Mekar, the supplier delivers raw materials according to the time specified by CV. Cipta Mekar according to estimated travel time
8. After the raw materials arrive and are received by the logistics department. Then, checks are carried out if there are raw materials that do not match the order or order
9. After checking, the logistics department contacts the production department to confirm that the raw materials are ready for the assembly process.
10. The production department is ready to continue and process raw materials for production.

b. Planning of Information Flow Activities

the main purpose of information flow activities is supply chain product audio system CV. Cipta Mekar are give the information to all of element on supply chain to get the result such a valid information and accuracy. Furthermore, the factors considered in information flow activities include the wheel communication pattern by directing all information to each part of the company such as directors, supervision, production and logistics, and the circle communication pattern which allows all parts of the company to communicate with each other only through similar message repetition system. The last, the procedure for information flow activities includes the dissemination of information simultaneously, that is, if it is carried out jointly, the information must reach several parts of the company at the same time, and the dissemination of information sequentially, that is, each individual recipient of the information first interprets

the information they receive, then passes it on. the results of this information to the next individual in the company's series of positions.

c. Planning of Product Flow Activities

On the main purpose of product flow activities is gaining the profits maintaining the continuity of company activities, and increasing the quality and quantity of production. Furthermore, factors considered in product flow activities include product quality, nature of work, and entrepreneurship. Finally, product flow activity procedures include:

1. After production is complete, the product is checked by production staff. If the quality of the goods is appropriate, the production staff contacts the logistics department.
2. The logistics department checks the quantity of goods produced.
3. The logistics department makes deliveries to the consumer's address according to the time agreement between the company and the consumer.
4. Upon arrival, production staff will immediately come to the consumer's address to carry out product installation services.
5. After completion, the production staff checks the quality of the products that have been installed at the consumer's address
6. Production staff provide information regarding items that have been installed.
7. After the consumer gets the product ordered, the consumer pays the remaining 50% of the initial price.
8. After making payment, the product has arrived at the final consumer.

Implementation of Supply Chain Product Audio System on CV. Cipta Mekar

a. Implementation of Material Flow Activities

On the implementations of material flow activity had a problem such as the scarcity of raw material in supplier causes on Covid-19 pandemic, and staff production are more unemployed because company more often produces according to consumer orders so the company only carries out inventory with a small amount of stock. Furthermore, in the implementation of the factors considered in material flow activities, problems occur, namely raw materials are not met due to scarcity which makes the production process hampered, while the speed of production and handling of raw materials is good because the company's employees have qualified skills and appropriate equipment. standards in the assembly process. Lastly, the implementation of material flow activity procedures is in accordance with what was planned.

b. Implementation of Information Flow Activities

The aim of implementing information flow activities is to maintain communication between each part of the company so as to produce valid and accurate information. Furthermore, from the factors considered in information flow activities, problems arise in the circle communication pattern where not all parts can access the information, while the wheel communication pattern is appropriate. Lastly, the implementation of information flow activity procedures related to the simultaneous dissemination of information and the dissemination of information sequentially is in accordance with what was planned

c. Implementation of Product Flow Activities

In the aim of implementing product flow activities there are problems, namely the amount of production does not increase and there is no opportunity to improve product quality, because the stock of goods only uses a small amount of inventory. Furthermore, the factors considered in product flow activities include errors in the production process due to human error and the absence of a quality control process in the company. Lastly, the implementation of product flow activity procedures is in accordance with what was planned.

Evaluation Supply Chain Management of Product Audio System CV. Cipta Mekar

Evaluation is carried out by comparing whether the implementation is in accordance with what has been planned. Overall, it has not gone well, because there are still discrepancies between implementation and planning. Based on the results of the discussion regarding Supply Chain Management for audio system products. CV. Cipta Mekar which includes planning, implementation and evaluation of material flow activities, information flow, as well as product flow, there is a mismatch between planning and

implementation. Among them, there is a shortage of raw materials, scarcity of raw materials, unavailability of raw materials, uneven distribution of information, and the absence of a quality control process.

Performance Measurement Using the Score Model

The SCOR (Supply Chain Operations Reference) model is used to measure CV supply chain performance. CV. Cipta Mekar so that it can improve performance and communicate to the parties involved in it.

Level 1 (Types of Processes)

Level 1, is the stage of defining the scope and content of the SCOR model which is used to measure supply chain performance. Cipta Mekar audio system products.

In measuring it, researchers used several general dimensions from the SCOR version 10.0 model as attributes of supply chain performance, including (Ishak, 2019):

1. Reliability

Reliability is the ability to carry out work as expected, such as on time, quality according to the required standards and quantities as requested.

2. Responsibility

Responsibility is speed in carrying out work, measured, among other things, in the order fulfillment cycle time.

3. Flexibility

Flexibility, namely the ability to respond to external changes in order to remain competitive in the market. Measuring tools include flexibility and adaptability.

4. Cost

Costs are costs for carrying out supply chain processes. Includes labor costs, material costs, transportation costs and storage costs. Measuring tools include the cost of good sold.

5. Assets

Assets, namely the ability to utilize assets productively, include, among other things, low inventory levels and high capacity utilization

Level 2 (category of processes)

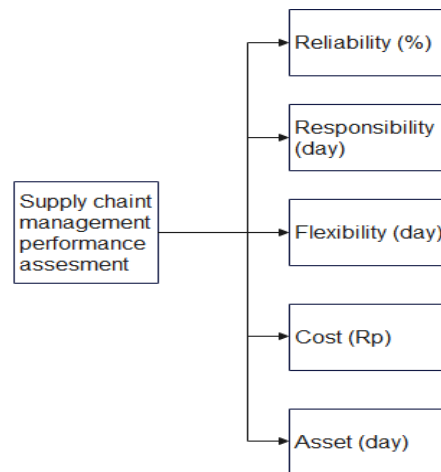
Level 2, is the configuration stage. Each core process in SCOR will be shown in more detail than the company's supply chain processes.

