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Logistics Management

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1.0 PURPOSE

This chapter describes how Logistics Management (LM) functions as part of the Supply Chain Management (SCM) cycle. LM is the implementation and efficient and effective management of the, movement, and storage of products, services, and related information, from the point of origin to the point of consumption, to comply with customer needs.

LM is a hands-on, more physical aspect of SCM where goods are transported to a Facility, properly processed, controlled, and then transported out. LM focuses on short-term operations, whilst SCM focuses on long-term goals.

The Logistics 'Seven Rights' are;

1. Right Materials
2. Right Place
3. Right Price
4. Right Customer
5. Right Condition
6. Right Time
7. Right Quantity

When all put together you have; The right materials to the right customer, at the right place and the right time. For the right cost, with the right condition, in the right quantities.

This helps to;

- Improve efficiency of the operation(s)
- Ensure customer satisfaction, and
- Increase productivity.

2.0 SCOPE

This chapter will discuss the objectives of the logistics function, the logistics 'Seven Rights' (as mentioned above), and guidelines for the following areas:

- Logistics Strategy
- Inbound Logistics
- Outbound Logistics
- Transportation Management System (TMS)

This also includes how to build control in LM, the inbound and outbound logistics transactions, and how performance is measured through the Key Performance Indicators (KPIs).

3.0 DEFINITIONS

Term	Definition
Drop Shipping	To ship goods from a supplier directly to a customer
Enterprise Resource Planning (ERP)	It is a software that allows the integration of operations and resources and manages them through one program. This approach to management is called Integration. Most large companies in the world use ERP to manage various aspects of their businesses. These are product planning, parts planning, parts procurement and inventory management, interacting with suppliers, providing customer service, and tracking orders. It can also include applications to manage finance and human resources.
Inbound Logistics	The one of the primary processes of logistics concentrating on purchasing and arranging the inbound movement of materials, parts, or unfinished inventory from suppliers to manufacturing or assembly plants, warehouses, or retail stores

Term	Definition
Key Performance Indicator (KPI)	A type of performance measurement. Key performance indicators refer to a set of quantifiable measurements used to gauge an organization's overall long-term performance.
Logistics Management (LM)	It is the part of supply chain management that plans, implements, and manages the effective forward and reverse movement, and storage of products, services and related information, from the point of origin to the point of consumption, to satisfy customer requirements.
Outbound Logistics	The process related to the storage and movement of the final product, materials or parts and the related information from the end of the production line, warehouses or retail stores to the end user
Procurement Management	The act of obtaining or buying goods and services. The procedure involves the planning and processing of an application, as well as the final receipt and payment approval.
Reverse Logistics	Reverse logistics is linked to the reuse of goods and services for all operations. It is the method of moving goods from their usual destination, for the purpose of collecting value, or for appropriate disposal.
Stakeholder	An individual, party, or organization, having an organizational interest or concern. Stakeholders may influence, or be influenced by the actions, goals, and policies of the organization.
Supplier	Supplier is any organization or proprietor that receives a purchase order, or enters into an agreement to provide a service, furnish equipment or materials, on any Prime Contract, and does not employ on-site labor for doing so. It is the intent of this definition that a manufacturer's service, erection and commissioning supervisors, technical staff, testing engineers, and delivery drivers (e.g., of ready-mixed concrete), are not considered as labor employed on the work-site, and are instead, classified as contractors.
Third-party logistics	Third party logistics, in logistics and supply chain management, is the use of external companies by an organization, to outsource elements of their distribution, warehousing, and fulfillment services.
Transportation Management System (TMS)	A transportation management system is a subset of supply chain management concerned with transportation operations, and may be part of an enterprise resource planning system.
Warehouse Management System (WMS)	The Warehouse Management System is a software application designed to support and automate the warehouse and distribution center's management features.
Acronyms	
DO	Delivery Order(s)
ERP	Enterprise Resource Planning
LM	Logistics Management
PO	Purchase Order(s)
SCM	Supply Chain Management
SRM	Supplier Relationship Management
TMS	Transport Management System
VCP	Vendor Compliance Program
WMS	Warehouse Management System

