

LOGISTICS AND SUPPLY CHAIN MANAGEMENT

UNIT 3

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LOGISTICS AND SUPPLY CHAIN RELATIONSHIPS

The basic difference between Logistics and Supply Chain Management is that Logistics management is the process of integration and maintenance (flow and storage) of goods in an organization whereas Supply Chain Management is the coordination and management (movement) of supply chains of an organization. Although supply chain benchmarking involves three major elements—the supplier, the distributor, and the interface of the two, customer satisfaction should be the primary motivation for establishing a benchmarking program. Successful supply chain benchmarking can help them achieve both goals.

BENCHMARKING THE LOGISTICS PROCESS AND SCM OPERATIONS

Benchmarking generally refers to the process of measuring one's performance against a set of pre-established standards by the world or competitors present in the same business process. It is essentially aimed at improving the business and operational practices that company is already following, and refining those practices after carrying a thorough comparison with that of the competitors. Thus, the benchmarking activity is driven by a desire to enhance operational capability, to lower costs and improve service.

Benchmarking, with regards to logistics, has the same meaning as it is the main constituent of any supply chain. Benchmarking in logistics involves evaluating the amount of time that a product takes to reach its ultimate customer; expediting the flow of material within a supply chain; monitoring the storage, and shipping operations; and checking the cost effectiveness of logistics operations.

The following areas of logistics require benchmarking:

1. Loading/ offloading;
2. Warehousing;
3. Transportation;
4. Value added services;
5. Packaging

All these factors are crucial in logistics, and needs to be evaluated against the standard practices to remove any financial loopholes or human error. Effective logistics require managing the aforementioned areas, and making necessary improvements after checking them through performance measurement tools.

Importance of benchmarking on logistics:

In times of economic hardship, it has become increasingly challenging for logistics companies to maintain their performance, and costs together. The ever increasing fuel prices have also doubled the freight rates which is affecting their business tremendously. Through benchmarking, it is easy to identify areas that are taking more than what should be invested, or doesn't have all the necessary resources. More than anything, time and money is crucial in logistics. Thus, by reducing the amount of time and money, it is possible to have a valuable competitive advantage over competitors. For example, if competitor takes 6-10 hours to deliver a product, you can take less than 4 hours to do the same job. Also through this assessment, it is able to discover new opportunities that can be helpful in improving the quality of services, and handling processes at each step.

LOGISTICAL PROCESSES

Logistical processes facilitate the relationships between production and the movement of products and to find the best solution for manufacturing and distributing goods by considering how the market uses these products. Specifically, logistical processes should address many of the aspects of production, including time, costs and quality. When a company successfully coordinates these logistical processes, the company can track the process through production, consumption, storage and disposal. A functional logistical process also relies on the proper geographical location of all assets within the organization. This includes production costs, personnel, the time and cost required for deconsolidation, and warehousing possibilities, including cost and space. As part of this process, a company also should consider the factors that affect production quality and efficient transportation between hubs.

1. Production:

Businesses use different methods of production. Two of the most common production methods include a sale-order-related production, where a business produces a product in

response to orders for the product, or make-to-stock production, where a company produces a fixed amount of products and then attempts to sell the products. The production method utilized by the business and the logistical process associated with the production method affects personnel, production, material acquisition, warehousing and transportation. The logistical process starts by having planned orders for materials produced in house created and converted into manufacturing orders. Once the company manufactures the order, the company will either stock the products in a warehouse or directly fill orders for the customer.

2. Assembly Processing:

Assembly processing occurs when a business creates a finished product after selling it by assembling individual parts or groups of parts. This process allows a business to avoid the acquisition of materials for production in a manufacturing base. In this type of logistical process, the business will assemble materials that go into the finished product from an inventory of individual parts. A business also can use this type of assembly processing to produce custom products made to customers' individual specifications.

3. Logistics:

- Loading/ offloading;
- Warehousing;
- Transportation;
- Value added services;
- Packaging

Logistics is the planning framework used by the management of an organization to facilitate the distribution of personnel, materiel, service, information and capital flows. As a process, logistics continues to become more complicated because of the increased demand for complex information and communication control systems of today's global business environment. An efficient logistics process within an organization will apply tools to analyze and visualize the complexities involved in production. These tools should integrate information, inventory, production, warehousing, personnel, materials, packaging and the secure delivery of the final products.

