DELAYS IN PHYSICAL DISTRIBUTION: A CASE STUDY OF SONY SUPPLY CHAIN SOLUTIONS MALAYSIA

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Abstract-This study is carried out to analyze the delays in physical distribution in Sony Supply Chain Solution Malaysia (SSCSM). The objectives of this research are to identify the factors that cause the product delivery delay to the customers, to analyze the causes that may contribute to product delivery delay and to suggest the solution to overcome the problems occurred in product delivery delay in SSCSM. The structured interview was done with the respective workers and was supported from documents review in order to support the analysis. The interviewees selection are very keen to carry out as the researcher only choose the experience workers who are directly involve in this product distribution. The structured interview can be analyzed using tools: Cause and Effect Diagram and Pareto chart. The finding revealed that the tools can determine the delays in terms of factors and causes through systematical analysis with more accurately. The finding also reveals that the factor that contributes to the delays in physical distribution is due to the inefficient of transportation system and the cause is due to vessel delay. In order to avoid this problem occurred in the future, the researchers recommended SSCSM to have integration of information technology and logistics management with shipping liners, to suggest port terminal to implement the usage of Electronic Port Clearance to increase their port productivity and efficiency, implementation of a system for maritime exchange of information from ship to shore, shore to ship and between all stakeholders, using service such as Long Range Identification and Tracking (LRIT) and Automatic Identification System (AIS) will facilitate safer and more expedient navigation and logistic operations, whereby improving maritime transport integration with other transport modes, measuring port performance based on Port Performance Indicators (PPI) and targeting towards training program development.

Keywords: Logistics, Physical Distribution, Sony Supply Chain Solutions Malaysia, Supply Chain Management,

1. Introduction

With the globalization of businesses and the consequent competitive pressures, there has been an increasing dependence on the ability of organisations to deliver customer adapted products all over the world quickly and on time. This has placed a number of demands on the logistics system and has become a rapidly developing area of investigation. In fact, it has been referred to as the last frontier for the development of strategic competitive advantage (Hum, 2000). To gain a
competitive advantage, many organisations are seeking to manage their logistics operation strategically, but realise that they lack of the core competencies and are increasingly seeking to outsource their logistics activities (Hum, 2000). Apart from this, another important development that is making an impact on the organisations is the increased emphasis on time based competition (Bhatnagar et al., 1999). Broadly, time based competition refers to the speed with which products can be manufactured, delivered to the market and serviced.

In today’s competitive environment, consumers are becoming more aware to purchase a product in order to fulfil their need and satisfaction. Customers now seek more than just brand or product value, and are looking for value in a much wider sense. A critical component of such customer value is service, and a key part of service value is availability. In other words, there is no value in a product until it is in the hands of the customer. Therefore Sony management will always concern towards customer’s feedback in order to deliver a quality products and excellent customer service beyond their expectations. Delays were clearly associated with severe damage to a company’s image, reputation, and customer relationships. The term of Supply Chain Management (SCM) arose in the late 1980s and came into widespread use in the 1990s. Prior to that time, businesses used terms such as logistics and operations management instead. According to Chopra and Meindl (2001) a supply chain consists of all stages involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers, and customers themselves. Ganesh, Ram and Harrison (1995) stated that supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customer.

