



Principles of Marketing - Part 11: Product Movement

In addition to enlisting the assistance of retailers and wholesalers to make products available to customers, marketers also face additional concerns when trying to meet their distribution objectives. In this section we examine the tasks that must be carried out in order to physically move products to customers. In some cases the marketer will take on the responsibility of carrying out some functions, while other tasks may be assigned to distribution service providers.

In this tutorial we explore the movement of product by first examining how physical distribution decisions often involve analyzing the trade-off between the service level the marketer offers to customers versus the costs associated with providing these services.

Next we provide an in-depth examination of three major tasks that the marketer or distribution service providers may need to carryout in order to ship products to customers.

These tasks include:

- Ordering and Inventory Management
- Product Storage
- Transportation

It is worth noting that while most physical distribution is concerned with moving tangible products, some of the issues covered here are also applicable to intangible products, such as services and to digital products.

This tutorial includes the following topics:

1. Managing Product Movement
2. Trade-Off Analysis: Service-Level vs. Cost
3. Ordering and Inventory Management
4. Order Entry and Processing, Forecasting
5. Customer Knowledge, Channel Relationships and Physical Handling
6. Product Storage
7. Types of Warehousing

8. Transportation

9. Modes of Transportation Comparison

Trade-off Analysis: Service-Level vs. Cost

The distribution activities we discuss in this part of the Principles of Marketing tutorial are important elements in the marketer's overall customer service package. As we will see in a later tutorial, marketers strive to deliver an optimal level of service to their customers. However, "optimal" does not always translate into providing the "best" service options to customers. The service-level marketers' offer for their distribution activities, like the service-level offered by other company-related activities that impact customers (e.g., customer help desk), is determined using trade-off analysis.

With service-level trade-off analysis, the marketer compares the number and quality of distribution features (e.g., speed of delivery, ease of placing orders, order tracking, etc.) they would like to offer versus the cost of providing the features. For instance, when it comes to transportation options (e.g., truck, railroad, air, etc.), trade-off analysis may show that choosing the fastest method for delivery may not make economic sense since options for fast delivery often are very expensive compared to slower methods. While the customer may appreciate having their order arrive quickly, the marketer may find fast delivery to be an expensive proposition that significantly reduces their profit margin.

Since most distribution activities are non-revenue producing (i.e., are used to support the selling of a product but do not actually create a sale) and, thus, represent a cost to the marketer, it should be understood that the marketer's distribution system choice may not be the overall best available in terms of getting the product into customer's hand as fast as possible. Rather, the marketer's choice for what is optimal will be determined by analyzing distribution features and costs and evaluating how these fit within the marketer's overall objectives (e.g., financial objectives, product positioning, etc.).

Ordering and Inventory Management

Having products available when customers want to make purchases may seem like a relatively straightforward process. All a seller needs to do is make sure there is product (i.e., inventory) in their possession and ready for the customer to purchase. Unfortunately, being prepared for customer purchasing is not always easy.

Having the right product available when the customer is ready to buy requires a highly coordinated effort involving order entry and processing systems, forecasting techniques, customer knowledge, strong channel relationships and efficiency at physically handling products.

Order Entry and Processing System

The marketer must have a system allowing customers to easily place orders. This system can be as simple as a consumer walking to the counter of small food stand to purchase a few vegetables or as complicated as computer automated systems where an electronic order is triggered from a retailer to a manufacturer each time a consumer purchases a product at the retailer's store. In either case, the order processing system must be able to meet the purchasing needs of the customer. In some cases, efficiently ordering system can be turned into a competitive advantage. Firms such as Amazon.com, turned their order handling system into a product feature with the patented "1-click" ordering option that streamlines online ordering by reducing the number of clicks needed to make purchases.

Forecasting

Inventory management is often an exercise in predicting how customers will respond in the future. By predicting purchase behavior the marketer can respond by making sure the right amount of product is available. For most large-scale resellers effective inventory forecasting requires the use of sophisticated statistical tools that look at many variables, such as past purchase history, amount of promotional effort that triggers an increase in customer ordering, and other market criteria to determine how much of the product will be needed to meet customer demand.

