

ANTECEDENT OF SUPPLY CHAIN PERFORMANCE IN FMCG COMPANIES

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ABSTRACT

This study aims to measure the effect of supply chain performance and share information on direct variables that affect supply chain performance in the fast moving consumers goods (FMCG) industry. The independent variables used are demand-side operational coordination, coordination of supply operational decisions, procurement digitalization, ability to analyze data, supply chain visibility, supply chain agility and supply chain collaboration. The sample in this study was 77 respondents from the logistics, warehouse, distribution, and supply chain divisions. The data analysis model used is the structural equation model (SEM). Therefore, this study examines demand-side operational coordination, coordination of supply operational decisions, procurement digitalization, ability to analyze data, supply chain visibility, supply chain agility and supply chain collaboration. Results this study is that there are several direct variables that have a positive influence on supply chain performance and there are also direct variables that have a negative influence on supply chain performance. The indicators in this study are adjusted to the criteria of the fast moving consumers goods (FMCG) business itself.

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1. INTRODUCTION

In business activities, companies in their operational activities definitely need *good supply chain management (SCM)* to support the supply of goods or services so that products reach consumers. These activities include producing raw materials owned which will be managed into finished goods to distribution to second and third hands which will be sold to consumers. Supply chain management manages the distribution process must move smoothly in order to gain competitive advantage and customer satisfaction. Therefore, supply chain management has an important role for the flow of goods to consumers and affects customer satisfaction.

Supply chain is a very important activity in the company's workflow, in order to regulate the flow of goods starting from the production of *raw materials* until the product is received by consumers. Furthermore, supply chain management must be supported by a good system and it takes hard work of the team to take actions that can improve the quality of good supply chain performance so that the company's goal is to produce quality products by delivering safe and timely products to increase customer satisfaction. Supply chain management is implemented so that a company provides accurate and timely information and overcomes uncertainties such as product demand, delays in raw material supply, and distribution processes. Therefore, supply chain management in its application is aimed at making the logistics work process more effective and efficient. The results of the evaluation can be used as a starting point for the company to make improvements and improvisations

However, it is often found that supply chain management does not match both the quantity, specifications which result in decreased customer satisfaction. Therefore, several companies have improved coordination between divisions and utilized digitalization systems to optimize supply chain management to consumers. Furthermore, by improving the comprehensive supply chain management system, it is expected to improve performance so that the quality of supply chain performance will increase and ultimately can increase company *value*. In addition to the key to winning the competition is products at low prices, *supply chain management* is important for companies. In order to produce effective company advantages, companies must be able to digitize integrated systems. This is the basis for improving the quality of *effective supply chain management* and can reduce or eliminate activities that have no added value (*value added*).

The current dispute requires improvement both internally and externally. The quality of products received by consumers does not only depend on the quality of production but is influenced by other parties, such as transporters and so on. For principal companies that produce their own products to be sold to

distributors, quality distribution to distributors is very important (Such as PT. X which is the object of this study). For this reason, the principal company must have standards to find out whether the products sent to distributors are of good quality. By using *KPI Distribution Performance*, companies can find out the quality of *supply chain management*. *KPI chain management* reflects quality by showing indicators from various assessments, including; *Truck availability*, On Time at Customers, Breakages value, Distribution cost . Thus, it can be known whether the supply chain quality system owned by the company is good or not. If the needs of trucks, punctuality of delivery are not as agreed, there is high product damage and high distribution costs, there is a distribution system error (ineffectiveness) because it results in decreased *company value* to customers. Therefore, *KPI supply chain management* can be used to detect the level of quality of a company's supply chain system.

However, as explained earlier, currently the success of the company's distribution is not only determined by a good digitization system, but also external factors such as transporters, warehouse teams, distributors and government policies related to the distribution process must also be considered. Awareness of successful and quality distribution is in a process called *supply chain management* (SCM).