The goal of SCM is to increase sales of goods and services to the final, end use customer while at the same time reducing both inventory and operating expenses. Supply chain management (SCM) is the concept for handling the production procedures in broad sense. An effective SCM application could promote the industry to satisfy the demand of new business environment. Ross (1998) defined supply chain management as a continuously evolving management philosophy that seeks to unify the collective productive competencies and resources of the business functions found both within the enterprise and outside in the firm’s allied business partners located along intersecting supply channels into a highly competitive, customer enriching supply system focused on developing innovative solutions and synchronizing the flow of marketplace products, services, and information to create unique, individualized sources of customer value. Following Hugos (2003), effective supply chain management requires simultaneous improvements in both customer service levels and the internal operating efficiencies of the companies in the supply chain. Customer service at its most basic level means consistently high order fill rates, high on time delivery rates, and a very low rate of products returned by customers for whatever reason. Internal efficiency for organizations in a supply chain means that these organizations get an attractive rate of return on their investments in inventory and other assets and those they find ways to lower their operating and sales expenses. A company’s supply chain is an integral part of its approach to the markets it serves. The supply chain needs to respond to market requirements and do so in a way that supports the company’s business strategy. The business strategy a company employs starts with the needs of the customers that the company serves or will serve. Depending on the needs of its customers, a company’s supply chain must
deliver the appropriate mix of responsiveness and efficiency. As such, the company will be more efficient in terms of meeting the customer needs, gaining the market share and become more profitability.

There is a difference between the concept of SCM and the traditional concept of logistics. Logistics typically refers to the activities that occur within the boundaries of a single organization and supply chain is refers to the networks of the companies that working together and coordinate their actions to deliver the product into the market. Traditional logistics focuses on activities such as procurement, distribution, maintenance, and inventory management. Supply Chain Management acknowledged all of the traditional logistics and also includes the activities such as marketing, new product development, finance, and customer service. In the widen view of supply chain, these additional activities are now seen as a part of the work that needs to fulfil the demand by the customer. SCM views the supply chain and the organizations as a single entity. It brings systems into approach by understanding and managing the different activities that enquired the coordinating of the products flow and services to best level in order to satisfy the customers’ requirement. This systems approach provides the framework in which to best respond to business requirements that otherwise would seem to be in conflict with each other.

Logistics has been established since 1950s, there were numerous researches focused on this research by a different area. Due to the trend of nationalisation and globalisation in recent decades, the importance of logistics management has been growing in the various areas. For the industries, logistics helps to optimise the existing production and distribution processes based on the same resources through management techniques for promoting the efficiency and competitiveness of enterprises. Council of Logistics Management (1991) defined that logistics is part of the supply chain process that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers’ requirements. Johnson and Wood’s definition (Tilanus, 1997) uses five important key terms, which are logistics, inbound logistics, materials management, physical distribution, and supply chain management. Logistics describes the entire process of materials and products moving into, through and out of firm. Inbound logistics covers the movement of material received from suppliers. Materials management describes the movement of materials and components within a firm.

Physical distribution refers to the movement of goods outward from the end of the assembly line to the customer. Finally, supply chain management is larger than logistics, and it links logistics more directly with the user’s total communications network and with the firm’s engineering staff.

2. Literature review

The first part of this literature review will describe the concept of supply chain management (SCM) and how physical distribution (PD) relates to SCM. The second and third part of this literature review is a summary of research on delays in physical distribution specifically of the factors and causes of delay in PD and the approach adopted base on previous research work to overcome the delay. Later of this part is to explain on the research framework that will guide the
research, determining the variables to measure and the statistical relationship to look for. There are numerous interpretations made by a different researchers pertaining to the definition of the SCM. Therefore, the definition of the SCM may vary from a researcher to another researcher. However, the researchers can conclude that the main point of the SCM is the distribution chain of the product that starts from the raw material until the delivery of the products to the end user. The first research done by Ganeshan and Harrison (1995) had defined SCM as a network of a facilities and distribution options that performs the functions of the procurement of materials, transformations of these materials into intermediate and finished products, and the distribution of these finished products to the customers.