Table 1: Definitions

4.0 REFERENCES

- American Productivity & Quality Center, https://www.apqc.org
- Government of Kingdom of Saudi Arabia's Tendering and Procurement Law, www.mof.gov.sa
- National Manual for Assets and Facilities Management, Volume 8, Chapter 2, Procurement General Guidelines – EOM-ZI0-GL-000002
- National Manual for Assets and Facilities Management, Volume 8, Chapter 3, Responsibilities & Thresholds – EOM-ZI0-GL-000003
- National Manual for Assets and Facilities Management, Volume 8, Chapter 4, Procurement Methods – EOM-ZI0-PR-000001
- National Manual for Assets and Facilities Management, Volume 8, Chapter 5, Category Management Guidance – EOM-ZI0-GL-000004
- The Good Practice Guide to FM Procurement by The British Institute of Facility Management (BIFM), UK
- Merriam Webster, https://www.merriam-webster.com/dictionary/drop-ship
- Wikipedia, https://en.wikipedia.org/wiki/Logistics

5.0 RESPONSIBILITIES

Role	Description
Logistics Manager	• Ensures that the entire process of logistics is maintained, developed, and synchronized with the goals of SCM, at an economical cost. • Sets policies and procedures for successful implementation of the logistics system. • Responsible for selecting the right mode of transport when goods are shipped to the destination. • Ensures that the goods are delivered on time, in a secure condition, and to the correct location. • Maintains coordination with third party logistics suppliers, service providers and transport carriers, to ensure a safe and timely dispatch of goods. • Creates and maintains customer support and ensures that no fraud is committed. • Ensures timely payment to third party logistics and services providers, especially in custom clearance areas, in order to avoid any delays due to lack of payment.

Table 2: Responsibilities

6.0 PROCESS

6.1 Logistics Objectives

6.1.1 Inventory Optimization

Inventory is one of the key factors that can have a major impact on an Entity's cash management. There is a tendency to carry more inventory than is necessary to meet the end-user's requirements. An efficient logistics operation supports the Entity by preserving inventory at the lowest optimized level. This can be done through small, but frequent shipments.

6.1.2 Freight-Cost Reduction

Freight is a significant cost-factor in logistics, and can be minimized by choosing the correct mode of transport, freight combination and careful route planning.

6.1.3 Reliability

Material required by the end-user must be delivered on time, not ahead of, or behind schedule. This can only be done through careful preparation and planning of the current transportation methods, and stock.

6.1.4 Minimize Damage

Goods can often be damaged due to inadequate packaging, repeated consignment handling, and other reasons. The damage cost becomes a part of the logistics cost. The use of suitable logistical packaging and mechanized material-handling equipment, can help to reduce damage.

6.1.5 Responsiveness

Logistics must have the capability to provide service to end-users in the shortest time-frame. The technologies used in processing information and communication can be used to improve logistical flexibility, to fulfill the end-user's requirements, in the shortest possible time-frame.

