# Supply Chain Management Practices of ESCO Philippines Inc.

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Abstract: *The main purpose of this study is to assess the supply chain management practices of ESCO Philippines Inc. This study aimed to investigate and present the relationship of the supply chain management practices in terms of procurement, warehousing, and transportation activity. Specifically, the study sought to determine practices being implemented in the entire supply chain of the company and propose strategic actions based on the findings of the study that may contribute to the operational success of their supply chain. In this study, the descriptive research method was used to define ESCO Philippines Inc.'s current supply chain management whereas adopted and modified survey questionnaires from previous related studies were used to gather data from a total of 64 respondents coming from the supply chain department. The findings revealed that warehousing management got the lowest composite mean among the three practices being evaluated and there was a positive relationship among the supply chain practices. The results also showed a Medium Correlation between the variables. This study solely focused on supply chain practices that were being implemented in ESCO Philippines Inc. which falls under the Retail Industry and therefore results should be cautiously extended to other companies within the same industry for future references.*

***Keywords*** *–Procurement and Inventory, Retail Industry, Transportation, Warehousing*

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## INTRODUCTION

In today's modern world, a lot of businesses are going global and engaging themselves with diverse operations to cater to their customers in the best possible way. The success of a company relies on the proper management of all its departments. Whether it provides goods or services, their end goal is always to earn profit and eventually reach its end-users. As customers become demanding and always want fast transactions and delivery, businesses as well should come up with these changes.

Businesses failed to survive with the changes brought about by rapid shifting of demands and current situations in a country due to the poor management of their operations. That is why large companies put a lot of effort to create ways wherein they can maintain their business without experiencing shut-offs or stock-outs.

Most of the time, the retail industry is highly affected by these inevitable changes. According to Kumar et al. [1], the retail industry is changing constantly and there are always lots of challenges faced by its industry players. There are several major retail businesses and companies permanently stop operating due to bankruptcy since the year 2017. And this year 2020, after the pandemic COVID-19, an increasing number of retailers have closed their entire businesses. However, not all retailers are experiencing a decline in their revenues, some are gaining profits amid this global pandemic. Those retailers who sell medical supplies, medical equipment, masks, food, and other essentials, especially during the quarantine period are getting the spotlight.

ESCO falls under the Retail industry which offers both products and services related to the field of bioscience. It was originally a family-owned business founded in Singapore way back in 1978 by two pharmacists - Low Yae Foong and Lim Lay Yew. Later on, ESCO expanded its business operations across 100 countries around the globe thereby creating ESCO Philippines Inc. It has its offices and distribution centers in Davao and Manila. Their scope covers Life Sciences innovations, Medical and Healthcare which aids in creating drugs safer and more cost-effective for biopharmaceutical companies, and lowering the cost of manufacturing vaccines through their innovative medical devices and diagnostics. Since it caters to a broader aspect in the medical field, it is quite essential for the company to have a competitive Supply Chain Management that will enable them to widen their business scope and gain a better foothold in the industry.

According to Mangan and Lalwani [2], SCM is the administration of a network of enterprises, both upstream and downstream, across and within it. Its goal in a company is to add value, improve efficiency, and most importantly, please customers. As stated by Roshan, Tavakkoli-Moghaddam, and Rahimi [3], the supply chain management refers to operations that are authorized to manage the sectors of a supply chain to increase customer value and maintain a competitive advantage. SCM may be beneficial in a variety of businesses. One of them is the pharmaceutical business which creates movements and procedures to foster new product development and discovery such as pharmaceuticals and medicines. The pharmaceutical supply chain is important, based on the study of Mehralian, et al. [4], because it demonstrates how necessary these items are delivered to end-users at the correct quality, at the right place, and at the right time. Chandra, and Kumar [5] stated that the method of controlling the entire supply chain of retail organizations is called Retail Supply Chain Management. The transfer of high volumes of inventory and the fast operation in nature of retail items distinguishes retail supply chain management from other supply chain management. Because the goods are continually on the move and the cycle time is relatively short, the retail supply chain must be closely regulated and defect-free. Furthermore, in the retail industry, a constant flow of items via the supply chain is critical to any company's success. As a result, retail management is critical for every business in the retail industry, and it must be closely monitored and well managed.