The second research by Lee & Corey (1995), they found out that, the SCM is consist of the integration activities that taken place among a network of facilities that can be obtain from the raw material, transform them into the intermediate goods and to the final products, and finally deliver the products to the customers through a distribution system. The third research done by Christopher (1998) defined that the supply chain is a network of organizations that involved, during the upstream and downstream linkages, in the altered processes and activities that may producing a value in variety of products and services in the hands of the customer end. Otherwise, according to Rajendra et al (2011), researchers stated that the SCM can be defined as management that involves the material, money, workers and information within and across the supply chain that can be fulfil the customer satisfaction and thus getting the competitors edge. The researchers can also conclude that the activities involves in supply chain are consists of the product development, sourcing, production and logistics, with the interference of the information systems that needs to coordinate all those activities therein. Therefore, the distinctive of supply chain are concerning a multiple of stages that may consist of the following:

1. Customers and retailers;
2. Wholesalers or the distributors;
3. Manufacturers;
4. The supplier raw material.

The above design may vary and depends on the customer’s needs and roles of the stages concerned. The research done by Mentzer et al. (2001), realized that the reason of improving the durable performance of the companies and the supply chain as a whole, is because of the systematic and strategic conventional business functions in order to strategize the supply chain business strategy. This shows that the strategy of the supply chain is an important part in order to comply with the company objective. On the other hand, according to Lee and Billington (1995), they are in views that the vital objective of the SCM is to optimizing the performance of the chain by adding a value at the smallest cost. This research was supported by the research done by Finch (2006), whereas found that in order to maximize the productivity in the SCM that also can benefited all the parties are by linkage all the supply chain agents to mutually corporate within the firm. Based on the research done by the previous researchers, can be conclude that the supply chain has their objective in terms of utilising the customer satisfaction via strategizing the strategy in response to sustaining the company performance. Furthermore, there are a correlation between the value and the profit in the supply chain, whereby the difference between revenue generated from the customer and the overall cost of the supply chain will produce a profit for the company.
The next part of this overview section is to differentiate between the terms of logistics and the supply chain management, as the terms are sometimes overlapping with each other. According to Lummus et al (2001), found that there are a ladder to link between logistics and supply chain management. Whereas, both of the researchers namely Srivastava and Srivastava (2006); Meade and Sarkis (2002) has agreed that the logistics is the one of the toughest challenges for the supply chain. As such, the challenge will start when producing the product by the manufacturer and distribute the product to the user. In short, logistics is deem to be recognised as wide set of activities that contributes to the transformation and goods circulations, for example material production supply, the core distribution and transport function, wholesale and retail and also the provision of households with the consumer goods that relates to the flow of the information (Handfield and Nichols, 1999). In response on this, the researchers can conclude that the logistics is the movement of the products involving the services and information from the source point (supplier) to the end user. In order to connect between the supplier and the end user, they apparently involve a management four basic sub-systems which are known as:

i - Supply;
ii - Production support;
iii - Distribution;
iv – Returns

The information of these sub-systems are required to be incorporated in response to achieving the mission of the company to deliver the right product in the right place, for the good quality in the minimal cost that satisfy the customers’ needs. On the other hand, SCM is slightly a wider concept that involves the processes in the logistics management that may carried out within members in supply chain by maintaining the management relationships between suppliers, logistics providers, clients and end users, with the intention to targeting the partnerships or strategic alliances, in order to enable the intense information sharing and resources as such physical, monetary and knowledge sharing. Thus, nowadays the companies do not compete with other companies, but one supply chain competes with other supply chains. So, the companies involved in a specific supply chain are managed as a single entity, not as separated ones.

According to McKinnon et al (2008), found that the physical distribution can be described as a collective term for an activities that begins with the movement of the goods from the production points to the final points of the sales by ensuring the requirement of the mobility of supply chains are wholly met. The researchers can described a physical distribution that contains all of the movement function by handling the goods, transportations services as such i) truck ii) freight rail iii) air freight iv) inland waterways v) pipelines and vi) marine shipping, transhipment and warehousing services for example (consignment, storage and inventory management), trade, wholesale and retailing. According to Hesse, Rodrique (2004), all those activities are expected to derive from the demands of the materials management. Hence, it can be concluded that the functionality of physical distribution in a company are a difficult process whereas it is contains all of the activities that consists of the flow of the goods that starts from the raw material to the end consumer, containing the activities such as purchasing, warehousing, transportation, order processing, and inventory control (Richard Lancioni, John Grashof, 1997).

