

FEASIBILITY ANALYSIS OF DISTRIBUTION MODEL
APPLICATION BY THIRD PARTY LOGISTICS (3PL) AT
PT. SEMEN INDONESIA TBK
(CASE STUDY IN REMBANG FACTORY)

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Abstract

PT Semen Indonesia (Persero) Tbk. (SMGR) is one of the major players in the Indonesian cement industry. Distribution cost in SMGR is quite high, about 23.6%. It is highlighting the importance of innovation in the distribution process to minimize distribution costs. Therefore, it will directly improve the profitability and increase competitiveness of enterprises amid the competition in the cement industry. One of the innovations is by applying third party logistics (3PL) on SMGR distribution system. 3PL plays an important role as a logistics coordinator at SMGR due to the existing conditions of distribution activity which is still managed by a variety of vendors. Distribution activity that's considered as an area of 3PL system is activity in packer and palletizer machine, transport management, inventory management, warehousing and pallet management. This research is developing 3PL model and do a feasibility study of the implementation of 3PL services, especially for the distribution of products from plant Rembang. Based on the financial feasibility study using the benefit cost ratio (BCR), BCR values obtained more than 1. This indicates that the distribution system 3PL is feasible to implement. This research also conducted a risk analysis to identify risks that may occur and how to mitigate those risks.

Keywords: Financial Analysis, Feasibility Study, Risk Analysis, Benefit Cost Ratio, PT Semen Indonesia, Third party logistic (3PL)

1. Introduction

Sustainable innovation in logistics is one of the ways that can be done to improve the profitability and competitiveness of enterprises. Logistics are generally divided into two inbound logistics and outbound logistics. Inbound logistics is the flow of raw materials from suppliers to manufacturers while outbound logistics or distribution is the flow of finished products from producers to consumers. Distribution is one of the important pillars of the company's business processes to ensure the movement of goods in the hands of consumers with safe, timely, efficient, precise quantity and in good quality.

In the cement industry, distribution costs are a major cost component that needs diefisiensikan because of the characteristics of cement products that are bulky. PT Semen Indonesia (Persero) Tbk. (SMGR), which is one of the major players in the Indonesian cement industry, has a greater proportion of higher distribution costs compared with its main competitors, PT Indocement Tunggal Perkasa (INTP)

In Figure 1.1 can be seen a comparison between the cost component breakdown SMGR and INTP based on research conducted by DBS Group in 2015. The amount of the proportion of SMGR distribution costs are estimated at 23.6% of cost of goods sold, the value is higher than the INTP only amounting to 15.9% of cost of goods sold. The amount of component distribution costs, highlighting the importance of innovation in the distribution process SMGR with the aim to minimize distribution costs that can directly improve the profitability and competitiveness of enterprises amid the competition in the cement industry are increasing.

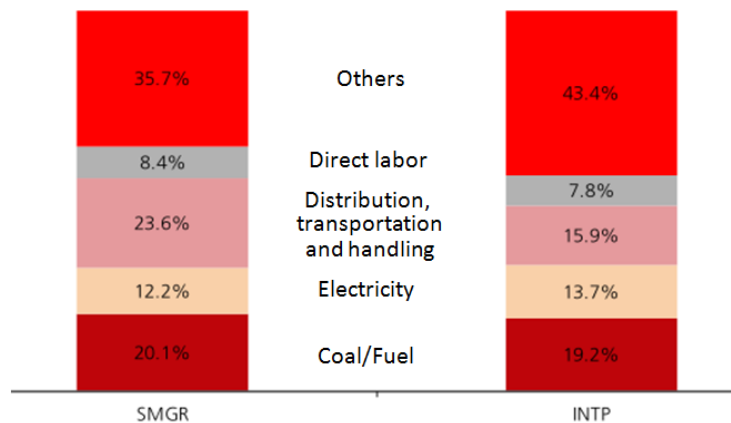


Figure 0. *Breakdown of Cost Component* [1]

In SMGR, since 2015 has begun to be applied in a comprehensive supply chain management with the aim to reduce their costs, including production costs, distribution costs, energy costs and the cost of purchasing raw materials. Supply Chain Management (SCM) is a method that can be used to optimize an integrated supply chain network [2]. One key to successful implementation of SCM in the enterprise business system is the functioning of the good coordination and collaboration between entities that are involved in the supply chain network from supplier to consumer.

In the field of distribution, has now developed business logistics coordinator or commonly called the services of Third Party Logistic (3PL). 3PL is the use of services of other companies (outsourcing) to work on the logistics activity therein may include transportation and warehousing activity [2]. 3PL can be a tool that can be used to control distribution costs as well as the company focuses on business areas utamanya [3]. The use of 3PL services also help companies to improve customer satisfaction and integrating various processes in the supply chain by using a good information system [4].

The important role of the 3PL as a logistics coordinator at SMGR due to the existing conditions of distribution activity from packing and packing up goods in warehouse management is still managed by a variety of vendors. An overview of existing conditions can be seen in Figure 2. In general, there are four categories of activity in the distribution of cement which is managed by a variety of vendors that service packing and packing cement, cement transportation services using expeditur, warehouse and stock management service level through a distributor in the form of incentives as well as pallet management services.

