

MAPPING IDEA & LITERATURE FORMAT | RESEARCH ARTICLE

Analysis of Challenges and Optimization Strategies for Supply Chain Management at Aplus Market Stores through a Supply Chain Management (SCM) Approach

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ABSTRACT

Supply chain management is a crucial element in improving the efficiency and effectiveness of company operations, including managing the distribution of basic necessities. This study aims to analyze the supply chain management strategies implemented at Aplus Market Stores in addressing supply challenges, such as price fluctuations, government policies, and other external disruptions. The research method used was a qualitative approach using observation and in-depth interviews with store owners and employees. The results indicate that the implementation of structured Supply Chain Management can reduce delivery delays, avoid excess or shortages of stock, and improve procurement accuracy. In conclusion, strengthening coordination with suppliers and using a more accurate stock recording system has proven effective in maintaining supply stability at Aplus Market Stores.

Keywords: Supply Chain Management, Supply Chain Management, Aplus Market Stores, Groceries Stock Control.

I. Introduction

In an era marked by rapid globalization, technological advancement, and increasingly intense market competition, businesses across various sectors are facing the need to adapt swiftly to dynamic changes. The retail industry is particularly affected by these shifts, as it directly interacts with consumers whose preferences and demands are constantly evolving. In this context, local retail businesses such as Aplus Market must not only offer competitive prices and high-quality products, but also ensure that the right products are available at the right time and place. This demands an efficient and responsive Supply Chain Management (SCM) system. Supply Chain Management is defined as the integrated planning, coordination, and control of all processes involved in sourcing, procurement, production, inventory, and distribution of goods from suppliers to end consumers (Chopra & Meindl, 2016). SCM focuses on maximizing customer value and achieving a sustainable competitive advantage by streamlining operations and fostering collaboration among all actors within the supply chain. In retail, effective SCM is critical to ensure product availability, minimize costs, and enhance customer satisfaction. Aplus Market, located in Siambut Umbut, East Kisaran, Asahan Regency, North Sumatra, is a small-scale retail store that sells staple foods and household goods. The business began as a sole

proprietorship and has since expanded to employ three staff members. Despite its growth, Aplus Market faces various operational challenges, particularly in managing its supply chain. These challenges include frequent stockouts, excess inventory, delivery delays, and reliance on manual inventory management systems.

While large retail corporations often have access to sophisticated SCM systems, small and medium-sized enterprises (SMEs) like Aplus Market frequently operate with limited resources. This often leads to fragmented supply chain processes, inefficient coordination with suppliers, and poor visibility into stock levels and customer demand patterns. At Aplus Market, several key supply chain issues have been identified:

- a. **Stock Imbalances:** There are frequent instances where high-demand products run out of stock, leaving customers dissatisfied and potentially driving them to competitors. On the other hand, low-demand items accumulate in storage, leading to financial losses, wasted shelf space, and the risk of product expiration.
- b. **Delivery Delays:** Products from suppliers do not always arrive on time, which further exacerbates the issue of stockouts. These delays are often due to poor communication with suppliers, lack of tracking systems, and unpredictable transportation logistics.
- c. **Manual Inventory Management:** Aplus Market continues to rely on handwritten logs and manual counts to track inventory. This outdated system is prone to errors, time-consuming, and lacks the real-time visibility necessary to make proactive business decisions.
- d. **Communication Breakdowns:** A lack of effective communication between store staff and suppliers contributes to misaligned expectations, delayed responses, and inefficient restocking processes. Without timely information exchange, the store is unable to adjust quickly to changes in demand or supply disruptions.