Further, Lambert and Stock (1993) and Mentzer et al.(2001) stressed that, physical distribution service includes the process that supports the flow of materials and related information from point of origin (stocking location) to point of consumption (the consumer location). Physical
distribution service (PDS) is also part of a broader logistics service, which ranges from marketing customer service to the delivery of products. It canters on three tangible result aspects: (1) inventory availability, (2) timeliness in the duration of the order delivery cycle, and (3) reliability in order fulfillment (Mentzer et al., 2001).

The group of physical distribution or also known as logistics is one of the hurdles tasks facing by the company, as it needs a highly degree of synchronisation among various organizational units with different and sometimes conflicting objectives. The source of these potential conflicts lies in the very nature of the prime objective of physical distribution (PD) determining the best means of moving merchandise from the production unit to the consumer (Richard, 1997). The physical environment of logistics and distribution comprises the “material space” where any social and economic activity is embedded in, and also the hard’ transport infrastructure that is necessary for the efficient operation of the system, like roads, railways, warehouses, terminals or ports. Such physical environment appears as a major external determinant of the movement of vessels and vehicles. It thus can become decisive for the success or the shortcoming of the distribution system.

You and Grossman (2008) has defined that the time delay of the supply chain can be divided into two parts, i) delivery lead time and ii) production lead time. The delivery lead time is described as the time to transfer a product from distribution centre to the end users who are customer, while the production lead time is defined as the flow of time that the material takes to transfer from supplier to the distribution centre. Therefore, the delivery lead time is equivalent to the transportation time from the distribution centre to the customer. As for production lead time, it is equivalent to the addition of all the delayed time gained by transportation and production from the supplier to the distribution center. This explanation of the time delay is also similar to the “value stream mapping” lean tool (Voekel and Chapman, 2003). In a simple definition, delay can also be defined in an operation term as the time entities spend in the system not being processed (Hopp, 2011).

Theoretically, there are factors that influence the delivery delays in physical distribution. Grant (2006) emphasise that the key opportunity to perk up both the competitive performance and profitability of firms is by having an effective logistics management. Many companies focus more upon physical distribution logistic systems because of the costs involved and because handling the physical distribution logistic system well will make it easier to achieve and sustain the market share. As such, logistics can be one of the competitive advantages for a company as it is difficult to be copied than any other elements in marketing mix. Firm’s operation and supply chain can be costly to the firm and investors when they experienced disruption (Hendricks and Singhal 2003, 2005a). Raman et al. (2009) provides an example of Airbus of European Aeronautic Defence and Space Company N.V. (EADS) experiencing problems with the supply disruption and installation of electrical harnesses for its new A380 super-jumbo jet that caused delivery of the aircraft would be delayed by approximately six months. These has lead to EADS stock plunged by over 26 percents due to implication of announced disruption.
Furthermore, McKinnon et al. (2008) stated in their findings that warehouse operation which includes poor production planning, equipment breakdowns and staffing problems, which possibly occur more frequently and lead to longer average delays in PD. Literature verified inefficient intermodal transport can cause difficulty and delays and error to the supply chain. Even though this process has been upgraded through the use of containers designed to be carried through ship, train, and truck, delays and potential for error still occurred said Prater, Biehl, Smith (2001). The key role of an integrated logistics system is to assist in the production, consumption and distribution, in other word, the supply chain, of goods and services which means that goods must be produced and delivered to the market in the right quantity and without defect Banomyong (2005).

