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ANALYSIS OF SUPPLY CHAIN MANAGEMENT SYSTEM IN OPTIMIZING FUEL DISTRIBUTION AT PT. SHELL INDONESIA

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Abstract

Fuel is very important for the survival of the people in Indonesia, but the distribution process of subsidized and non-subsidized fuel is constrained by geographical factors and unpredictable weather factors, making it difficult for distribution mobility which will cause delays in oil reaching its destination, and making it difficult for people to get fuel. This study aims to determine the distribution system of subsidized, non-subsidized fuel and lubricant products distributed at Shell sites for the community and industry through the Fuel Terminal (TBBM). This study is a qualitative descriptive study with a case study approach. Data collection techniques use documentation, observation and interviews. Data are processed using the Miles and Huberman technique. The results of the study found that (1) Fuel delivery is constrained by distance and weather so that transportation costs become more expensive because they use land transportation, (2) Good safety is needed in sending fuel to sites spread across the Jakarta area, (3) The health and vitality of the drivers who drive trucks are also determinants in the distribution of fuel to their destinations according to plan. Well, to ensure smooth distribution of fuel, good communication and cooperation are needed between the company management and distributors.

Keywords: *Information System, Supply Chain Management, distribution, fuel oil*

Introduction

Indonesia is a large country that has the nickname as the largest archipelagic country. This is a source of pride and a challenge for Indonesia. With a very large area, Indonesia requires a pattern and system for the distribution of goods and services. One major example is the distribution process of Fuel Oil (BBM) in Indonesia. Indonesia is a distribution country in distributing Fuel Oil (BBM) to all corners of the country. So that there needs to be a significant effort in the BBM distribution process. PT Shell is a subsidiary of PT. Puninar Fueller.

The need for BBM in Indonesia is currently very important. This is because BBM is a basic need for the community. With the increasing number of vehicles in Indonesia, the use of BBM has also increased. In addition, BBM also plays a very important role as a driver of the economy and a contributor to national economic stability. BBM is a source of energy in the production sector and also a driver of the economy in Indonesia. The high need for BBM can be proven by the large number of BBM sales in Indonesia every year. PT Puninar Fueller's BBM distribution activities focus on daily BBM deliveries to each PT Shell Indonesia site.

In general, all companies strive to maximize profits and minimize existing expenses. This happened to PT Shell Indonesia, where the fuel distribution effort experienced obstacles caused by geographical factors and weather factors that caused the fuel distribution activity to be late. The high cost of expenses incurred by PT Shell Indonesia was caused by the distribution system to sites in the Jakarta area which was influenced by long distance factors and unpredictable weather factors.

The selection of an optimal distribution route can improve efficient distribution patterns so that it can minimize costs incurred and will affect the productivity of tankers and can minimize operational time at the Fuel Terminal. Therefore, this study will determine the fuel delivery route in one delivery period to obtain optimal distribution from Shell which intersects the Jakarta area.

Supply Chain management research at PT Shell Indonesia is the company's focus in efforts to improve business continuity. Supply Chain is a form of cooperation and coordination consisting of various parties involved both directly and indirectly in meeting consumer demand. The purpose of Supply Chain Management is to achieve minimum costs and maximum service levels. Supply Chain Management considers all facilities that affect the products produced and the costs required to meet consumer needs (Djoko Guritno & Meirani Harsasi, 2022). In essence, Supply Chain management is a

further integration of logistics management between related companies, with the aim of further improving the smooth flow of goods, increasing the efficiency of the use of space, vehicles, and other facilities, reducing inventory levels, reducing costs, and further improving other services required by end customers (Kurniawan & Rumambi, 2015).

Supply Chain Management in this study is also the main thing in efforts to optimize fuel distribution which experiences delays to the site caused by, for example, a less than optimal information system, uncertain weathers factor and the health and safety of drivers in distribution which are important for optimizing performance management at PT Shell Indonesia. Supply chain management involves coordinating internal and external organizational functions into the best goods and services flow facilities. Supply chain management also ensures the quality of service to customers by improving communication and information and to increase competition, it is necessary to carry out product customization, high quality, cost reduction, and speed or accuracy of entering the market (Wahyu Ariani, 2017).