These issues are not unique to Aplus Market; they are common across many local retail businesses in developing regions. However, the cumulative impact of these inefficiencies can significantly affect business sustainability, customer loyalty, and long-term growth. Given the challenges above, optimizing supply chain operations is crucial for ensuring operational continuity and enhancing customer satisfaction. An optimized supply chain minimizes costs associated with overstocking and understocking, ensures product availability, and improves responsiveness to market changes. It also enables better coordination with suppliers and provides real-time insights into sales trends and inventory turnover rates. Studies have shown that supply chain efficiency has a direct correlation with customer satisfaction and profitability in the retail sector (Mentzer et al., 2001; Christopher, 2016). For SMEs, adopting even basic elements of SCM such as demand forecasting, supplier coordination, and inventory control can lead to measurable improvements in performance. The introduction of digital inventory systems, periodic stock reviews, and supplier performance evaluations are some of the low-cost yet impactful strategies that can be implemented. Moreover, supply chain disruptions caused by external factors such as fuel price volatility, government regulations, or natural disasters can further expose the vulnerability of poorly managed supply chains. In this sense, SCM is not only about operational efficiency but also about resilience and adaptability in the face of uncertainty.

This research is particularly significant as it sheds light on how a small, local business like Aplus Market can address supply chain challenges through strategic planning and system improvements. By focusing on real-world conditions and constraints, this study aims to provide practical solutions that are relevant to similar businesses in rural or semi-urban settings. Unlike large corporations with access to enterprise-level SCM software and logistics networks, Aplus Market operates within modest means. Hence, the recommendations generated from this study are expected to be both contextual and applicable, emphasizing cost-effective improvements and process innovations tailored for SMEs. Furthermore, this research contributes to the broader understanding of supply chain dynamics in the Indonesian retail sector, particularly at the micro and small business levels. With the government's increasing support for digital transformation and SME development, findings from this study may also inform policy recommendations or guide capacity-building initiatives. In light of the background and challenges identified, this study aims to explore and analyze the

strategies that Aplus Market can implement to optimize its supply chain management. The specific objectives of this study are:

- a. To identify key supply chain inefficiencies currently experienced by Aplus Market.
- b. To analyze the causes and consequences of inventory imbalances and delivery delays.
- c. To evaluate the effectiveness of the existing manual inventory system.
- d. To propose practical SCM strategies that can be adopted to improve overall supply chain performance.

Based on these objectives, the central research questions are as follows:

- a. What are the main factors contributing to stock imbalances and delivery delays at Aplus Market?
- b. How does the current manual inventory management system affect supply chain performance?
- c. What strategies can be employed to enhance supply chain responsiveness and efficiency in the context of a small retail business?

II. Literature Review and Hypothesis Development

Supply Chain Management (SCM) is a foundational concept in modern business operations and plays a pivotal role in determining a company's competitiveness and sustainability. SCM is defined as the strategic coordination of business functions within a company and across businesses within the supply chain, aiming to improve the long-term performance of the individual companies and the supply chain as a whole. (S & P, 2022) SCM encompasses the end-to-end flow of goods, information, and financial resources from raw material suppliers, manufacturers, and wholesalers to retailers and ultimately to final consumers. It is not only a logistical framework but a strategic approach that integrates production, procurement, and customer service into one seamless system, with the ultimate goal of creating customer value and achieving a sustainable competitive advantage.

In the retail sector, SCM is increasingly viewed as a strategic tool to improve service levels, minimize supply disruptions, and respond effectively to market volatility. For food and essential goods retailers such as Aplus Market supply chain performance directly influences customer satisfaction, inventory turnover, and cost efficiency. (Christopher, 2020) emphasizes that in the context of essential goods like rice, sugar, cooking oil, and eggs (collectively known in Indonesia as sembako), the effectiveness of SCM has a direct impact on price stability and stock availability. This is particularly crucial in regions where demand is highly sensitive to price fluctuations and supply interruptions can lead to significant social and economic consequences. Inventory control is a key aspect of supply chain management, particularly in the retail industry. It involves managing stock levels to ensure the right quantity of goods is available at the right time while minimizing holding costs and avoiding excess inventory. As noted by (Joni I. D., 2018) effective inventory control requires balancing two major risks: stockouts and overstocking. Stockouts may lead to lost sales and customer dissatisfaction, while overstocking results in unnecessary storage costs and increased risk of spoilage, especially for perishable goods. Therefore, for retailers like Aplus Market that sell daily necessities with a short shelf-life, implementing an efficient inventory system is crucial for maintaining customer service levels and operational efficiency.