This research focuses on the study of the supply chain management practices of ESCO to delve into the true state of the Philippines' supply chain given the country's various enterprises that span the world. It's to reaffirm the importance of supply chain management for large corporations as it is critical to their success. Not only that, it will also help to demonstrate how supply chain management works and how it affects a company's everyday operations Furthermore, this is done to open the eyes of merchants and other business owners who are battling with the changes brought about by current scenarios that there may be ways for them to overcome all of these obstacles despite today's stronger market competition.

## OBJECTIVE OF THE STUDY

This study aimed to assess the supply chain management of ESCO Philippines Inc. Specifically, it sought to assess the supply chain practices in terms of procurement/inventory, warehousing, and transportation activity; to determine the relationship among the three supply chain practices; and to propose strategies to improve the company's SCM based on the results of the study.

## METHODS

### Research Design

The descriptive method of research was utilized in this study to delineate the supply chain management of ESCO Philippines Inc. using survey questionnaires. According to Loeb, et al [6], descriptive research is a scientific method used to describe data and characteristics of the subject, the population or the phenomenon being studied. It is concerned with conditions that exist, processes that are going on, and practices that prevail. A survey is one way to quickly gather data from a primary source by answering a series of questionnaires.

The descriptive nature of gathering data using survey questionnaires was utilized for two main purposes. The first is

to develop an interpretation of the research study which is the SCM Practices of ESCO Philippines Inc. Second, the basis of the research study is data gathered from questionnaires using a quantitative study.

**Participants of the Study**

This study involved the employees of ESCO Philippines Inc. under the supply chain department – Manila and Davao branches which comprised a total number of sixty-four (64) respondents. From the Manila branch – a total of thirty-three (33) employees, seven (7) employees from the procurement/inventory department, twenty (20) from their warehousing, and six (6) from their transportation department. On the other hand, the Davao branch comprises a total number of thirty-one (31) employees. Five (5) employees under the procurement/inventory department, twenty (20) from the warehousing, and six (6) employees under the transportation. The heads of their department participated in the survey and interviews to gather accurate information about their SCM practices.

**Instrument**

The adopted survey questionnaires were utilized wherein some parts were being modified to gather data and identify the specific areas in the Supply Chain that can still be developed to aid in the operations of companies or businesses under the Retail Industry. The questionnaire was validated by an expert in the field of SCM and was consolidated from previous research studies. The questionnaire was sub-divided into three parts: Part 1A is about Procurement and Inventory Management. Questionnaires was modified from previous studies of Ibem, and Laryea [7], Demissie [8], and Chingaya [9]. Part 1B which tackles about the Warehousing Management was modified from the previous research studies of Chemutai [10], Myinga [11], and Shnayder [12]. Part 1C comprised Transportation Management and was modified from previous research studies by Chemutai [10], Kumah [13], Myinga [11], and Musau, et al. [14].

**Procedure**

After the conceptualization and approval of the research, gathering relevant literature reviews from various resources such as previous research studies published on the web, articles and books, and also from discussions on the internet were being done. The forming of the conceptual framework which became the basis for the whole study and a guide in the formulation of rational objectives and finding of relevant questionnaires was then conducted afterward. Next, the questionnaires were adopted and modified from previous studies to come up with the survey to be distributed to the respondents of this study. After the approval of the questionnaires, copies were distributed to the said participants of ESCO Philippines Inc. Participants were given enough time to answer the questionnaires. After such time, data were retrieved.

**Ethical Consideration**

Some ethical issues were considered that may arise while conducting the research. The permission of the management of the company involved was asked before the conduct of the research survey. The participation of the respondents did not put them to be the subject of sales calls, political lobbying, or fundraising. The personal information of individual participants and all information obtained in the course of conducting the research were kept with the utmost confidentiality. An informed consent form as well was provided before answering the survey questionnaires.

Moreover, the results of the survey were recorded and tabulated accordingly and in a professional way. The data collected, methods, and procedures were done without any manipulation. This is to provide them with a genuine result for the research without any alteration.

**Data Analysis**

The data collected from this research instrument were tallied and encoded for interpretation based on the answers of the said participants.

The data was interpreted using statistical tools. Weighted mean and Cohen's criteria were utilized in this study. Weighted Mean was used since the study is a descriptive one and the data involved were about the extent or level of supply chain practices that ESCO Company employ in their daily operations. For the Cohen's Criteria, it was used to determine the relationship between the three different practices having such data coming from three different groups with unequal sample sizes.