Supply chain is a network of companies that jointly work to create and deliver a product into the hands of the final eater, which includes suppliers, distributor factories, shops or retailers, as well as supporting companies such as logistics or warehousing services. In the *supply chain* there are 3 (three) that must be considered and managed, namely the first is the flow of goods from upstream to downstream, for example raw materials sent from suppliers to factories, after production is sent finished being sent to distributors, retailers, then to end users. While the second is the flow of money and the like that flows from downstream to upstream, and the third is the flow of information that can occur from upstream to downstream or vice versa (Pujawan, 2005). Therefore, *supply chain management* is not only oriented to the company's internal, but also the company's external affairs that involve relationships with *partner companies*. *Supply chain management* is a method of integrated activities between divisions or companies with the spirit of collaboration. Partner companies involved in the *supply chain* process in terms of supplying raw materials, storing products, and delivering products to end users. Thus, seeing the high complexity of the distribution process, digitalization of the distribution system is expected to be a solution for PT. X to increase competitiveness through quality timely product distribution with good product quality.

Based on the description above, it is very interesting to know which factors affect the performance of the supply chain carried out by PT X as the principal company of *fast moving consumers goods* (SCM) products enjoyed by customers. By using several methods and concepts about *supply chain management*, it is interesting to see observe and analyze at PT X

2. LITERATURE REVIEW

Supply chain is an organizational system in which there is a participation in carrying out various activities, which include information, funds and other resources that are mutually equivalent in the movement of a product or service from suppliers to consumers or customers (Putradi, 2017). According to (Radhi & Hariningsih, 2019) the physical network supply chain, namely all companies that play a role in supplying raw materials, producing goods, to sending them to consumers / end users.

Based on the opinions of the experts above, it can be concluded that the supply chain is a network system in which there are various activities ranging from supplying raw materials to sending them to customers.

According to Simchi-Levi et al in (Radhi & Hariningsih, 2019), Supply chain Management is a series of approaches used to integrate suppliers, manufacturers, warehouses and stores effectively so that inventory can be produced and distributed in the right quantity, to the right location, and at the right time so that the cost of the entire system can be minimized with the aim of satisfying needs and services. Meanwhile, according to Ballou in (Riadi, 2017) Supply Chain Management is a network of organizations that are interconnected and need each other and also they work together to manage, supervise, and improve the flow of commodities and information from the point of supplier to the end user. And in his opinion (Anindita, 2019) Supply Chain Management is a series of activities needed to plan, control, and run product flows in the most efficient and cost-effective way.

Based on the above opinion, it can be concluded that Supply Chain Management is a system used to manage, supervise, and regulate procurement activities, inventory to the delivery of goods to consumers by paying attention to the quality of goods, timeliness, location accuracy, minimum possible costs.

Strategies are covered in different aspects to contribute to the overall outcome. Here are the strategies commonly used in building supply chains (Riadi, 2017):

- a. Building supplier relationships to build strategic partnerships with suppliers is critical to supply chain success. Companies provide limits on the number of their suppliers by implementing seller or vendor evaluation programs. These programs seek to find suppliers who have operational excellence, so that customers can determine suppliers who can serve them well. Having a closer relationship with suppliers is very important because suppliers will be easier to work with.
- b. Improve customer response to remain competitive, the company focuses on supply chain improvement efforts to improve customer service by having superior products. The demand to increase the level of customer service is the direction of partnership between customers and sellers. Having a successful relationship with a supplier is a result of trust as well as the ability to encourage customers, closeness to customers and customer focus.
- c. Build a competitive advantage for product-oriented channels
Achieving and maintaining a competitive advantage in an industry is not easy for companies. Many competitive pressures force companies to remain efficient. It also serves to increase influence on the channel as these companies are recognized as leading and treated with respect.
- d. Introducing SCM solutions and enabling information technology
Information is critical to operating a supply chain effectively. The communication capabilities of an enterprise are enhanced by information technology systems. However, information system compatibility between trading partners may limit the ability to exchange information. An improved information technology system is urgently needed in which partners in the channel have access to a common database that is updated in real time. In addition to the strategies used to build a better and systemized supply chain, there are also strategies that companies can choose in making purchases to suppliers / suppliers.