Accurate inventory control enables businesses to determine optimal procurement cycles, reduce waste, and respond promptly to changes in consumer behavior. However, many small to medium-sized retailers still rely on manual systems, which can lead to inaccurate stock records, delayed reordering, and ultimately, service disruptions. With consumer expectations rising and competition intensifying, retailers need to embrace technology-driven inventory systems that can provide real-time stock visibility and automate replenishment processes. Another fundamental component of supply chain effectiveness is demand forecasting. Forecasting future customer demand is critical to ensuring that the right products are available at the right time without overburdening the supply chain with unnecessary inventory. Mentzer and Moon

(2021) define demand forecasting as the use of historical data, seasonal trends, economic indicators, and other external variables to predict future demand levels. For retailers, accurate forecasts are essential for maintaining inventory at optimal levels and minimizing related costs. However, demand forecasting is particularly challenging in the context of sembako distribution due to market volatility, seasonality, and the influence of external disruptions such as government regulations, economic policies, and natural disasters. (Mentzer & M. A. Moon, 2021) point out that government interventions, such as price ceilings and subsidies, often affect both supply and demand unpredictably. For instance, a sudden change in the subsidized price of cooking oil may lead to panic buying, resulting in stock shortages and distorted sales data. These uncertainties complicate forecasting efforts and may trigger the bullwhip effect, where minor fluctuations in customer demand cause increasingly larger variations in orders further up the supply chain, leading to inefficiencies and excess inventory at different nodes.

Information technology (IT) has emerged as a transformative enabler in modern supply chains. It enhances supply chain visibility, improves coordination across functions, and supports real-time decision-making. Gunasekaran et al. (2020) assert that IT systems such as Enterprise Resource Planning (ERP), Inventory Management Systems (IMS), and Point-of-Sale (POS) platforms are essential tools that enable businesses to manage supply chain operations more effectively. These technologies allow for seamless data integration between suppliers, warehouses, and retail outlets, thus ensuring accurate stock monitoring, timely reordering, and improved demand responsiveness. For small and medium-sized enterprises (SMEs) like Aplus Market, digital transformation offers a pathway to improve operational efficiency and compete with larger retail chains. By leveraging POS systems, retailers can analyze sales patterns, track fast-moving items, and understand customer preferences. ERP systems allow for better planning and control of procurement, finance, and inventory operations, while IMS platforms provide critical insights into stock levels, expiration dates, and reordering schedules. These tools not only reduce manual labor and human error but also enable strategic decision-making based on accurate and timely information.

Despite its benefits, the adoption of IT in SCM among SMEs remains limited. Several barriers hinder the digitalization of retail supply chains, including high initial investment costs, lack of digital skills among employees, and resistance to change in traditional business practices. Many local retailers still rely on manual record-keeping, paper-based invoices, and basic spreadsheets, which limit their ability to scale operations and manage supply chain complexities effectively. To overcome these challenges, a gradual and well-supported transition to digital systems is necessary. This includes training employees, choosing scalable IT solutions, and integrating basic digital tools before moving to more advanced analytics and automation systems. The integration of SCM practices with modern technology and strategic inventory management can significantly enhance supply chain performance. In particular, retail businesses that invest in forecasting capabilities, automate stock control, and build collaborative relationships with suppliers can reduce lead times, optimize stock levels, and improve customer satisfaction. Moreover, applying SCM frameworks enables businesses to anticipate market changes, manage supply risks, and align supply chain strategies with broader business objectives.

In summary, the literature suggests that effective supply chain management is essential for retail operations, especially in the context of essential goods. SCM encompasses several interrelated elements, including procurement, inventory management, demand forecasting, and technology adoption. Each of these components must function in an integrated and cohesive manner to ensure that products are delivered to customers efficiently and cost-effectively. For retailers like Aplus Market, understanding and applying the principles of SCM can lead to significant improvements in service quality, cost reduction, and market competitiveness. While the theoretical foundations of SCM are well established, their application in small retail settings remains under-researched, especially in developing economies like Indonesia. Local retailers often operate under different constraints compared to large corporations, such as limited access to capital, fragmented supply networks, and inconsistent regulatory enforcement. Therefore, a contextualized understanding of SCM practices tailored to local challenges is essential. This study aims to bridge this gap by

analyzing the specific challenges faced by Aplus Market and developing practical strategies for SCM optimization that align with the business's scale, resources, and market environment.