MAPPING SUPPLY CHAIN MANAGEMENT PROCESS

Supply chain management is defined as the design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand and measuring performance globally. SCM draws heavily from the areas of operations management, logistics, procurement, and information technology, and strives for an integrated approach.

Supply Chain Management Process:

1. Strategic Planning Process:

Strategic Planning Process involves the strategic supply chain design and strategic sourcing.

- **Strategic Supply Chain Design Process:** Strategic Supply Chain Design is the design, evaluation, and optimization of the supply chain model used in the planning applications. Every part of the supply chain such as locations, transportation lanes, resources and products are modelled to execute planning based on this network. This helps to respond immediately and accurately to the new developments by tracking alert situations in the supply network.
- **Strategic Sourcing Process:** Strategic Sourcing Process helps to identify a minimized set of core suppliers with whom to establish strategic relationships, and also the parameters that drive procurement execution. Vendor analysis and purchasing statistics are used to evaluate potential suppliers. Performance management through spend and contract compliance analytics are also done for enabling the strategic sourcing process.

2. Demand Planning Process:

Demand planning process involves Forecasting, Lifecycle Planning, Promotion Planning and Consensus Demand Planning.

- **Forecasting Process:** Forecasting predicts future demand based on historical and judgmental data. Forecasts can be created in using different methods such as statistical methods, causal analysis, human judgment or combination of all the above. Different statistical forecasting methods are available such as exponential smoothing, moving average, linear regression, and seasonal linear regression.

- **Lifecycle Planning Process:** Life cycle planning involves planning the product life cycle. Lifecycle Planning simulates based on the forecasting data the launch, growth, and maturity and discontinuation phases of different products.
- **Promotion Planning Process:** Promotion Planning Process enables to plan promotions or other special events separately from the rest of your forecast. Promotion effect is calculated using causal techniques to measure past promotional impact and projected into designated periods in the future. Promotion planning can be used to plan one o events such as the millennium, repeated events such as quarterly advertising campaigns, trade fairs, contests etc.
- **Consensus Demand Planning Process:** Consensus Demand Planning Process creates a consensus demand plan by integrating all available information. This is a result of combining various data such as Forecast, Promotions Budgets, Sales plans etc.

3. Supply Planning Process:

Supply planning process involves Safety Stock Planning, Supply Network Planning, Outsourcing, Distribution Planning, Customer Collaboration and Supplier Collaboration.

- **Safety Stock Planning Process:** Safety Stock Planning Process arrive the appropriate level of safety stock inventory for all intermediate and finished products at their respective locations to meet a target service level.
- **Supply Network Planning Process:** Supply Network Planning process calculates quantities to be delivered to the locations to match customer demand and maintain desired service level.
- **Outsourcing Process:** Outsourcing process enables outsourcing of manufacturing facilities to a third party, known as the subcontractor.
- **Distribution Planning:** Distribution Planning process determine the best short term strategy to allocate available supply to meet demand and to replenish stocking locations.
- **Customer Collaboration Process:** Customer Collaboration process allows vendor to assume responsibility for planning the levels of inventory at the customer location.
- **Supplier Collaboration Process:** Supplier Collaboration Process enables supplier to receive demand and stock information and performs replenishment planning tasks for manufacturer

4. Procurement Process:

Procurement process involves Purchase Order Processing, Receipt Confirmation and Invoice Verification.

- **Purchase Order Processing:** Purchase Order Processing fulfils the direct procurement requirements through the sourcing, issuance, and confirmation of purchase orders.
- **Receipt Confirmation processing:** Receipt Confirmation processing informs other departments about the received and confirmed quantity of ordered goods.
- **Invoice Verification process:** Invoice Verification process receives, enters and checks vendor's invoice for correctness.

5. Manufacturing Process:

Manufacturing Process involves Production Planning / Detailed Scheduling, Manufacturing Execution.

- **Production Planning / Detailed Scheduling process:** Production Planning / Detailed Scheduling process supports the process of assigning production orders to resources in a specific sequence and time frame.
- **Manufacturing Execution:** Manufacturing Execution process supports the process of capturing actual production information from the shop or to support production control and costing processes.

6. Warehousing Process:

Warehousing Process involves Inbound Processing, Outbound Processing, Cross Docking, Warehousing, Storage and Physical Inventory.