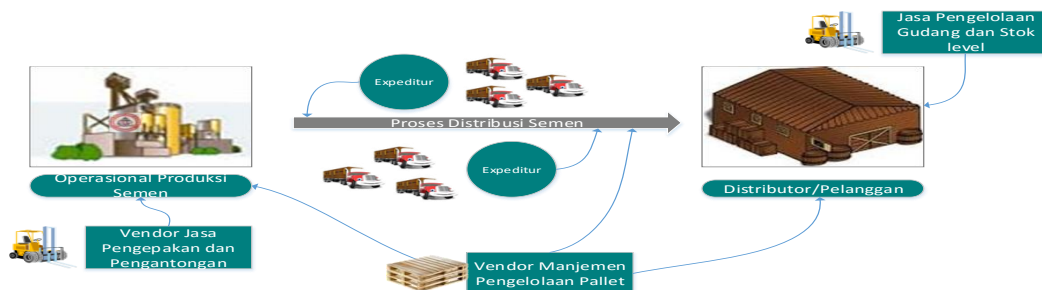


Figure 2. Vendor Existing Condition of Distribution Services Business in SMGR

Therefore in this study will be the development of models and study the feasibility of the application of 3PL services in the distribution system SMGR especially for the distribution of products derived from plant Rembang. Restriction of the scope of application of 3PL study which only covers the distribution of Rembang plant for the region of Central Java and Yogyakarta delivery is based on the goal of innovating the distribution system of Rembang new plant will be operational in 2017. Areas delivery to Central Java and Yogyakarta is divided into five areas with a projected value of sales in 2017 amounted to 2.7 million tonnes

Supply Chain Management

According to “The Council of Supply Chain Management Professionals” (CSCMP), Supply chain management is the process of planning and management of all activities related sourcing and procurement processes, production processes and logistics processes, including the activity of coordination and collaboration with relevant stakeholders, such as suppliers, intermediaries / agents, third party as service providers and consumers [5].

In business, the implementation of supply chain carried out with the aim to increase the level of pelayanan to consumers, ensuring the products have good quality and maintained, minimizing operational costs and make the company more flexible to market changes that occur [6]

Third Party Logistics (3PL)

Logistics is the process of planning, implementation and control of the flow of raw materials, work in process and finished products product effectively and efficiently [7]. Based on this definition can be concluded that basically the logistics are part of supply chain management that includes the physical flow of goods both the flow of raw materials from suppliers as well as the flow of finished products to consumers. The main objective of the logistics process is to deliver products or services to the right place at the right time and in good condition at minimum cost and the return on investment is quite high.

Third Party Logistics (3PL) company that provides a wide range of logistics services that can be used by customers [8]. In general, the logistics services provided are transportation,

warehousing, inventory management, packing and freight forwarding. Besides 3PL also known some OT terms (Party Logistics) other 1PL namely where the company maintains its own logistics services, 2PL which may be called expeditur or transporters. As well as 4PL which is a company also provides consulting services to the management of multiple 3PL management within the scope of supply chain management activities. There are seven minimum requirements that can be used to benchmark the selection system can be a good 3PL:

1. Safe, consumer transaction data security should be the top priority of a 3PL company. 3PL should be able to ensure that the consumer transaction data will not be leaked to other companies or even competitors.
2. Reliable, 3PL should be able to give guarantees regarding its ability to manage product distribution konsumen menegelola even for complex processes more effectively and efficiently.
3. Open, good 3PL system must mamiliki open to kosumennya, so that the consumer is able to monitor order status and positions related goods.
4. Self service, makes it easy for consumers to make arrangements imposed logistics system.
5. Multiple Comunication channels. 3PL able to provide easy access to information for consumers in real time and accurate.
6. Payment system that is flexible, 3PL should be able to adjust the payment system with a system that consumers want pambayaran or by mutual agreement.
7. Industry standard has a system that can be connected with 'best practices' existing system, so as to facilitate konsumen to adapt the system. [9].

Process of 3PL performance measurement can be seen from several aspects, namely the following: the accuracy of inventory levels; timely delivery; consumer complaints, their unfulfilled orders (backorders / stockout); warehouse cycle time; the number of units delivered and the total value of goods that have been sent, the value of the currency used [10]

The Benefits of the Application of 3PL is as follows:

1. Lower costs due to access to new technologies and more innovative problem solving so as to increase the competitiveness of enterprises.
2. Can perform more in-depth coordination between the relevant stakeholders so that they can perform operations efficiency.
3. Improve customer service.
4. The Company can penetrate the market better, because the company's focus on its core business.
5. Greater flexibility (reducing the investment risk assets (ownership of trucks, warehouses and so forth)

Benefit Cost Ratio

Benefit Cost Ratio is one method of investment feasibility. Basically, the calculation method of investment feasibility is more emphasis on benefits (benefits) and perngorbanan (cost / cost) a investasi, can be a business or project.