III. Research Method

This study uses a quantitative approach with descriptive methods to analyze the effect of supply chain management on grocery stock control at Aplus Market Store. Primary data were collected through questionnaires distributed to warehouse staff and store managers, while secondary data were obtained from internal company reports. Sampling was conducted purposively, with respondents directly involved in stock management. Data analysis used simple linear regression with the help of SPSS to test the relationship between supply chain management variables and stock control effectiveness. The validity and reliability of the instrument were tested first to ensure the accuracy of the results.

IV. Results And Discussion

The supply chain management (SCM) strategy plays a critical role in ensuring the operational efficiency and competitiveness of retail businesses. In the case of Aplus Market, a local retail store facing various supply chain challenges, SCM becomes not only a supporting function but also a central element in achieving sustainable business performance. This research identifies several challenges, including inconsistent inventory levels, inefficient supplier coordination, high transportation costs, and limited data integration. These issues have resulted in frequent stockouts, overstocking, delays in product delivery, and decreased customer satisfaction. One of the primary challenges in Aplus Market's supply chain is the lack of real-time information sharing between suppliers and the store. This information gap leads to inaccuracies in forecasting and demand planning. Moreover, the absence of an integrated inventory management system makes it difficult for the store to monitor stock movement effectively. These inefficiencies contribute to poor decision-making and increase the risk of product unavailability or excess inventory.

To address these problems, the application of a supply chain management approach is essential. SCM provides a strategic framework that integrates all components of the supply chain, from procurement to distribution, aiming to create value, reduce waste, and improve service delivery. For Aplus Market, implementing SCM involves adopting digital inventory systems, enhancing supplier relationship management, and improving logistics coordination. Digital tools enable real-time tracking of inventory levels and help the store respond quickly to changes in customer demand. Strengthening partnerships with reliable suppliers can also enhance lead time accuracy and product availability. Furthermore, collaboration and communication among all supply chain stakeholders must be improved. Establishing a transparent communication channel can minimize misunderstandings and ensure that all parties are aligned with the business goals. Efficient transportation management, such as route optimization and scheduling, can reduce logistics costs and improve delivery performance. Overall, by embracing the principles of supply chain management, Aplus Market can overcome its operational challenges and build a more resilient and responsive supply network. The integration of SCM practices not only enhances internal efficiency but also improves customer satisfaction and business competitiveness in the long term.

4.1. Information Systems

An Information System is a system within an organization that brings together the needs of daily transaction processing that supports the organization's managerial operational functions with the strategic activities of an organization to be able to provide reports required by certain external parties.

a. Analysis of Ongoing Procedures

The following is the system flow that is currently running in the Sembako stock control system at the Aplus Market Store:

- 1) Buyers purchase ready-made grocery products.
- 2) The sales admin serves the buyers.

- 3) The warehouse department checks the stock available in the warehouse.
- 4) If the product is not available, the warehouse department will purchase the product from the supplier.
- 5) Next, the warehouse creates a product request letter to fill the inventory shortage and prints it in two copies. The product request letter is submitted to the sales admin for approval. One copy is returned to the warehouse, while the other copy is kept in the sales admin archive.
- 6) The warehouse provides the supplier with the approved product request letter. The supplier then checks product availability. If the stock is sufficient, the supplier sends the products along with an invoice to the warehouse.
- 7) After receiving the products and invoice, the warehouse checks the conformity of the products. If the products and invoice are appropriate, they will be approved by the warehouse and forwarded to the sales admin.
- 8) The warehouse department submits the product data to the sales department.
- 9) The sales department records the products that have been sold and prepares a sales report.
- 10) The warehouse department records the additional stock and prepares the warehouse stock report using Microsoft Excel.
- 11) The sales admin informs the customers that the products will be shipped.