- **Inbound Processing:** Inbound Processing comprises all the steps of an external procurement process that occur when the goods are received.
- **Outbound Processing:** Outbound Processing prepares and ships goods to their destination
- **Cross Docking:** Cross Docking Processes merchandise in a distribution center or warehouse where the goods are brought from the goods receipt directly to goods issue without being stored.

- **Warehousing & Storage:** Warehousing & Storage Processes warehouse internal movements and storage of materials.
- **Physical Inventory:** Physical Inventory supports all activities for planning and executing the physical inventory

7. Order Fulfilment Process:

Order Fulfilment Process involves the sales order processing and billing business process.

- **Sales Order Processing:** Sales Order processing allows the order entry, pricing, and scheduling order for fulfilment.
- **Billing Process:** Billing process considers all activities from issuing the invoice to the incoming payment.

8. Transportation Process:

Transportation Process involves the transportation planning, transportation execution and freight costing processes.

- **Transportation Planning Process:** Transportation Planning process creates an optimized, executable transportation plan for the enterprise.
- **Transportation Execution Process:** Transportation Execution process covers the complete and integrated solution process to create, execute, and monitor shipments
- **Freight Costing Process:** Freight Costing process calculates and settles the freight costs.

SUPPLIER AND DISTRIBUTOR BENCH MARKING

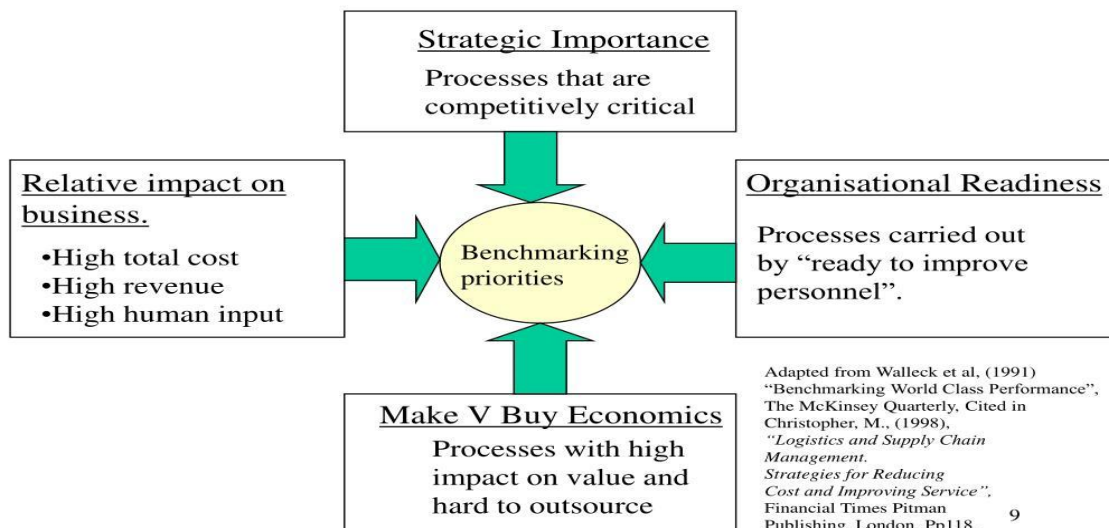
Supplier and distributor benchmarking is one of the methods that can be used to identify areas of improvement in the supply chain and to make efforts to address them as a part of a continuous improvement process. An alternative and also highly valuable implementation of supplier benchmarking is as a tool to research the market and compare the offers from different suppliers for a product/service, against price and also other criteria.

In reviewing the supplier and distributor relationship and benchmarking it against the best in class the emphasis should be on assessing their contribution to overall supply chain performance.

SETTING BENCHMARKING PRIORITIES:

1. Which processes and entities in the supply chain are strategic important?
2. Which processes and entities have a high relative impact on the business economics (costs, revenues, asset performance and human productivity)
3. Where there is a choice between make or buy(processes of high impact on performance / productivity and hard to source from suppliers)
4. Where there is internal readiness to change.

Setting Benchmarking Priorities



IDENTIFYING LOGISTICS PERFORMANCE INDICATORS

A logistics key performance indicators (KPI) or metric is a performance measurement that is used by logistics managers to track, visualize and optimize all relevant logistic processes in an efficient way. Among others, these measurements refer to transportation, warehouse and supply chain aspects.

1. SHIPPING TIME: Spot potential issues in order fulfilment process

The On-Time Shipping performance refers to the ratio of orders that have been shipped on or before the requested ship date divided by the total number of orders. This is a first logistics KPI to help measure supply chain performance. Indeed, if the amount of time between the

moment the customer placed his order and the moment that order is prepared to be shipped is too long, that can show some trouble in the process that need to be fixed.