There are five strategies that companies can choose to make purchases to suppliers, including (Fauzi, 2013):

1. Many Suppliers

This strategy plays between one supplier and another supplier and charges suppliers to meet buyer demand. Suppliers compete with each other for customers. Although many negotiation approaches are used in this strategy, long-term relationships are not the goal. In this approach, the onus falls on the supplier to maintain technology, expertise, forecastability, price, quality as well as delivery.

2. Few Suppliers

In this strategy, the company enters into long-term relationships with committed suppliers. Because in this way, suppliers tend to better understand the broad goals of the company as well as the end consumer. The use of just a few suppliers can create value by allowing suppliers to have economies of scale resulting in lower transaction costs and production costs. Bad supplier performance is one of the risks faced by buyers so buyers must pay attention to the trade secrets of suppliers who do business outside the joint business.

3. Virtual Company

Maya relies on a variety of supplier relationships to provide services in times of need. Virtual companies have organizational boundaries that are not fixed and also moving, allowing the creation of unique companies to be able to meet market demands that often tend to change. Relationships can be short-term or long-term, true partners or collaborations, and suppliers or subcontractors. Whatever the form of the relationship, it is expected to produce a sleek, world-class performance. Benefits include specialized management skills, low capital investment, flexibility and speed. The expected result is efficiency.

According to (Pujawan, 2005) there are challenges that must be faced in managing supply chains, namely:

1. The complexity of the supply chain structure
 - a. Involving many parties with different interests
 - b. Differences in language, time zone and culture between companies
2. Uncertainty
 - a. Demand uncertainty
 - b. Uncertainty of supply: delivery time, price as well as quality of goods
 - c. Internal uncertainty: uncertainty of product quality.

To deal with the problem of order uncertainty in the supply chain or bullwhip effect, it is necessary to share information along the supply chain, optimize inventory levels, create supply chain teams, measure

supply chain performance, and build coordination and collaboration among business partners so that the process of delivering products from suppliers to companies and to consumers can run smoothly and enable companies to achieve low inventory costs. Meanwhile, according to (Fitzsimmons & Mona, 2006), the challenge in supply chain management is when balancing customer delivery needs appropriately by pushing production costs and inventory costs. Supply chain management modeling allows managers to evaluate options that will deliver the greatest increase in customer satisfaction at an affordable cost.

(Schroeder & Goldstein, 2018) say that measuring supply chain performance is the first step towards improvement. An initial stage that needs to be determined and determined to be able to achieve the goal of improvement. (Schroeder & Goldstein, 2018) suggests that in general there are five important points that can be measured in supply chain management performance, namely:

1. Delivery

Pointing to the timeliness of delivery: the percentage of orders shipped completely and not past the date requested by the customer.

2. Quality

A direct measure of quality is customer satisfaction that can be measured in several ways. The first way is measured against what customers expect, the second is measured based on the sense of satisfaction felt by customers related to products and services, and the third is customer loyalty which can be measured by the percentage of consumers who continue to make purchases continuously after the first purchase.

3. Time

The total replenishment time can be calculated directly from the inventory level. Whether based on minimum inventory for all inventory or based on certain contracts with suppliers. This inventory replenishment can be seen from each item of goods that are most purchased by consumers / customers or types of goods that often run out.

4. Flexibility

Flexibility is the time it takes to change the volume or mix of products by a certain amount or percentage. Which is fast in handling requests for changes in the volume of goods or changes in the time of ordering these goods with satisfactory service because of its short preparation. Flexibility can be directly increased by adding capacity, purchasing more flexible equipment, training workers to perform a wider range of tasks, or redesigning products or services for high variation.

5. Cost

The way to measure costs is that companies can measure total costs including distribution costs and recorded inventory costs. Distribution costs are costs incurred by the company to market goods or promotions, and for recorded inventory costs are related to the maintenance of goods in inventory, such as capital costs incurred to purchase inventory items, storage costs, and loss costs due to theft and damage associated with storing goods in inventory.