## RESULTS AND DISCUSSION

**Table 1.** *Supply Chain Management Practices in terms of Procurement (Inventory) Management*

| Indicators | WM | VI | R |
|---|---|---|---|
| 1. Systems and tools are compatible with organizational policies and processes. | 3.4 | A | 7 |
| 2. Ensure purchasing decisions support production. | 3.5 | SA | 4.5 |
| 3. Forecasting determines inventory order size. | 3.6 | SA | 2.5 |
| 4. Optimum levels of inventory are being always maintained. | 3.5 | SA | 4.5 |
| 5. Stock audit practice is used to control inventory. | 3.4 | A | 7 |
| 6. Proper procurement policies and procedures are strictly followed. | 3.4 | A | 7 |
| 7. Ensure materials available are aligned with customer demand. | 3.6 | SA | 2.5 |
| 8. Ensure that inventories at each storage location in the supply chain are up to date. | 3.2 | A | 9 |
| 9. Reorder levels are followed properly. | 3.8 | SA | 1 |
| 10. Securing insurance for inventory items. | 3.1 | A | 10 |
| **Composite Mean** | **3.47** | **Agree** | |

*Legend:3.50 – 4.00 = Strongly Agree (SA); 2.50 – 3.49 = Agree (A); 1.50 – 2.49 = Disagree (D); 1.00 – 1.49 = Strongly Disagree (SD)*

Table 1 depicts the mean distribution of Supply Chain Management Practices in terms of Procurement (Inventory) Management. "Reorder levels are followed properly" (3.80). ranks first and is strongly agreed upon by respondents. This signifies that there are enough inventories to fulfill demand; the inventory level is dropped by the same amount as the demand. When the reorder point is reached, the variable "order" is set to the assigned value, causing the replenishment loop to begin and the inventory to be filled.

If this is not the case, the entity will be barred from participating in the scheme according to Wang, Dang, & Nguyen [15]. Second to the highest, two indicators tied in ranking which garnered a weighted mean of 3.6 and was interpreted as strongly agreed which can be seen in the table. "Securing insurance for inventory items" (3.1) ranked tenth and was understood as agreed upon by the respondents. Insurance is also required for the transportation of their items from suppliers to warehouses and finally to their final clients. Even though it does not rank first, employees agreed that it is extremely significant.

According to Barwa [16], because inventory is highly-priced to stock, it is critical to keep inventory volumes low – on a per-order basis – to avoid carrying costs such as insurance. Carrying costs can be imposed when manufactured items and raw materials both require storage space and insurance, where insurance protects against damage in the event of unanticipated events, as well as additional costs associated with inventory holding.

Table 2 shows the mean distribution of the Supply Chain Management practices in terms of Warehousing Management. The table garnered a composite mean of 3.28 which indicates that respondents under warehousing management agreed on the mentioned indicators. The indicator that ranks first is the "Use of MS Excel to count and register received goods for inventory records". According to Steven [17], Microsoft Excel is an application development platform that excels at organizing certain kinds of data. Its primary key feature is its constructed formulations that further record transactions derived from data input. Compared to the manual inventory system, this significantly improves its efficiency and accuracy. The Products Tab on the Excel sheet must contain a precise inventory database. This could keep records of expiration dates, item sizes, warranty information, item condition, or product codes. Preparing items to depart the warehouse as soon as they are received, or the cross-docking strategy ranks tenth and was disagreed. This might be due to the need for a warehouse to keep the goods and ensure the safety of each item before distributing them to clients. According to IvyPanda [18], caused of a lack of inventory, distributors must produce goods in response to retailer orders, which requires the retailer to correctly predict the demands of the customer. Many managers believe that traditional distribution centers are better suited for small DCs and retailers because they have more capability in changing orders and would not have to worry about uncertain customer demand.

**Table 2.** *Supply Chain Management Practices in terms of Warehousing Management*

| Indicators | WM | VI | R |
|---|---|---|---|
| 1. Getting advance notification from supplier or forwarder | 3.45 | A | 7 |
| 2. Synchronizing warehouse resources (equipment and men) with arriving transport (trucks, planes. etc.) | 3.75 | SA | 3 |
| 3. Maintains good inventory turnover which makes goods and services available at the time of need | 3.725 | SA | 2 |
| 4. Conduct Material/Product Verification which eases the process of clearing and forwarding | 3.425 | A | 5.5 |
| 5. Scheduling of delivery to avoid crowding and delays | 3.425 | A | 5.5 |
| 6. Preparing items to leave the warehouse as soon as received (cross-docking) | 2 | D | 10 |
| 7. No storage location before goods even arrived at the warehouse | 2.3 | D | 9 |
| 8. Uses MS Excel to count and register received goods for inventory records | 3.9 | SA | 1 |
| 9. Uses mechanical equipment such as pallet jack and forklift during receiving, put-away, and storing process. | 3.6 | SA | 4 |
| 10. Warehouse zoning is efficient in the conduct of work | 3.2 | D | 8 |
| **Composite Mean** | **3.28** | **Agree** | |