2. ORDER ACCURACY: Monitor the degree of incidents from the placement to the delivery of an order

The Perfect Order Rate is another highly important logistics metric when it comes to your supply chain efficiency. It measures the amount of orders that are processed, shipped and delivered without any incidents on its way. The shipping time as well as the delivery time are both respected, the order is not a wrong one and the goods are not damaged. It is important as it shows the efficiency of your supply chain and delivery services, and that leads of course to more satisfied clients that are willing to come back or recommend your services.

3. DELIVERY TIME: Track the time it needs for an order correctly prepared to arrive at destination

The Average Time Delivery is measured from the moment the order is placed to be shipped and the moment it is delivered to the customer/post office. After benchmarking and having an idea of the average delivery time from your warehouse to anywhere, the goal would be to decrease it when possible - offering special delivery services for instance - but more importantly, to precise it. Saying that an order will arrive in 4-5 business days is better than saying it will arrive in 1-to-5 business days. Additionally, if you can precise the delivery hours (between 13h and 15h rather than between 8h and 18h), it is even better.

4. TRANSPORTATION COSTS: Track all costs from the order placement to its delivery

The Average Transportation Costs calculates an overall of the expenses involved in processing an order from the beginning to the end. It will break down all the costs related to this logistics KPI according to distinct categories: the order processing, the administrative, the inventory carrying, the warehousing and finally the actual transportation costs. After calculating all these, you can evaluate the percentage each stage of the process represents and see if that is excessive or in the norms. You can also calculate the transportation costs relatively to a product and see how much one item costs compared to how much revenue it brings you.

5. WAREHOUSING COSTS: Monitor the expenses involved in the management of your warehouse

Warehousing is the management of space and time. The Warehousing Costs refer to the money allocated to the goods moved into or outside the warehouse. These expenses cover equipment and energy costs like ordering, storing and loading the goods, as well as more human costs like labour, shipment, or delivery. The warehousing costs are a component of another logistics KPI, the total transportation costs. Measuring them is not an easy task, but once it is done it will facilitate your overall management and add a lot of value, something that senior management or investors will appreciate.

6. NUMBER OF SHIPMENTS: Evaluate how many orders are shipped out of our warehouse

Shipping is not only a matter of dispatching goods and packages in trucks or boats. Shipments are the showcase of your warehouse; their quality and the accuracy to primary order will demonstrate the quality of your service as well. The same way you measure the number of orders placed ready on time to be shipped (On-Time Shipping KPI), you can measure the number of orders shipped out of your warehouse. Analyzing the trends over time will provide great insights on rush hours or rush seasons (such as Christmas time), and enable you to anticipate and allocate more resources accordingly.

7. INVENTORY ACCURACY: Avoid problems because of inaccurate inventory

Inventory Accuracy is one of those logistics metrics that can make or break your warehouse. Indeed, having a certain record of all your goods in your database that doesn't match the actual physical inventory can harm your business considerably. If your inventory is inaccurate, that can lead to unexpected backorders but also unsatisfied customers and more generally, higher overall costs. A regular inventory checking the existing discrepancies with your electronic inventory record ensures that bookkeeping practices are in order and that your business is reliable.

8. INVENTORY TURNOVER: Track how many times your entire inventory is sold

This logistics KPI measures the number of times your inventory entirely has been sold over a certain period of time. It is a great indicator of efficient production planning, process, as well as marketing and sales management. In general, the higher your turnover rate, the better. A low turnover may translate difficulties in turning your stock into revenue, and that can come from any stage of your supply chain process. There is not one general rate to achieve, as it depends on the industry your company is evolving: a car dealership will have a lower