Delays occur when a delivery process takes place later than scheduled. Delays are mostly caused by three factors: road network congestion, production output and operational problems in unloading and loading (Sanchez-Rodrigues, Potter, M.Naim 2010). A rigid routing plan can lead to inefficiencies in the transport routing process (Naim et al., 2006). This can cause diversions due to unplanned congestion. Also, inadequate capacity of fleet can be a cause of delays in the process of delivery to customers as well as disruption of transport operations, (Fowkes et al., 2004). This can have an adverse effect on the frequency and ultimate on the length of delivery. Also, transport delays due to inefficiency at the shipper and/or carrier can have a negative effect on the average load on laden trips (McKinnon and Ge, 2004), since due to delays a potential full load in a single vehicle can become two half-full vehicles. Delaying shipments until carriage in full truck loads can be a good idea in reducing the costs for arranging the delivery and increasing efficiency for the logistics service provider. Unfortunately, at the same time, this would lead to dropping in service efficiency provided to shippers and addressee. Performance are not being measures alone, the outstanding of effectiveness and efficiency services also reflect the performance of supply chain in transport logistics (Lai, Ngai, Cheng, 2002).

The intricacy of various models of operations can result in serious inefficiencies in logistics. Some examples of inefficiencies associated to the use of road and sea transportation include container lorries missing time slots due to delays for loading a container on a ship, penalties of thousands of Euros when a vessel has to spend an extra day docked in order for it to be clear out, moving discharged goods to the wrong depot/warehouse within the port or haulage vehicles remaining idle (Mondragon et al. 2009). Somuyiwa et.al (2011), notes that the congestion of traffic becomes so obvious when determine in terms of delays, which can be clarify as the time lost by vehicle due to traffic friction that are possibly to be caused by other vehicle’s inefficiencies or ineffectiveness as in the case of accidents, manouevring problems, parking and vehicle breakdown. Based on the literature review, the conceptual frameworks are shown in Figure 2.1 and Figure 2.2.
From SSCSM case, it shows on how the forwarding company system work and the problems they have met. It also helps us to understand the challenges faced by most of forwarding company in Malaysia. To our knowledge, we have not found any comprehensive studies reported in the literature focusing on the delays in physical distribution by firms in Malaysia. Therefore, this study aims to fill this gap.

3. Methodology

To examine the factors of delay in physical distribution in SSCSM, a study was conducted during the second and third quarter of year 2012. The survey instrument was based on the structured interview which will be supported by the document, reviews for example journals, records and documents collected. Finally, the data was gathered in order to find the factors and causes of physical distribution delays. The focus of the survey instrument was on the following areas:

- To identify the factors that cause of product delivery delay to customers.
- To analyze the causes that may contribute to product delivery delay to customers.

Data collection can be divided by two methods, which are primary data and secondary data. According to Denzin (2001), stated that the interviews must be more than collecting information; it must be reflect with the background of real life issue. As such, researchers have collected the data from the first-hand experience known as primary data that taken place via interviewing the respective direct workers who are involved in physical distribution in Sony Supply Chain Solutions Malaysia (SSCSM). The interviewees selection are very keen to carry out as the
researchers only choose the experience workers who are directly involve in this product distribution. According to Chua (2006), the secondary data research is a systematic data collection and assessment of objectively previous data. Therefore, for the secondary data, the researchers collected from the documents review for example journals and data records. Analysis of the response is presented in section 4.

4. Results

The main interviewee of this case study is Mr Rosli Zaini, the Operations Manager who has the experience with SSCSM for the past 18 years. In order to ask the right questions, the theoretical knowledge has been worked with reference, and aimed at creating the interview guideline. Interview questions are divided into four parts: i) the basic information and facts of company, ii) what factors contribute to product delivery delay, iii) causes of product delivery delay and iv) how to overcome the problem.

4.1 Factors of Delivery Delay

In order to define a factors of the product delivery delay, researchers needs to analyse the current distribution operation network in order to enhance the findings. The findings revealed that, there are four factors that can contribute to make product delivery delays which are: i) transportation, ii) warehouse operations, iii) material and iv) product supply. Mr. Rosli had emphasized that, there are about 100 cases of product delivery delay occurred in SSCSM for the past 5 months in Figure 4.9. From the total of that, 96 cases are due to transport delay and 4 cases are due to product supply delay. Another five respondents said that, the factor of product delivery delay due to transportation delay. The answer given from five respondents are related to their distribution logistic operation only. Therefore with respect to RQ1, finding showed that factor of product delivery delays are due to transportation and product supply problem.