Risk Analysis

Risks associated with the uncertainty of events that occur in the future, the risk can also mean the opportunity to be a change, for example, change your thoughts, opinions, or place of action. Risk management is the process of measuring or risk assessment and management strategy development. Strategies adopted include risk avoidance, reduces the risk of negative effects and accommodate some or all of the consequences of a particular risk.

2. Research Methods**Application of Model Development 3PL**

In this phase will be conducted to determine the scope of services to be delivered to a third party or 3PL. Determining the scope of these services should consider the conditions eksiting of the distribution process that took place in PT Semen Indonesia (Persero) Tbk. The process of developing a model application of 3PL will pay attention to the input of the results of interviews conducted with related work units.

Plant Simulation Application of 3PL in Rembang

Simulation stage is the stage of the experimental model of the application of 3PL in Rembang factory PT Semen Indonesia (Persero) Tbk. Simulations will include a calculation of the cost within the 3PL activity. Before performing the simulation, the scope of 3PL services must first formulated by decision-makers. The output of the simulation is the cost arising from the application of 3PL in Rembang plant, these costs will be input to the feasibility analysis of 3PL penerapan.

At that stage was also carried out simulations of model validation. Validation is the process of checking to determine whether the model has been created to represent of the actual system or not. Validation is done by expert judgments which in this case is the decision-making related to the application of the distribution system in the factory Rembang. It also conducted a verification process by performing a calculation of whether there is an error or not.

Feasibility Analysis of Application of 3PL in Rembang factory PT Semen Indonesia (Persero) Tbk

In analyzing the applicability of 3PL in Rembang plant will include a financial analysis by the method of Benefit Cost Ratio and risk analysis. Benefit Cost Ratio is one method of investment feasibility. Basically, the calculation method of investment feasibility is more emphasis on benefits (benefits) and sacrifices (cost / cost) of an investment; it could be a business or project. In general, the types of investments that are often used are government projects where benefits are types of direct benefits; benefits will be felt directly in the community at large.

3. Result and Discussion

Data Plant Production Plan Rembang in Year 2017.

PT Semen Indonesia Rembang factory was built in 2014 with an installed capacity of 3 million tons. The factory is planned to be capable of producing cement types of PPC and OPC. In general, the type of PPC cement sold in bags while the OPC cement sold in bulk. In 2016, Apex is projected to produce 393 200 tons of cement, 132,000 tons of PPC and OPC 261 200 tonnes. In the Year 2017, is projected to be able to produce cement PPC of 1.5612 million tons, while the OPC cement at 828 400 tonnes. In this case it is assumed that the utility Rembang Factory

production is equal to 80% of the installed capacity of 3,000,000 tons of cement. Starting October 2016 until December 2017, PPC production amounted to 2.0712 million tons and 1.0084 million tons of OPC.

Data Plan Sales Volume in Year 2017

Data plan sales volume in 2017 includes the sale in the province of Central Java and Yogyakarta which is the goal area of distribution of Plant Rembang.

Table 1. Plan of Sales Volume 2017

Area Distribution	Sales Volume 2017
AREA KUDUS	415,086
AREA SEMARANG	586,664
AREA TEGAL	168,859
AREA SOLO	661,893
AREA PURWOKERTO	237,027
AREA JOGJAKARTA	506,815

Source: Internal Company Issue 2015

Rembang distribution area will include 6 regions as listed in Table 1. The total projected sales in 2017 amounted to 2,576,344 tons of PPC Bag. Cement. Limitation of this distribution area is the policy of PT. Semen Indonesia.

Key Performance Indicator

In it easier to conduct surveillance activities, control and evaluation activities undertaken within the scope of the activity of vendor's logistics 3PL then drafted performance indicators or key performance indicator (KPI). There are nine KPIs developed to measure the performance of each pallet of activities ranging from management to the management of the inventory in the warehouse. In preparation of the KPI is also worth noting the ease of data acquisition in calculating the quantitative and units used. Analisis Kelayakan Penerapan 3PL Pabrik Rembang.

4. Conclusions, Suggestion and Recomendatiois

Conclusion

Based on the results interpretation and data processing that has been done before, the following are the conclusions that can be drawn in this study:

1. 3PL distribution model to be applied in Rembang factory PT Semen Indonesia (Persero) Tbk. have the scope of work activities begin packer and palletizer management, fleet management and distribution management, warehouse management and inventory management, as well as pallet management. The purpose of the model is the 3PL distribution cost efficiency and integrity and visibility of information.
2. Based on financial feasibility study to be based on the benefit cost ratio is, it can be stated that the 3PL feasible to be implemented because it has the BCR at 1:14 for more than \$ 1.

Suggestion

Here is some advices that can be given in this study for further research are:

1. Conducting a study related to information technology systems that can support the integration and visibility of information in the distribution system of PT Semen Indonesia (Persero) Tbk.
2. Conduct research related to customer satisfaction which in this case is related to the impact of the cement distributor 3PL in the distribution system of the cement factory Rembang.

Research limitations

In this research, there are some limitations mainly due to the limited time of the study, which is as follows:

1. In this study has not taken into consideration the customer's wishes related to the application of 3PL distributor
2. In this research has not considered related to the IT system to be applied to integrate 3PL distribution system

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