*Legend:3.50 – 4.00 = Strongly Agree (SA); 2.50 – 3.49 = Agree (A); 1.50 – 2.49 = Disagree (D); 1.00 – 1.49 = Strongly Disagree (SD)*

The employees of ESCO Philippines Inc. under the Transportation Department agreed on the mentioned indicators with a composite mean of 3.37. Delivering products to customers on time is the firm's priority and ensuring the safety and security of products also got the highest rank. Table 3 shows the Mean Distribution of the Supply Chain Management Practices in terms of Transportation Management.

As what Sanchez-Diaz, et al, [19] and Sharaf, et al., [20] stated, the concept of "time efficiency" refers to the process of delivering daily deliveries in the least amount of time possible. Identifying indicators to evaluate it, collecting the correct data, and benchmarking are all important parts of improving transportation efficiency. Vehicles should only visit the customer's location once to reduce travel distance and total time. All the things to be delivered should be transported at once to cut down transportation costs. Designing a targeted reward and punishment management strategy to achieve the safety management level for vehicle transportation sectors has been supported by the study of Sun, et al., [21] and Nwankwo

and Ukhurebor [22]. Also, to guarantee the safety or proper delivery of healthcare services, proper evaluation, and control of various types of risks should be conducted. "The firm has a vehicle inspection schedule" ranked tenth and the lowest among all, with a weighted mean of 2.5 and was disagreed upon by the respondents. ESCO Company does not have a scheduled vehicle inspection. It was only done to detect some problems when encountered and to find causes of delays due to transportation break down or damage. Scheduling an automated vehicle inspection is critical for maximizing the safety benefits of the transport used for delivery. This inspection entails a higher cost and would take time to finish. One of the most common inspection methods used to assess the status of a vehicle is automated vehicle inspections [23].

**Table 3.** *Supply Chain Management Practices in terms of Transportation Management*

| Indicators | WM | VI | R |
|---|---|---|---|
| 1. Uses Water transport which makes delivery fast and effective | 3.33 | A | 7 |
| 2. Road transport makes service delivery efficient | 3.42 | A | 5 |
| 3. Delivering products to customers on time is the firm's priority | 3.83 | SA | 1.5 |
| 4. Ensures safety and security of products to be delivered | 3.83 | SA | 1.5 |
| 5. The type, size, shape, and weight are used as a basis to determine the unit load design in the material handling process and distribution | 3.42 | A | 5 |
| 6. There is a material handling system designed in a manner that can enable the smooth movement of materials relying on their nature | 3.42 | A | 5 |
| 7. There are sufficient transportation units in the firm | 3.25 | A | 8 |
| 8. The firm has installed a tracking system | 3.17 | A | 9 |
| 9. The firm has a vehicle inspection schedule | 2.5 | D | 10 |
| 10. The level of competence and quality of logistics services is high | 3.5 | SA | 3 |
| **Composite Mean** | **3.37** | **Agree** | |

*Legend:3.50 – 4.00 = Strongly Agree (SA); 2.50 – 3.49 = Agree (A); 1.50 – 2.49 = Disagree (D); 1.00 – 1.49 = Strongly Disagree (SD)*

Table 4 shows that Procurement Management ranks top with a weighted mean of 3.47 and was interpreted as agree. It shows that ESCO's procurement management is highly efficient in its operations. It was supported by a study by Swayam and Bikram [24], which found that inventory control is sufficient when a corporation buys the right order at the right time, for a lower price, and at the right level. It generates just enough things to meet consumer demands without going over budget. Inventory management is critical because it can have an impact on other departments along the supply chain. "The Transportation Management" (3.37) comes in the second rank and is interpreted as agreed.