![Pareto Chart Number of Delays](image-url)
4.2 Causes of Delivery Delay

Based on previous analysis in distribution operation network, the causes that can contribute to transportation delays are due to container supply, prime mover and trucking movement and freight vessel shipment. Whereby, the cause of product supply delay is due to production output shortage. In Figure 4.10 shows the cause and effect diagram analysis factor of product delivery delay in SSCSM logistic operations. The data was collected from interview session with respondents in SSCSM companies.

The main contribution cause of delay is due to freight vessel problem such as vessel delay, port congested and vessel schedule change. Next potential cause is warehouse operation management. Other five respondents said the cause of product delivery delays are due to freight vessel problem. There are causes from manufacturer such as production output shortage due to production behind a schedule and poor of quality. SSCSM always face a product delivery delay due to freight vessel problem. The product delivery delay occurred during a vessel shipping node operation as show in Figure 4.12.
The researchers found that the product on time delivery is the most important thing for the company. In order to ensure the on time delivery of products, SSCSM makes an agreement in the annual contract with its shipping liner. It has making to be clear the indication of accountability, where if there is any product delivery delay, the shipping liner will need to bear all responsibilities. In SSCSM, they used 12 shipping lines for sea freight products delivery operations. Among the liners are China Shipping Container Line (CSCL), Orient Overseas Container Line (OOCL), K Line, Evergreen, CMA CGM, Hyundai, Nippon Yusen Kaisha (NYK), MAL, UAC, YAS, Wan Hai, and MOL. Pareto chart in Figure 4.13 show that the number of freight vessel delay by shipping liners. From the data given, the OOCL shipping liner is major contributor that causes of product delivery delay to customer. It then followed by K Line, Evergreen, CSCL and CMA shipping line. It showed also the trend of shipping line delay is decrease from month of July until November 2012.

![Vessel Delay Frequency by Shipping Line](image)

Figure 4.13: Pareto Chart Vessel Delay Frequency by Shipping Liner (Source: KL Tec, 2012)

From the 100 cases of product delivery delay occurred in SSCSM, 96 cases are due to vessel problem such as previous port congested, previous port delay, loading port congested, vessel omit and vessel changed. Another 4 cases are due to production output shortage such as 1 case because of production behind a schedule and 3 cases because of quality defect. Detail for others type of cause freight vessel problem are display in Figure 4.15.
5. **Conclusion and Recommendation**

The results of the study show that the main factor of delays in physical distribution is due to inefficient of maritime transportation system. Here, slightly stronger relationships are evident in the conceptual framework with the findings of a study. In addition, the results suggest that the operation of transportation determines the efficiency of physical distribution logistic. Transporting is required in the whole of physical distribution process from supply of finish goods to delivery to customers. Thus, we can conclude that transportation system takes a crucial part in the management of physical distribution logistic. Besides being the crucial part in economy transports also become the most important thing in human activities whereas it plays major roles in connecting people from one location to another locations. As such, it’s links between regions and economic activities, between people and the rest of the world.

Due to new corporate strategies, a concentration of logistics functions in certain facilities at strategic locations is prevalent. Many improvements in freight flows are achieved at terminals. Facilities are much larger than before, the locations being characterized by a particular connection of regional and long distance relations. Today, particularly the large scale goods flows are directed through major gateways and hubs, mainly large ports and major airports, also highway intersections with access to a regional market. The changing geography of manufacturing and industrial production has been accompanied by a changing geography of freight distribution taking advantages of intermediary locations.