An optimal information system to ensure smooth distribution of fuel requires good communication and cooperation between company management and distributors. An information system is an information system that produces output using input and various processes needed to meet certain goals in a management activity (Jogiyanto, 2018). An optimal information system for distribution is a system that can manage and regulate the movement of goods, services, or information from providers to final recipients. This system can help companies monitor distribution, transportation, and stock more efficiently. A good information system can also meet the needs and desires of the company, as well as overcome obstacles that occur in the company. Information technology is the main instrument in the effort to process the information needed for the distribution information system, so that customer service and industry can achieve the ability of the supply chain to meet their expectations.

The distribution of fuel to reach each site requires time and optimal transportation. One of the factors that influences the distribution process is geographical factors and unpredictable bad weather. Climate change is no longer a future problem, but has become a problem that is being faced now, so that integrated planning and scheduling will have an impact on the smooth running of the production process and quality products, in addition, good planning and scheduling will avoid overload and underload experienced by both employees and machines used in the production process. Failure to plan or schedule will have an impact on process congestion, defective products, and high production process costs or machine repair costs (Wahyu Ariani, 2017). In distribution efforts, drivers are also needed to drive to the final destination. Drivers in the fuel distribution process must undergo a health test and are guaranteed safety in performance. The occupational health and management system is part of the overall management system which includes organizational structure, planning, responsibilities, implementation, procedures, processes and resources needed for the development, implementation, achievement, assessment, and maintenance of occupational health and safety policies in order to control risks related to work activities in order to create a safe, efficient and productive workplace (Yun Iswanto & Adie Yusuf, 2021). By achieving driver health and safety, distribution efforts will run smoothly. Rapid performance response is a set of supply chain actions taken to reduce replacement. Supply chain managers are able to improve forecast accuracy such as reducing playtime, so they can better adjust demand and supply in order to increase supply chain profits (Djoko Guritno & Meirani Harsasi, 2022). Performance management is also a way to get better results for organizations, work groups and individuals by understanding and managing performance according to planned targets, standards and predetermined competency requirements (Surya Dharma, 2022). This study explains how Supply Chain management plays a major role in supporting fuel operations and distribution activities at PT Shell Indonesia.

Research Method

This research at PT Shell Indonesia uses a descriptive qualitative research method, with data collection techniques through documentation, interviews and observations. Data analysis through documentation with collection from various written sources, interviews conducted with workers and drivers in distribution and direct observation in the field by monitoring the ongoing business process. This approach provides a comprehensive framework for investigating in depth the implementation of Supply Chain Management at PT Shell and its impact on the workflow and efficiency of supply chain management. In the observational research obtained identified bottlenecks, waste, and added value in the flow of materials and information in the distribution process, in addition, primary data sources were obtained through direct observation and interviews guided by researchers with the intention of obtaining information that is in accordance with the research so that the information collected is relevant.

Results And Discussion

PT. Puninar Fueller is a company engaged in the field of transportation service providers, currently we are working with PT. Shell Indonesia as a provider of Driver and Trucking services for shipping Shell products loaded from the Vopak Terminal in Jakarta and sent to several Shell gas station retail branches in Jabodetabek along with Bandung and Cirebon. Efficiency in the distribution of goods delivery is the key to achieving competitive advantage in business. By optimizing every stage in the distribution process, from production to delivery to end consumers, companies can reduce logistics costs, increase delivery speed, and minimize the level of damage to goods. A thorough analysis of each stage in the distribution process allows companies to identify opportunities to improve customer service and increase sales. By implementing an effective distribution strategy, companies can achieve maximum efficiency and increase profitability.

A distribution strategy is a way to guide the journey of a product from the producer to the hands of consumers. It covers all paths and processes that the product goes through, from production to delivery. Like a map, a distribution strategy provides a clear picture of how your product will reach the market. An effective distribution strategy is the key to business success. By designing the right strategy, companies can increase customer satisfaction, optimize operational costs, and expand market reach. The more efficient the distribution, the greater the opportunity to grow and develop. This is an advantage for companies that implement Supply Chain Management such as developing better customer relationships and services, creating a mechanism for providing product and service needs with minimum delay, improving productivity and business processes, minimizing storage and transportation costs, minimizing direct and indirect costs, helping to achieve the right product delivery, right place and right time, improving inventory management and encouraging successful execution, the Just in Time model, helping to minimize waste, cost management and efficiency through the process (Huda & Hartati, 2022).