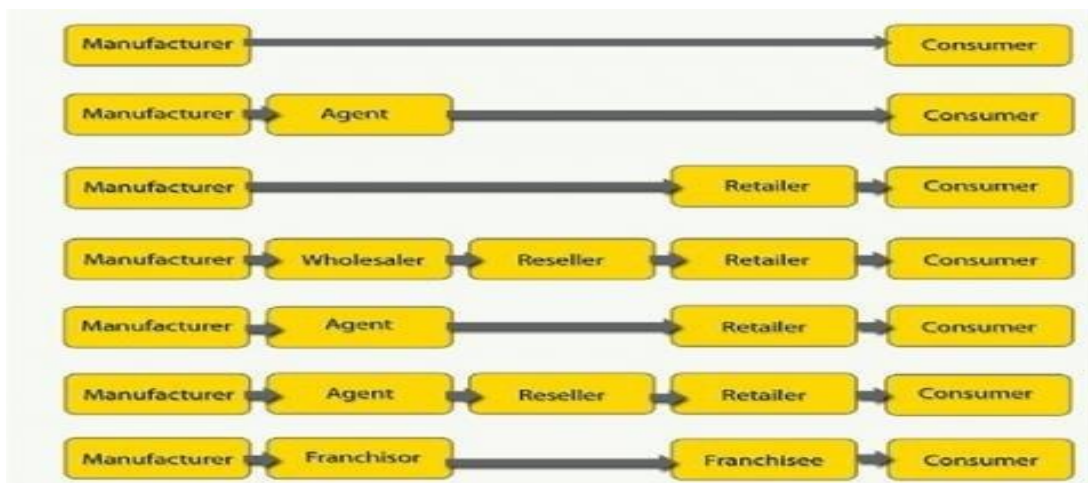
turnover than a common groceries store. The idea would be to benchmark your industry average rate and try to reach and exceed that target.

9. INVENTORY TO SALES RATIO: Evaluate how much inventory you carry in comparison to the number of sales performed

This logistics metric is good at evaluating the overstock. It measures the ratio between the available inventory for sale, versus the actual quantity that is sold. This is a great performance indicator that will also tell you if your company is able to face unexpected situations. It is an even greater indicator if you measure and use it with other KPIs such as Inventory turnover, or the Carrying cost of inventory.

CHANNEL STRUCTURE

A channel structure is a means of reaching your customer with your products and services. This is essentially a high level view of your sales and distribution channels that outlines the architecture of your business.



1. Direct

Selling directly to the customer using channels such as personal selling, retail or ecommerce. For example, a firm that has its own shops and ecommerce site.

producer → customer

2. Retail

Selling to retailers who sell to the end-customer.

producer → retail → customer

3. Ecommerce

Selling to ecommerce partners who manage the relationship with customers.

producer → ecommerce → customer

4. Value Added Reseller

Selling to firms that add value to your products or services before selling them. For example, a firm that sells c that are used in mobile devices.

producer → value added reseller → customer

5. Wholesale

Selling to wholesalers who distribute the product to retailers or ecommerce sellers.

producer → wholesaler → retail → customer

6. Agents

Using agents or brokers to manage your sales to wholesalers, retail and/or ecommerce sellers.

producer → agent → wholesaler → retail → customer

7. Complex

It is common for organizations to have many channel structures for different products and regions. For example brand that sells direct in Germany but uses agents, wholesalers and retailers in other countries.

Germany producer → customer

France producer → customer

producer → retail → customer

Japan producer → agent → retail → customer

producer → agent → value added reseller → customer

United States producer → wholesaler → ecommerce → customer

8. Detailed

Channel structures may include details such as the types of channel that are involved. For example, a direct producer customer structure might be expanded out with more details.

Germany

direct retail → flagship → customer

direct retail → brand shops → customer

direct retail → outlet shops → customer

ECONOMICS OF DISTRIBUTION

Distribution is one of the four elements of the marketing mix. Distribution is the process of making a product or service available for the consumer or business user who needs it. This can be done directly by the producer or service provider, or using indirect channels with distributors or intermediaries. A distribution channel is a chain of businesses or intermediaries through which a good or service passes until it reaches the final buyer or the end consumer. Distribution channels can include wholesalers, retailers, distributors, and even the Internet. To reach far and wide, companies need the right distribution strategies in place. It is not possible to market a product and then not deliver the product to the end customer. Distribution strategy is mainly decided by keeping the top management in loop because it affects overall operations. This strategy can be summarised with 3 main points.

- How to get the product from the manufacturing point to the end customer.
- How to control costs and save time while executing the distribution strategy
- How to build a competitive advantage through distribution

1) Indirect distribution

Indirect distribution is when the product reaches the end customer through numerous channels in between. For example – The product goes from manufacturer to C&F, then to the distributor, then to the retailer and finally to the customer. Thus the chain is long.