The growing flows of freight distribution have been a fundamental component of contemporary changes in economic systems at the global, regional and local scales. These changes are not merely quantitative with more freight transportation in circulation, but structural and operational. Structural changes mainly involve manufacturing systems with their geography of production, while operational changes mainly concern freight transportation with its geography of distribution. As such, the fundamental question does not necessarily reside in the nature, origins and destinations of freight movements, but how this freight is moving. New modes of production
are concomitant with new modes of distribution, which brings forward the realm of logistics; the science of physical distribution. According to Rodrigue (2013), logistics involves a wide set of activities dedicated to the transformation and distribution of goods, from raw material sourcing to final market distribution as well as the related information flows.

The application of logistics enables a greater efficiency of movements with an appropriate choice of modes, terminals, routes and scheduling. The implied purpose of logistics is to fulfilling four principal components of PDM related to order, delivery, quality and cost. Activities comprising logistics include physical distribution. Rodrigue (2013) stated that, physical distribution is the collective term for the range of activities involved in the movement of goods from points of production to final points of sale and consumption. It must insure that the mobility requirements of supply chains are entirely met. Physical distribution includes all the functions of movement and handling of goods, particularly transportation services (trucking, freight rail, air freight, inland waterways, marine shipping, and pipelines), trans-shipment and warehousing services (e.g. consignment, storage, inventory management), trade, wholesale and, in principle, retail.

Thus, logistics is a fundamental component of efficiency improvements in product delivery delay. In logistics, the operation of transportation determines the efficiency of moving products. Without well developed transportation systems, physical distribution logistics could not bring its advantages into full play. Besides, a good transport system could provide better logistics efficiency, reduce operation cost, and promote service quality.

The recommendations had been gained from the finding of study in section 4. With regards to the findings of factor and cause of delivery delay, SSCSM should be very selective and very prudent in choosing their shipping liner provider. Service aspects provided by the ship liners companies such as the rate, frequency of sailings, and reputation were important determinants of a shipper’s selection. The scale of logistics has changed since the development of new technologies in order to compete within companies on adaptability and responsiveness of its service and customers’ expectation.

To improve service levels further, integration of information technology and logistics management between SSCSM and ship liners system also important. All this while, SSCSM have for a long time using in-house information systems to support their operation. Hence, such integrated systems for example, E-commerce or other ICT tools between SSCSM and ship liner will enable them to exchange the information of physical movement frequently. It will also enable SSCSM to reduce inventories and use resources most effectively.

SSCSM also should set an award program between ship liners that engaged to them to encourage and support sustainability within them. SSCSM will be able to offer ship liners an opportunity to be compared by a standard measure and to their competitors. For customers and interested stakeholders an award scheme creates trust in the logistics service provider performance in the field of sustainability. Improving physical distribution starts by closing the gap with customers.
The entire supply chain must understand and meet customers’ requirements. Logistics has become more important and is known as a critical factor in competitive advantage.

With bigger global competition, the function of logistics in term of their logistic system planning, logistics investment analysis and a well design distribution can be further explored in order to let a company to gain a competitive advantage. Besides that, port also can implement the usage of Electronic Port Clearance to increase their port productivity and efficiency. The implementation and usage of electronic port clearance can be used as the medium to increase the port productivity and efficiency. The implementation of a system for maritime exchange of information from ship to shore, shore to ship and between all stakeholders, using service such as Long Range Identification and Tracking (LRIT) and Automatic Identification System (AIS) will facilitate safer and more expedient navigation and logistic operations, whereby improving maritime transport integration with other transport modes.

Next implementation is measuring port performance based on new PPI’s. A Port Performance Indicators (PPI) for example, in the context of their role, position and linkage within the global logistics chain. Measuring port performance can be done by way of studying the links and integrations between ports and other institutions by way of their design, functions and services. An SCM based framework can cover a range of measurable performance indicators and can even highlight areas of further research and improvement for the ports. Last but not least in many areas of sea freight transport logistics there are shortage of skilled personnel. Therefore, shipping liner could alleviate these shortages by targeting interventions towards training programme development. Efforts are required to focus and enhance the qualifications of personnel by strengthening competence in freight transport logistic operation areas.

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