The main purpose of a distribution strategy is to determine where and how consumers can buy your product. A good strategy should consider the company's internal resources and utilize external services if necessary. In addition, the distribution strategy must also be easy for consumers to understand and ensure that the product is easily found by the target market. A good distribution strategy offers various benefits, such as reducing logistics costs, preventing problems in the supply chain, on-time delivery, improving customer experience, and expanding the market. In other words, an effective distribution strategy can increase the efficiency, effectiveness, and profitability of a business.

The following are some types of distribution strategies at PT Shell Indonesia:

Types of Distribution Strategies

Now that we understand the meaning and importance of a well-thought-out distribution strategy, let's explore the different approaches that businesses can adopt.

• Direct Distribution

This model involves a direct relationship between the producer and the consumer without any intermediaries. By eliminating the third party, companies often achieve higher profit margins and gain valuable insights into consumers.

• Indirect Distribution

In contrast, indirect distribution involves using a third party such as a wholesaler, retailer, or distributor to reach the market. This approach can expand market reach, but generally results in lower profit margins due to the costs of the distribution channel.

• Intensive Distribution

This strategy aims to maximize the availability of the product by placing it at as many points of sale as possible. It is commonly applied to fast-moving consumer goods (FMCG).

• Selective Distribution

The selective approach involves selecting a limited number of intermediaries who meet certain criteria. This allows for greater control over product placement and pricing.

• Exclusive Distribution

This strategy grants exclusive rights to one retailer or distributor in a specific territory. Often used for luxury or premium products to maintain brand image. The selection of the optimal distribution strategy depends on various factors such as product type, target market, competition, and organizational goals.

A thorough evaluation of these factors is essential in determining the best approach. Before carrying out distribution, several things must be done so that the process runs optimally.

The product delivery process that we do starts from:

1. D-1 each driver will be sent a delivery SPK.
2. On the day the driver comes to the Puninar Fueller base to do attendance, alcohol test and health check (fit/unfit to work)

3. After the driver is declared fit to work, the driver will then conduct a PTD (Pre Trip Discussion) with the operational. At this stage, the operational must ask about the driver's readiness regarding: 1). Health check results, 2). Alcohol test results, 3). Driver's sleep hours (Sleeping Pattern), 4). Vehicle number plate to be driven, Delivery destination, Official route to be taken and other things related to the Driver's delivery destination.
4. The driver takes the vehicle keys and vehicle documents.
5. Drivers check the vehicle before leaving, if damage is found, drivers are required to make a WO (Work Order) to the maintenance department to be carried out immediately.
6. After arriving at the Vopak Terminal, the driver loads the product.
7. After loading is complete, the driver will receive a DN (Delivery Noted) from the Vopak Terminal and then exit the Vopak Terminal to go to the retail gas station according to the SPK.
8. After arriving at the retail gas station, the driver will meet the Shift Manager of the gas station who is on duty to check the Delivery Noted together to re-confirm the accuracy of the gas station in question, vehicle registration number, Quantity and Type of Fuel Product to be unloaded.
9. After everything is in accordance, the next step is for the driver to unload the fuel product into the gas station storage tank accompanied by the Shift Manager of the gas station.
10. After ensuring that all products have been unloaded, the driver will receive a Delivery Noted recap along with the Delivery Minutes and then re-inspect the vehicle before leaving the retail gas station.
11. After arriving back at the base, the driver will check the vehicle after delivery. If damage is found, the driver must make a WO (Work Order) to the maintenance department to be repaired, but if no damage is found, the driver can meet with the operation to hand over the vehicle key and recap the Delivery Noted.
12. The driver will take attendance after repairs, but if no damage is found, the driver can leave the base to go to the Vopak Terminal Jakarta.

PT Shell Indonesia has several gas stations spread across various areas of DKI Jakarta. The following are the number of Shell gas stations distributed by PT. Puninar Fueller for the DKI Jakarta area:

Table 1. PT Shell Indonesia gas stations

Area	Number of Sites
Jakarta Timur	8
Jakarta Pusat	9
Jakarta Utara	9
Jakarta Selatan	26
Jakarta Barat	16

From the table above, it is a gas station of PT Shell Indonesia spread across the DKI Jakarta area, consisting of East Jakarta with 8 gas station sites, Central Jakarta and North Jakarta both have 9 gas station sites, 16 sites in West Jakarta, and South Jakarta which has the most sites, namely 26 gas station sites. In this case, it does require an optimal distribution process with land transportation and with various travel distances to reach the destination. Unpredictable weather factors cause delays in delivery. So that the distribution costs increase.