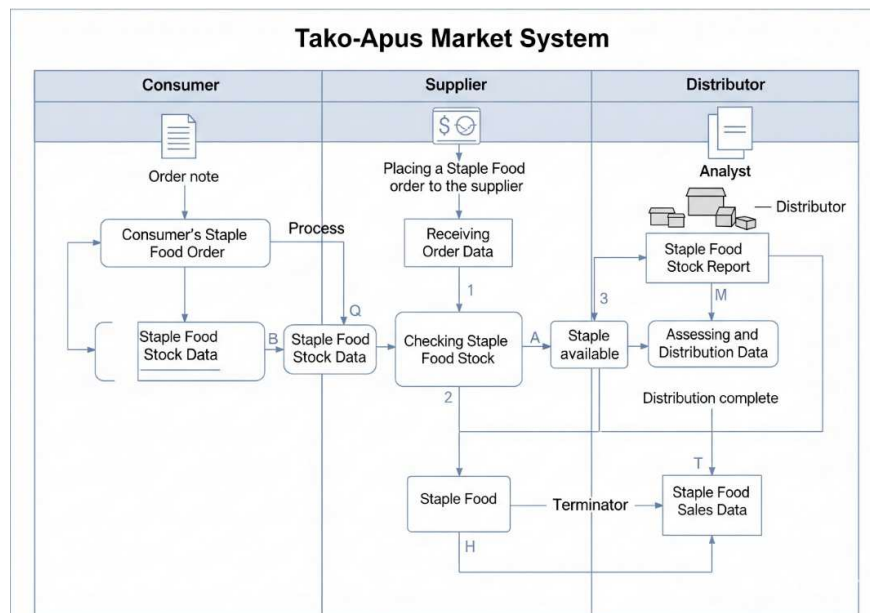


Figure 1. Current Information System Flow

b. Analysis of the Proposed Procedure

The proposed system involves computerized data processing, in other words, avoiding the suboptimal data processing practices currently used. The following is the proposed new information system flow for the Optimization of Grocery Stock Control with SCM Implementation at the Aplus Market Store:

- 1) Buyers order basic necessities by coming directly to the Aplus Market Store.
- 2) The sales admin registers and signs up the buyer, so that the buyer can see the purchase status.
- 3) Sales admin handles buyers and makes purchase transactions.
- 4) The warehouse department approves product requests from the admin. If a product is out of stock, the warehouse department purchases it from the supplier and processes the incoming product.
- 5) The supplier approves the order request from the warehouse and ships the ordered groceries. The supplier can input the products sold to facilitate purchasing by the warehouse.

- 6) The stock control section delivers basic necessities to buyers based on buyer data along with the address and product data sent, the stock control section can complete the purchase by confirming that the materials have been sent.
- 7) Buyers can see the purchase status and confirm if the order arrives as ordered. If there is damage, buyers can return it to the sales department.

The following is a picture of the proposed new information system flow from the design of the Optimization of Basic Food Stock Control System with the Implementation of SCM at the Aplus Market Store. A use case diagram is a sequence of activities performed by actors and systems to achieve a specific goal.

a. Form Data Menu Product

The Product Data Menu Form is a purchasing page where buyers can view product samples, prices, and available stock. The Product Data Menu Form is shown in Figure 2.

#	KODE	NAMA	STOK	HARGA BELI	HARGA JUAL	STATUS	OPSI
1	BRG_20250901_0001	beras pgl	120	Rp. 43.000	Rp. 53.000	OK	GABAR DETAIL
2	BRG_20250901_0002	gula pasir kristal putih pgl	52	Rp. 896.000	Rp. 900.000	OK	GABAR DETAIL
3	BRG_20250901_0003	Indomie kare ayam	1	Rp. 123.000	Rp. 133.000	OK	GABAR DETAIL
4	BRG_20250901_0004	sirup kurma	10	Rp. 185.000	Rp. 175.000	OK	GABAR DETAIL

Figure 2. Product Data Menu Form

b. Supplier Data Form

The Supplier Data Form displays supplier data for basic food products at Aplus Market Store. The Supplier Data Form is shown in Figure 3.