6.2 Logistics Seven Rights

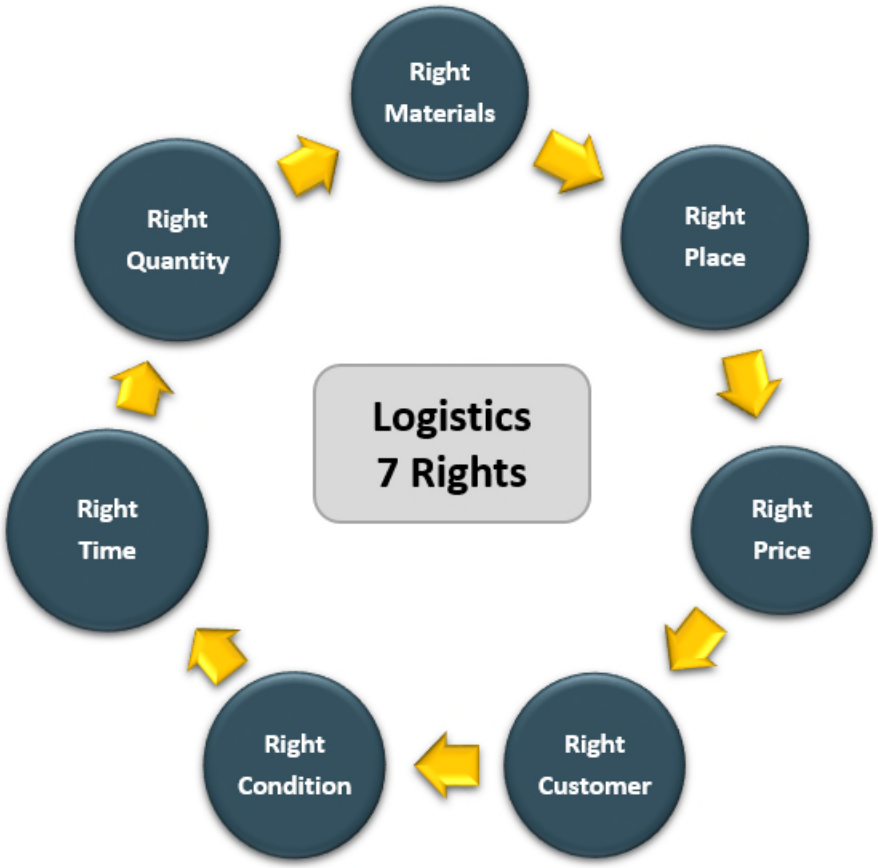

Figure 1: Logistics 7 Rights

6.2.1 Right Material

Purchasing should inform logistics about the description and quantity for all Purchase Orders (PO) sent to the suppliers, in order to arrange the inbound transactions, as well as for Delivery Orders (DO) scheduled for end-users. Based on the descriptions and quantity they should arrange for suitable storage and transportation, for both inbound and outbound logistics.

6.2.2 Right Place

The right material should be delivered to the right place. Logistics should be equipped with user-friendly software for systematic delivery and tracking of shipments, and should also employ experienced drivers. In order to ensure goods are shipped to the correct location, all customers should have integrated location tracking.

6.2.3 Right Price

Pricing of materials is very important, and the price should be consistent across all shipping documents, and should match the price of the materials shown on the purchase order.

6.2.4 Right Customer

The right material should be delivered not only to the right location, but also to the designated recipient.

6.2.5 Right Condition

Customers expect to get their materials in good condition. Any damage which may have happened during transportation should be immediately managed by Logistics, who should report the incident to the insurance company. The damaged item(s) should be returned to the warehouse, and replacements should be delivered to the customer.

6.2.6 Right Time

Time is especially important to customers and they are focused on receiving their requirements, as promised. Logistics will ensure that delivery routes are planned, so that items are delivered when expected. However, it may be necessary to incur additional costs for quick delivery, and it may also be necessary to pay incentives to their employees for quicker delivery. Both logistics and the customers, can monitor deliveries through the online tracking system.

6.2.7 Right Quantity

Logistics should ensure that the quantities received through inbound logistics are the same as those described in the Purchase Order (PO). Similarly, quantities delivered through outbound logistics should match with those described in the Delivery Order (DO). Vehicles should be arranged based on the customer's orders and quantities.

6.3 Logistics Strategy

The whole supply chain environment is continuously changing and therefore, logistics roles must be flexible to adapt to such changes. This is how the development and implementation of a structured logistics plan brings consistency to the decision-making process, and increases the time available for dealing with a changing environment. Having a strategic plan allows the logistics organization to know how to respond to service disruptions, so as to ensure that service levels remain as expected.

The key driver for the success of the logistics strategy is to continue evaluating performance, and look for opportunities to develop. The following challenges should be investigated thoroughly, in order to set the logistics strategy and periodically analyze it for the sake of efficiency:

- How to handle prioritized shipments
- How to use drop shipment to minimize inventory
- How to understand when holding inventory of item(s) is essential
- Whether logistics activities can be outsourced in part or in whole, to third parties
- Can improvements be made to the delivery network
- Can money be saved or service delivery improved, by changing the service provider and/or mode of shipment
- Is inventory correctly located, and correctly sized
- What are the specific end-user service-level goals in terms of speed, and cost

Logistics should analyze its processes frequently, evaluate successes, and adjust the LM strategy to fit the changing needs.

6.4 Inbound Logistics

LM can achieve good savings on inbound freight spend by seeking efficiency and choosing suppliers with care. Gaining control of inbound logistics is crucial to achieving significant savings and enhancing customer service.

6.4.1 Freight Paid to Freight Collect

Freight Paid means that the supplier compensates for transportation costs, while Freight Collect is where the consignee pays for freight costs. Although Freight Paid is a common payment method for inbound freight among shippers, it is important to keep in mind that the supplier who pays a freight service provider is not necessarily the party that is eventually responsible for the cost of transportation.