Tabel 3. Perhitungan Metrik-metrik Kinerja untuk Model SCOR

Attribute	Definitions	Unit	Measurement Steps
Reliability	Order fulfillment is the number of requests, fulfilled without waiting, measured for each type of product.	Percent	Number of requests fulfilled/total requests.
	Delivery performance is the percentage of deliveries on time that corresponds to the consumer's order date and/or the date the consumer desires.	Percent	Total delivery on time/total consumer orders
Responsibility	Order fulfillment cycle.	Day	Production cycle
	Fulfillment lead time is an explanation of the time required by the company to meet consumer demand from supplier to hand consumer.	Day	Waiting time for order fulfillment
Fleksibility	The time required to respond if there is an unexpected order, either increasing or decreasing the order without incurring a penalty fee.	Day	The number of sourcing cycles, manufacturing cycles, shipping cycles, lead times
Cost	The total costs incurred by the company in carrying out material handling from suppliers to consumers	IDR	Total costs from plan, source, make, deliver, return
Asset	Cash to Cash cycle	Day	Average time for consumers to pay
	Daily inventory for suppliers	day	Storage time

Source: Indriani, 2019 [9]

Below is the hierarchy of supply chain management performance assessment for audio system products at CV. Cipta Mekar



Level 3 (Elements of processes)

Level 3, is the decomposition stage. The processes in the supply chain are elements that define a company's ability to compete.

The production cycle starts from procuring raw materials, making and sending, which takes 7 days. Order fulfillment time starts from ordering until it reaches the consumer's hands takes 15 days. Furthermore, if there is an unexpected consumer request, the company is able to fulfill the order and send it within 3 days. The cost incurred by the company to produce an audio system with 12 class speaker units is IDR 8,150,000. Consumer payment time is no later than 1 day after installation. Procurement of daily supplies lasts for 15 days if there are no orders from consumers so that the company remains productive. Then, order fulfillment and delivery performance are in accordance with the flow discussion, CV. Cipta Mekar is able to fulfill consumer orders and deliver according to orders, resulting in perfect order fulfillment and delivery performance of 100%.

The next stage is benchmarking by means of a process of comparing performance measures with company standards or previous research data.

Tabel 4. Data Benchmark

No	Attribute	Indicator	Data Benchmark		
			Parity	Advantage	Superior
1	Reliability	Perfect order fulfillment	85%	90%	95%
		Delivery performance	85%	90%	95%
2	Responsibility	Production cycle	13-15 days	9-12 days	≤ 8 days
		Lead time	25 days	20 days	15 days
3	Fleksibility	Volume of fleksibility	5 days	3 days	≤ 1 days
4	Asset Management	Cash to cash cycle	30 days	20 days	10 days
		Daily inventory	7 days	5 days	3 days

Source: Suud et al., (2021) [10]

Level 4 (Implementation)

Level 4, is the implementation stage which maps out specific implementation programs and defines behaviors to achieve competitive advantage and adapt to changes in company conditions. The following is a table of comparison results of performance attributes and SCOR benchmarking in the supply chain management of audio system products at CV. Cipta Mekar

Tabel 5. Comparison of Performance Attributes and SCOR Benchmarking in supply chain management of audio system products at CV. Cipta Mekar

No	Attribute	Indicator	Actual Data	Data Benchmark		
				Parity	Advantage	Superior
1.	Reliability	Perfect order fulfillment	100%	85%	90%	95%
		Delivery performance	100%	85%	90%	95%
2	Responsibility	Production cycle	7 days	13-15 days	9-12 days	≤ 8 days
		Lead time	15 days	25 days	20 days	15 days

No	Attribute	Indicator	Actual Data	Data Benchmark		
				Parity	Advantage	Superior
3	Fleksibility	Volume of fleksibility	3 days	5 days	3 days	≤ 1 day
4	Asset Management	Cash to cash cycle	1 day	30 days	20 days	10 days
		Daily inventory	15 days	7 days	5 days	3 days

From the explanation at the previous level of the process, it can be seen that the supply chain performance of audio system products at CV. Cipta Mekar based on reliability, responsibility, flexibility and asset management is quite good because it is at a superior standard to the benchmark data except for the 15-day inventory indicator which is not included in the benchmark data.

IV. CONCLUSION

The results of this research indicate that the supply chain management of audio system products. CV. Cipta Mekar which includes planning, implementation and evaluation of material flow activities, information flow, as well as product flow, there is a mismatch between planning and implementation. Among them, there is a shortage of raw materials, scarcity of raw materials, unavailability of raw materials, uneven distribution of information, and the absence of a quality control process. Meanwhile, assessment of supply chain management performance for audio system products. CV. Cipta Mekar with the SCOR model based on reliability, responsibility, flexibility and asset management is quite good because it is at a superior standard to the benchmark data except for the 15-day inventory indicator which is not included in the benchmark data.

The suggestions given by researchers regarding the implementation of supply chain management for audio system products at CV. Cipta Mekar, are as follows:

1. Increase the number of suppliers as an alternative if there is a shortage of raw materials at the main supplier. This is to prevent shortages of raw material supplies and shortages of raw materials at suppliers which can hamper the material flow process in the audio system production process.
2. CV. Cipta Mekar is expected to pay more attention to communication between employees as well as all elements of the supply chain. So that the flow of information can run smoothly and information can be conveyed evenly.
3. It is recommended to add a quality control process or add a quality control department to the company, to prevent product damage and ensure product quality.

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