#	NAMA	TELEPON	ALAMAT	OPSI
1	PT Jember Baru	08123456789	Kiaren	GABAR DETAIL
2	CV Sugihana	08123456789	Kiaren	GABAR DETAIL
3	Pabrik Rapijaya	08123456789	Kiaren	GABAR DETAIL
4	CV Keren Jaya	08123456789	Kiaren	GABAR DETAIL
5	PT Indotoko	08123456789	Kiaren	GABAR DETAIL
6	PT Kurma Aneka	08123456789	Kiaren	GABAR DETAIL
7	Asahar DU	08123456789	Kiaren	GABAR DETAIL
8	Unikser	08123456789	Kiaren	GABAR DETAIL
9	Stragi Group	08123456789	Kiaren	GABAR DETAIL
10	Indah Jaya Indonesia	08123456789	Kiaren	GABAR DETAIL

Figure 3. Supplier Data Form

c. Distributor Data Form

The Distributor Data Form displays the dashboard page and transaction data related to the delivery of goods to consumers. The Distributor Data Form is shown in Figure 4.

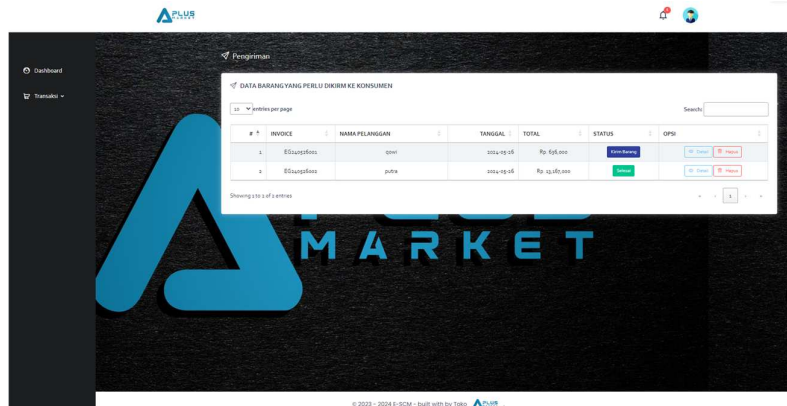


Figure 4. Distributor Data

d. System Owner Form

The System Owner Form is used to view product data, supplier data, consumer data, and user data. This form is also used to print sales reports, purchase reports, and consumer sales and purchase reports. The System Owner Form is shown in Figure 5.



Figure 5. Distributor Data

e. Transaction Report Print Form

The Transaction Report Print Form displays reports on products available in the store. The Transaction Report Print Form is shown in Figure 6.

E-SCM BY TOKO APLUS MARKET
J: Bad Uhmno: Sumbal umbal
Hp-0807-88018041, net@pmbal@gmail.com

Laporan Penjualan

MulaTanggal : 2024-05-01
SumpalTanggal : 2024-03-01

No	No Invoice	Tanggal	Admin	Pelanggan	Sub Total	Diskon	Total Penjualan
1	EG440056001	2024-05-06	admin	qowi	Rp.6.000	0	Rp-6.000
2	EG440056001	2024-05-26	admin	putra	Rp-13,347,000	0	Rp-13,347,000
3	EG440056003	2024-05-27	admin	qowi	Rp-74.000	0	Rp-74.000
Total							Rp-14,535,000

Pemilik: A Plus Market

 Aplus Market
 Rec 6002-9001 0731
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Figure 5.6 Transaction Report Print Form

V. Conclusion

Based on the analysis and discussion in the previous chapters, the following conclusions can be drawn. First, the system helps Aplus Market Store identify problems related to excess stock and stock shortages, thereby reducing errors in managing basic food inventory. Second, the supply chain management of basic food products at Aplus Market Store is not yet optimal because there are potential risk factors that may lead to risk events. Therefore, preventive measures are needed to minimize or eliminate these risks. Third, through this application, Aplus Market Store is expected to manage product inventory more easily. For example, when an item is running low or out of stock, the application can automatically provide a notification.

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