Switching from Freight Paid to Freight Collect, is advantageous as it will give the LM control over inbound logistics. The accurate cost of transportation is hidden in the price of a material, and with control over inbound freight, the LM knows the exact transportation costs, and can streamline the inbound shipments straight to either its destinations or to the warehouse, without making any extra stop on the supplier's freight route.

Freight Collect gives LM the visibility into the inbound process. Such visibility makes it possible to identify inefficiencies, and implement changes. Also, LM can analyze freight forwarder's performance, track overall costs, and predict and avoid disturbances to the service.

6.4.2 Vendor Compliance Programs

A good fitting Vender Compliance Programs (VCP) defines expectations of a vendor , sets KPIs for the service, has a way of monitoring and reporting vendor results, involves regular meetings to address any possible improvements, and ensures complete fulfillment of all destination targets. The main reasons behind having a vendor compliance program are:

6.4.2.1 Current Logistics Environment

Year after year logistics processes get more complex, and increase the possibility of errors that could disrupt the supply chain. All stages of the logistics process are mutually dependent on each other, and the entire logistics process has an effect on the overall supply chain. Any inefficiencies or small losses in inbound freight management impact internal efficiency, as well as the end-user.

6.4.2.2 Technology

Technology is increasingly important in transportation and logistics, as an ERP can measure and analyze the service from end to end. LM should take advantage of available technology, and use sofware to set up a controlled and monitored VCP, to their benefit.

Today's technology will help LM to adopt a strategic approach that focuses on flow and efficiency, using sophisticated cloud-based software, to anticipate service delivery compliance issues, before they occur.

6.4.2.3 Efficiency

Maintaining high efficiency is the only way to ensure end-user demands are met, while containing costs and ensuring freight transactions are running smoothly, for the best experience of end-users.

LM should work with the freight vendor at every step, develop a mutually beneficial relationship, work together to solve problems, and enhance service. LM should help vendors to succeed, and reward them for reliability.

A succesfull VCP will help LM to optimize warehouse operating costs, reduce inbound costs, add value to inbound operations, and enhance customer service.

6.4.3 Reverse Logistics

Reverse logistics is linked to the reuse or return of goods and services for all operations. It is the method of removing unwanted goods from a site and returning it to the logistics system for the purpose of collecting value or for appropriate disposal. It needs an efficient and sustainable approach to extract the maximum value from each item returned.

Quality of returned item(s) determines the return path of the material and its final form and destination. The longer a material stays in the system, the less valuable it becomes. Transporting goods, packages and materials has the risk of making their condition worse and hence, reduces their potential value.

A well-planned, customized reverse logistics strategy would lower costs of storage and distribution, build sustainable practices, and meet customer expectations. It can also reduce environmental waste and optimize the waste costs.

6.5 Transportation Management System (TMS)

TMS technology is essential to any logistics operation. The software provides end-to-end visibility of freight movements to measure and report detailed shipping records for inbound and outbound shipments, monitor vendor and carrier performance, and optimize routing and mode choice.

A TMS can reduce overall transportation costs if implemented and used properly by LM, who should consider what their specific needs are, how TMS will be used, what benefits it should provide, and how it will comply with future requirements. LM can achieve many benefits through the TMS as follows:

6.5.1 Contract Management

A TMS can help LM to handle multiple logistics contracts at once. It provides alerts when contracts are due for renewal, displays total shipping costs, and tracks contracted terms and agreements in real-time, in order to ensure that service providers are following the contract.

6.5.2 Parcel Shipping Support

Accurate demand forecasting triggers lower inventories when SCM is using a ‘Just in Time’ approach, where items are received, only as needed. This means higher demand for smaller, and more frequent parcel shipments which can be monitored and tracked, through a TMS.

6.5.3 Item Visibility

Efficient logistics operations with shipment visibility, down to the item level, is essential to the success of the LM function. A TMS offers regular updates, alerts about intentions, and integrates with freight forwarders and service providers. By tracking the items while they are in transit, LM can decrease cycle times, increase control over logistics’ costs, and improve the customer experience.