**Table 4.** *Summary of the Mean Distribution of the SCM Practices of ESCO Philippines Inc.*

| Indicators | WM | VI | R |
|---|---|---|---|
| 1. Procurement (Inventory) | 3.47 | A | 1 |
| 2. Warehousing | 3.28 | A | 3 |
| 3. Transportation | 3.37 | A | 2 |
| **Composite Mean** | **3.37** | **Agree** | |

*Legend:3.50 – 4.00 = Strongly Agree (SA); 2.50 – 3.49 = Agree (A); 1.50 – 2.49 = Disagree (D); 1.00 – 1.49 = Strongly Disagree (SD)*

ESCO makes good use of its transportation units. They remain on top by serving their clients and consumers with on-time delivery. According to the findings of a study done by Musau, et al., [25], transportation management was perceived to have a substantial impact on business performance. Warehousing Management had the lowest weighted mean of the three practices, with a weighted mean of 3.28, which was similarly evaluated as agree. According to study findings of Masudin, et al., [26] a warehouse management system has a good impact on an organizational operation in supply chain management by reducing operational expenses and strengthening the company's competitive advantage through the adoption of a distinctive business strategy.

**Table 5.** *Relationship between the SCM Practices*

| SCM Practices | $eta^2$ | p-value | Interpretation |
|---|---|---|---|
| **Effect Correlation** | 0.106382979 | 0.032 | Medium correlation |

***N= 64, p-value < 0.05***

Table 5 demonstrates that the supply chain procedures have a beneficial association. Using Cohen's criteria, it was discovered that the variables have a medium correlation based on the estimated eta2 value of 0.10. As a result, everything in the Supply Chain is interrelated and connected. The study of Anitha and Patil [27] supports a need for excellent SCM execution for a seamless flow of supply chain activities from procurement to warehousing and transportation. Logistics is defined as the process of managing the acquisition, storage, and transportation of items, as well as the accompanying information flow, to maximize an organization's advantage through cost-effective order fulfillment. Furthermore, according to the findings of Mayaka [28] SCM Practices have a significant impact on organizational performance, as every part of the supply chain is critical to the execution of the business's daily operations.

## CONCLUSION AND RECOMMENDATION

Based on the findings of the study, it shows that among the three practices namely, Procurement and Inventory, Warehousing and Transportation Management, Warehousing Management got the lowest rank. It thus means that there is still room for improvements with regard to the management of their warehouse. There is also a positive relationship among

the supply chain practices. Activities within the Supply Chain of ESCO Philippines Inc. are interrelated and thus contribute to the success of the operations of the company. Furthermore, this research empirically assessed the Supply Chain Management of ESCO Philippines Inc. as well as its key indicators that contributed to its operational success and at the same time provided some strategic suggestions for the improvement of their supply chain operations that will add to the ability of the company to respond to the issues that might occur in the process.

From the findings of the study and conclusions drawn, recommendations are hereby given: (1) ESCO may focus on warehousing management since it has the lowest Composite Mean among the three practices. Maintaining the standard that they have in Supply Chain Management is also advisable. ESCO may consider some new techniques which might improve other aspects to save time and other expenses. Having a temporary area near the receiving and loading place for scanning and inventory purposes may cut-down expenses when goods will be delivered immediately to the customers after arrival in the warehouse. At the same time, employees can retrieve items quickly without looking for them inside the warehouse. (2) As for warehousing management, to support the use of MS Excel and to achieve higher accuracy when it comes to managing inventory in the warehouse conducting regular audits can be beneficial to the company as it avoids any inefficiency and negative impact on the whole process. Also, to avoid inaccurate information, equip the staff with innovative technologies that will help them ease the encoding and scanning of the received items. (3) The procurement head team may conduct management and employee training and assistance to update software technology for the establishment of procurement policies, security, and inventory system of ESCO Philippines. (4) In line with delivering the goods to customers on time, keeping the customers informed about the purchasing process and being transparent throughout the logistic process may be done to increase customer satisfaction by giving automated updates regarding the delivery of the items. (5) The IT Team may create software that allows the haulage team to make a scheduled delivery plan for truck dispatch with a tracking system for close monitoring of day-to-day deliveries and to ensure that there will be no delays in the delivery of goods to the customers. As well, management may acquire more transportation units for fast deliveries. (6) Develop and adopt modern systems to speed up organization efficiency and lead time, which provide real-time updates of the movement of the goods and focus on vehicle inspection whenever a vehicle leaves the warehouse to take preventive measures against accidents. (7) Take into consideration all aspects of the Supply Chain since everything is interconnected to avoid delays in operations. (8) Conduct future research to collect more historical data on supply chain management. These would give a greater understanding of retail industry practices when state conditions adversely affect the economy.

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