Several factors that inhibit fuel delivery to the site, these factors include:

1. Driver unfit or sudden information cannot attend, SPK (Work Order) is given to each driver H-1. If on the day the driver informs that he is suddenly sick or there is something else that causes the driver to be unable to attend, then the operation takes time to find a replacement driver so that there is a delay in delivery to the customer.
2. Vehicle damage before departure, before departure the driver must check the vehicle and if damage is found, the mechanic must make repairs so that the actual departure does not match the plan which causes delays in delivery to the customer.
3. Vehicle damage while on the way to the customer, if there is an abnormality in the vehicle on the way, the driver must stop at a safe route and then contact the mechanic to make repairs at the stopping location (storing) which causes delays in delivery to the customer.
4. Rain, the process of unloading products from the Truck to the customer's Tank cannot be done if it is raining in order to avoid water contamination of the product (maintaining product quality). Technically, rain is not the main obstacle to sending fuel to customers, but if the intensity of rain is high, it causes flooding at points where it is the delivery route to the customer and the impact of this

flood can include: road access cannot be passed due to the high volume of flood water, congestion, traffic.

5. Incidents, unavoidable incidents can occur at any time so that there are obstacles in the delivery process.

Please note that Shell has gas stations located in several city centers such as DKI Jakarta, Bogor, Tangerang, Bandung, etc. which have very high traffic situations which cause delays in delivery.
Here are some traffic factors that affect delivery:

a. Delivery made during peak hours (example: employee routine hours to and from work).
b. Traffic accidents on the route to customers causing congestion.
c. Route diversion caused by road repair projects, demonstrations, bazaars and celebrations that block roads.

Based on the results of this study, there are several things that are produced such as strategies that have a positive effect on Supply Chain Management. Optimization of fuel distribution which is the main problem oriented towards the Supply Chain so that it can have a positive effect on company performance. Supply Chain Management has a positive effect directly and indirectly on company performance. Companies need to strengthen corporate culture where trust and commitment are the company's main capital to consumers. With consumer trust and employee commitment, other supporting activities such as supplier partnership, customer relationship, information sharing and intensity integration become more accepted and implemented effectively.

Operational efficiency in optimal distribution is the main basis for the implementation of Supply Chain Management applied by PT Shell Indonesia. With the aim of achieving better coordination and efficiency in the workflow, fuel delivery and ensuring that each stage in the supply chain runs optimally. This includes increasing inventory visibility, more accurate production planning, and more effective coordination with suppliers and business partners. By reducing order cycle times and increasing response to fluctuations in market demand, companies can optimize their operational efficiency. From a financial perspective, the implementation of Supply Chain Management can provide major benefits by effectively reducing operational costs. Through better integration between the various stages in the supply chain, PT Shell Indonesia can identify and eliminate potential waste and optimize inventory management. This not only reduces production and distribution costs, but also reduces the risk of excess stock or shortages, which can have a negative impact on the company's financial situation. In an effort to achieve higher levels of efficiency, the role of strategic partners is also a crucial factor. Effective collaboration with suppliers, manufacturers, and distributors can form a supply chain that is more effective and responsive to changes in the market. The synergy between Lazada and its strategic partners can help address challenges such as fluctuating market demand and changing consumer trends more effectively. In addition, efficiency in the delivery process is a key factor for the company. It is important for the company to ensure that the delivery process takes place quickly and accurately, by preparing the process more optimally before delivery and always prioritizing the health and safety of workers.

Conclusion

Until now, fuel is indeed one of the important needs for the Indonesian people, but the fuel distribution process is the most important initial step because during the process, continuous control and monitoring are needed so that the delivery of fuel to all retail gas stations runs safely by considering safety factors from human, material, environment etc. For more than 14 years, PT. Puninar Fueller has collaborated with PT. Shell Indonesia and with a commitment to prioritizing work safety, until now we have never experienced an incident or fatality. All previous delivery activities have been assessed regarding dangers, risks and how to control them so as to minimize the potential for incidents. And all personnel involved in the delivery process have been trained in their respective fields. Various factors that hinder delivery cannot be prevented, but the control methods have been covered by the safety system and experts in their respective fields to optimize fuel distribution to all Shell retail gas stations safely.

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