6.5.4 Business Intelligence

A TMS can also help to track and analyze shipping trends. This helps LM find the best vendors, carriers, and modes. LM should be able to develop Key Performance Indicators (KPIs), and performance metrics. TMS analysis helps avoid repeated delays in the supply chain, minimizes shipping costs, and shortens delivery times, which will directly improve customer satisfaction.

6.5.5 Back-Office Duties

A TMS which is fully integrated with internal business modules and external service providers, saves time spent doing paperwork, cuts administrative costs, and enhances cash flow. LM can then focus on the core operation, as well as customer satisfaction.

6.5.6 Scalability

Scalability means the capability of the software to accommodate and comply with LM future demands. It will grow as LM grows, and ensures that LM will not have to purchase and implement a replacement system in the future.

6.5.7 Logistics Operation Visibility

Visibility is the basis of optimization. It is necessary to have visibility of current logistics processes, before LM can develop a comprehensive transportation and logistics strategy. It will allow LM to identify challenges

and opportunities for improvement, plan, monitor, and implement any changes, and to fine-tune logistics operations in search of the following benefits:

- Identify less expensive freight methods
- Reduce unexpected shipping charges
- Avoid logistical disturbance(s)
- Optimize inventory levels
- Improve cash flow
- Enhance customer service
- Enable faster and more accurate reporting
- Ease Regulatory compliance
- Assist to negotiate better contracts
- Offer analytics on the performance of service providers
- Allow for a smaller Logistics Department
- Provide a high understanding of the cost to serve customers

6.6 Outbound Logistics

Optimization of outbound logistics is strongly related to warehouse, and inventory control management. Entities should store as little inventory as possible, and move it as quickly, and as accurately as possible, while maintaining minimal stock levels. The alignment between outbound logistics and warehouse and inventory management, faces the following challenges:

6.6.1 Lean Logistics

SCM wants to hold as little inventory as possible and in order to achieve that, they need very accurate demand forecasts. The information collected from a TMS is useful in building forecasts for future demand, by tracking yearly shipment quantities, numbers of returned items, and other statistics. The more information collected, the more accurate the demand forecasts will be.

Such predictions allow SCM to receive shipments just in time, and retain enough goods in stock to meet demand. Reducing safety stock and total inventory rates in this way, saves money without compromising customer service.

In order to apply lean logistics, inventory control must be effective. When inventory is maintained at minimal levels, replacements have to be delivered quickly. TMS, in conjunction with WMS, will provide SCM with a consolidated database of incoming and outgoing shipments:

- Where are all of the products located
- Where are they going
- How many workers are needed to process the items
- Where are the items needed
- When and where will the shipments arrive
- When and where will the shipments leave

Such complete visibility into materials handling and inventory management, will improve warehouse handling processes, customer service, and reduce costs.

6.6.2 Last Mile Logistics

Last mile delivery is defined as the movement of goods from a transportation hub, to the final delivery destination, with focus on the delivery of items to the end-user being, as fast as possible. It is a complex process and the following best practices should be followed:

- Create a customer-focused plan considering that every end-user may have different expectations for the incoming shipments.
- Take into consideration the constraints and obstacles in the delivery process, such as weather during certain times of the year, and difficulties to get to some destinations.

- Track a truck's progress while in transit, to ensure delivery is on schedule, as the driver may need help and advice.
- Track, analyze and act on data and/or information of historic performance to find solutions, the best possible combinations of carriers, modes, routes, drivers, and freight, to improve operational performance and customer satisfaction.
- Measure end-user's performance to see if they miss their delivery time, or if they are not there to sign for their packages, to improve performance on both ends.

6.7 Logistics KPIs

6.7.1 Delivery Time

Track the time it takes for a correctly packed order to arrive at its destination. The average time of delivery is estimated from the moment the order is raised to be sent to the customer, to the moment delivery is achieved.

6.7.2 Transportation Costs

Track all costs from order placement to delivery. The average transportation costs calculates all of the expenses involved in processing an order, from the beginning to the end.

6.7.3 Perfect Order Rate

The Perfect Order Rate KPI helps facilitate measurement of orders shipped without incident. Where incidents can include receiving damaged goods, inaccurate orders, inaccurate quantities or late shipments.

Attaining a high perfect order rate should be the goal of every team member in logistics organization as it indicates organizational efficiency and high end user satisfaction.