2) Direct distribution

Direct distribution is when the company either directly sends the product to end customer or when the channel length is very less. A company selling on an e commerce portal or selling through modern retail is the form of Direct distribution. Distribution strategies are also decided based on the level of penetration that the company wants to achieve. This level of penetration is decided again by the remaining 3 P's of the marketing mix – Product, price and promotions.

3) Intensive distribution

When the company is having a mass marketing product, then it uses intensive distribution. Intensive distribution tries to cover as much of the market as it can. Typical FMCG and consumer durable products are best example of intensive distribution strategy.

4) Selective distribution

A company like Armani, Zara or any other such branded company will have selective distribution. These companies are likely to have only limited outlets. For example – In an urban city, Armani might have 2-3 outlets at the maximum whereas Zara might have 4-5. You can read this detailed article on Selective Distribution.

5) Exclusive distribution

If a company wants to give a big region to one single distributor then it is known as exclusive distribution strategy. If Zara has 4-5 outlets in a city, how many outlets would a company like Lamborghini have? Probably one in a region of 5-7 cities. That's exclusive distribution. In some cases, a distributor might be appointed for a complete country. There would be no one other than that distributor operating in that company.

CHANNEL RELATIONSHIPS

The growth of channel relationships transforms to partnership arrangements as well. It represents a radical change and a sudden shift in the culture of the organization. Channel partnership is seen as extension from a single transaction to a long-term supply chain partnership with a high degree of trust.

The following factors have contributed to the growth of channel relationships and partnership.

- 1. Interrelated power relationships:** Supply chain includes manufacturer or supplier, wholesalers and retailers. The retail industry provides a market for a combination of different products and services. It may range from small local convenience stores to the larger high street chains like major food retailers, banks or building societies.

2. **Competitive pressure in the retail market:** A channel's success depends upon the degree to which the supply chain is improved. Regardless of the margins and practices involved, the channel should deliver added value for customers.

3. **Channel competitiveness:** Channel competitiveness is an important focus for successful retailing. Uneconomic channels are characterized by unhealthy support of the existing traditional practices. The channel competitiveness focuses on the importance of information and the need to share it.

4. **Benefits in closer working relationships:** Retailers and Suppliers have understood their role and have realized the degree of mutual understanding between their own objectives. In the past, supply chain relationships have been only adverse, exhibiting a high degree of rigidity. But during 1990s, there has been a recognition that there are benefits in closer working relationships.

5. **Entrusting the replenishment administration activity to suppliers:** With the trend of using EDI technology, the replenishment administration activity is entrusted to suppliers. Inventory management includes scanning of merchandise at the time of checkout. Sales for all outlets are collated and communicated to the supplier.

6. **Spirit of openness:** The transformation to partnership arrangement represents a radical change. In the absence of partnership arrangement, there is relatively a low level of trust. In such a situation, organizations in the supply chain are only aligned opposed to one another. But channel partnerships enable the partners to adopt a cooperative pursuit of mutual goals.

LOGISTICS SERVICE ALLIANCES

A logistics alliance is a group or team of trading experts who work together to help companies competently and successfully manage and deliver their products. Companies can hire or join logistic alliance groups to empower the alliance group to provide assistance, establish supply chains and offer business advice for the company.

Supply Chains

A primary function of most logistics alliances is to help companies organize and establish supply chains to most effectively and efficiently deliver products. Thus, many alliances have advanced knowledge and skills regarding the shipping and handling aspects of business. Some alliances help businesses ship goods through their close relationships with certain transportation services, others assist companies by connecting them with customers

in various different regions, and some alliances help businesses plan, schedule and supervise delivery services.

Specialties

Many logistics alliance groups specialize in certain types of products. These alliances tend to focus only on the specific category of products for which they specialize. For instance, The Perishable Logistics Alliance (PLA) is an alliance that helps many businesses across the globe effectively ship perishable cargo, which are products that are temperature sensitive and that can lose their quality if not properly maintained during the transportation delivery process. Products that can be handled by the logistic services of the PLA include live animals, fruits and vegetables, meat and fish, pharmaceuticals and high-tech equipment.

Management Services

In addition to providing chain supply services, many logistics alliances also help companies to manage the delivery process. Alliances can help with inventory management, such as inventory planning, inventory optimization and warehouse optimization. Logistics organizations can also offer businesses planning strategies to help them design, develop and implement policies that relate to product management or shipping methods. Additionally, some alliances provide project management assistance by aligning the projects with the appropriate business requirements, reshaping organizations and developing new staff programs to form more productive and motivated teams.