3. METHOD

This study used a quantitative research approach. Quantitative research is a study that basically uses a deductive-inductive approach. This approach departs from a theoretical framework, expert ideas, and researchers' understanding based on their experience, then developed into problems posed to obtain justification (verification) or rejection in the form of empirical field data documents

The quantitative approach aims to test theories, establish facts, show relationships between variables, provide statistical descriptions, assess and forecast results. Research designs that use quantitative approaches must be structured, standardized, formal and designed as carefully as possible beforehand. Design is specific and detail because design is a research design that will be carried out actually

This study is to examine the effect of Variable X (System Digitalization) on Y (Distribution Effectiveness)

4. RESULT AND DISCUSSION

Fit model testing for the SEM-PLS model is shown by the value of the coefficient of determination where the processing results are shown in table 4.13. From the table, the R square adjusted value of 0.533 means that variations of independent variables, namely Permittaan Side Operational Coordination, Supply Operational Decision Coordination, Digitalization Procurement Ability, Big Data Analysis Ability, Supply

Chain Visibility, Supply Chain Agility and Supply Chain Collaboration are able to explain variations of the dependent variable, namely Supply Chain Performance by 53.3% while the remaining 46.7% are variations of variables other independents that influence Supply Chain Performance but are not included in the model. For (micro) behavioral models this R square adjusted value is acceptable.

Table 1. *Coefficient Determination*

Model	R Square	R Square Adjusted
Kinerja Rantai Pasokan	0.576	0.533

Hypothesis testing is used to determine whether or not there is an influence between *the independent variable and the dependent variable*. H0: influencing variable, does not have a significant effect on the affected variable H1: influencing variable, has a significant effect on the affected variable. The basis for decision making is as follows:

1. If the probability (significance) $\alpha > 0.05$ then H0 is accepted
2. If the probability (significance) $\alpha < 0.05$ then H0 is rejected and H1 is accepted.

The results of hypothesis testing on each variable are as follows:

Tabel 2. Hasil Uji hipotesis

	Hipotesis	Koefisien	T _{hitung}	P-value	Decision
H ₁	Koordinasi Operasional Sisi Permintaan berpengaruh positif terhadap Kinerja Rantai Pasokan	0.015	0.078	0.469	Hipotesis tidak didukung
H ₂	Koordinasi Keputusan Operasional Pasokan berpengaruh positif terhadap Kinerja Rantai Pasokan	0.080	0.591	0.277	Hipotesis tidak didukung
H ₃	Kemampuan Pengadaan Digitalisasi berpengaruh positif terhadap Kinerja Rantai Pasokan	0.089	0.594	0.276	Hipotesis tidak didukung
H ₄	Kemampuan Menganalisis Big Data berpengaruh positif terhadap Kinerja Rantai Pasokan	0.156	0.924	0.178	Hipotesis tidak didukung
H ₅	Visibilitas Rantai Pasokan berpengaruh positif terhadap Kinerja Rantai Pasokan	-0.010	0.067	0.473	Hipotesis tidak didukung
H ₆	Ketangkasan Rantai Pasokan berpengaruh positif terhadap Kinerja Rantai Pasokan	0.232	1.884	0.030	Hipotesis didukung
H ₇	Kolaborasi Rantai Pasokan berpengaruh positif terhadap Kinerja Rantai Pasokan	0.383	3.539	0.000	Hipotesis didukung

Based on table 2 of the results of the hypothesis test, it can be concluded as follows:

H1: Demand-side operational coordination has an influence on supply chain performance

Hypothesis 1 was conducted with the aim of testing Demand-Side Operational Coordination to positively affect Supply Chain Performance. From the processed results, an estimated coefficient of 0.015 is obtained, which means that increasing Demand-Side Operational Coordination will improve Supply Chain Performance and conversely, decreasing Permit-Side Operational Coordination will reduce Supply Chain Performance. The p-value of the statistical t of 0.469 > 0.05 then Ho is accepted so that the hypothesis that Demand-Side Operational Coordination has a positive effect on Supply Chain Performance is not proven.

H2: Coordination of Supply Operational Decisions has an influence on supply chain performance

Hypothesis 2 was carried out with the aim to test the Coordination of Supply Operational Decisions to positively affect Supply Chain Performance. From the processed results, an estimated coefficient of 0.080 is obtained, which means that increasing Coordination of Supply Operational Decisions will improve Supply Chain Performance and conversely, decreasing Coordination of Supply Operational Decisions will reduce

Supply Chain Performance. The p-value of the statistical t of $0.277 > 0.05$ then H_0 is accepted so that it can be concluded that the hypothesis that Coordination of Supply Operational Decisions has a positive effect on Supply Chain Performance is not proven.

In Hypotheses 1 and 2 that demand-side operational coordination and supply operational decision coordination do not directly affect supply chain performance, this can be interpreted that although the company coordinates demand-side and coordinates supply-operational decisions, if the company does not have agility in the supply chain, the results of coordination cannot work, So that supply chain performance will not satisfy customers

H3: Digitalization procurement capabilities have an influence on supply chain performance

Hypothesis 3 was carried out with the aim of testing the Procurement Capability of Digitalization to positively affect Supply Chain Performance. From the processed results, an estimated coefficient of 0.089 is obtained, which means that increasing Digitalization Procurement Capability will improve Supply Chain Performance and conversely, decreasing Digitalization Procurement Capability will reduce Supply Chain Performance. The p-value of the statistical t of $0.276 > 0.05$ then H_0 is accepted so that the hypothesis that states the Procurement Ability of Digitalization has a positive effect on Supply Chain Performance is not proven.

H4: The ability to analyze big data has an influence on supply chain performance

Hypothesis 4 was conducted with the aim of testing the Ability to Analyze Big Data to positively affect Supply Chain Performance. From the processed results, an estimated coefficient of 0.156 is obtained, which means that increasing the Ability to Analyze Big Data will improve Supply Chain Performance and vice versa, decreasing the Ability to Analyze Big Data will reduce Supply Chain Performance. The p-value of the statistical t of $0.178 > 0.05$ then H_0 is accepted so that the hypothesis that states the ability to analyze big data positively affects supply chain performance is not proven.

H5: Supply chain visibility has an influence on supply chain performance

Hypothesis 5 was conducted with the aim of testing Supply Chain Visibility to positively affect Supply Chain Performance. From the processed results, an estimated coefficient of -0.010 is obtained, which means that increasing Supply Chain Visibility will reduce Supply Chain Performance and conversely, decreasing Supply Chain Visibility will increase Supply Chain Performance. These findings show that the hypothesis that Supply Chain Visibility has a positive effect on Supply Chain Performance is not proven.

H6: Supply chain agility has an influence on supply chain performance

Hypothesis 6 was conducted with the aim of testing Supply Chain Agility to positively affect Supply Chain Performance. From the processed results, an estimated coefficient of 0.232 is obtained, which means that increasing Supply Chain Agility will improve Supply Chain Performance and conversely, decreasing Supply Chain Agility will reduce Supply Chain Performance. The p-value of the statistical t of $0.030 < 0.05$ then H_0 is rejected and H_a is accepted so that the hypothesis that states Supply Chain Agility has a positive effect on Supply Chain Performance is proven.

H7: Supply chain collaboration has an influence on supply chain performance

Hypothesis 7 was conducted with the aim of testing Supply Chain Collaboration to positively affect Supply Chain Performance. From the processed results, an estimated coefficient of 0.383 is obtained, which means that increasing Supply Chain Collaboration will improve Supply Chain Performance and conversely, decreasing Supply Chain Collaboration will reduce Supply Chain Performance. The p-value of the statistical t of $0.000 < 0.05$ then H_0 is rejected and H_a is accepted so that the hypothesis that states Supply Chain Collaboration has a positive effect on Supply Chain Performance is proven

5. CONCLUSION

Demand-side operational coordination has no effect on supply chain performance. Coordination of operational supply decisions has no influence on supply chain performance. Procurement digitalization has no effect on supply chain performance. The ability to analyze data has no effect on supply chain performance. Supply chain visibility has no effect on supply chain performance. Supply chain agility has a positive and significant influence on supply chain performance. Supply chain collaboration has a positive and significant influence on supply chain performance.

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