Customer Knowledge

Inventory management can be fine-tuned to respond to customer's needs. As a marketer learns more about a customer they begin to observe trends in how and when purchases are made. Combining customer knowledge with forecasting techniques allows the marketer to better estimate product demand and inventory requirements. As we discussed in Part 1: About Marketing, the key to understanding customers is to have in place a customer relationship management (CRM) system that tracks all customer

activity and allows for data mining activities that analyze customer information in order to identify patterns in customer activity.

Channel Relationships

While the marketer who uses channel members to sell consumer products has access to information for their immediate customers (e.g., resellers) they often do not have access to sales and customer behavior information controlled by the party selling to the final consumer (e.g., retailer). Knowing the demand patterns at the final consumer level can give marketers good insight into how the reseller may order. Developing strong relationships with the holder of consumer information can result in the reseller sharing this information with the marketer. In fact, as we noted in Part 8: Distribution Decisions, some retailers allow marketers direct access to real-time, store-level inventory information so the marketer can monitor how products are selling in stores and be in a position to respond quickly if inventory needs change.

Physical Product Handling

An often overlooked area of inventory management involves the actions and skills needed to prepare a product to move from one point to another. Some products require special attention be given to ensure the product is not damaged during shipment. Such efforts must be carefully balanced against increased costs that arise (e.g., stronger packaging) in order to provide greater protection to products. Because of this, many marketers will accept the fact that some small level of damage to occur during the distribution process.

Product Storage

The second important element in physical distribution concerns storing products for future delivery. Marketers of tangible products, and even digital products, may have storage concerns. Storage facilities, such as warehouses, play an important role in the distribution process for a number of reasons including:

- **Hold Wide Assortment** - As noted in Part 8: Distribution Decisions, many resellers allow their customers to purchase small quantities of many different products. Yet to obtain the best prices from suppliers, resellers must purchase in large quantities. The need, thus, exists for storage facilities that not only hold a large volume of product, but also can hold a wide-variety of resellers' inventory.

Additionally, these facilities must be organized in a way that permits resellers to easily fill orders for their customers.

- Meet Unanticipated Demand - Holding products in storage offers a safeguard in cases of unexpected increases in demand for products.
- Needed for Large Shipping Quantities - As we noted in our discussion of transportation, manufacturers generally prefer to ship in large product quantities in order to more effectively spread transportation costs. This often means manufacturers must create storage areas in which the manufactured goods can build up in the quantities needed for such shipments to occur.
- Offer Faster Response - Additional storage facilities, strategically located in different geographical areas, allows a marketing organization to respond quickly to customers' needs. The ability to respond with quick delivery can be a major value-added feature since it reduces the buyer's need to maintain large inventory at their own locations.
- Security and Backup – For digital products, additional storage facilities are not only needed to offer customers faster access to products (e.g., online content and software) but are also needed to protect against technical glitches and security threats.

Types of Warehouses

The warehouse is the most common type of storage though other forms do exist (e.g., storage tanks, computer server farms). Some warehouses are massive structures that simultaneously support the unloading of numerous in-bound trucks and railroad cars containing suppliers' products while at the same time loading multiple trucks for shipment to customers.

Below we discuss five types of warehouses:

- Private Warehouse - This type of warehouse is owned and operated by a company that is also involved in other aspects of the distribution channel. For instance, a major retail chain may have several regional warehouses supplying their stores or a wholesaler will operate a warehouse at which it receives and distributes products.
- Public Warehouse - The public warehouse is essentially space that can be leased to solve short-term distribution needs. Retailers that operate their own private warehouses may occasionally seek additional storage space if their facilities have reached capacity or if they are making a special, large purchase of products. For example, retailers may order extra merchandise to prepare for in-store sales or order a large volume of a product that is offered at a low promotional price by a supplier.
- Automated Warehouse - With advances in computer and robotics technology many warehouses now have automated capabilities. The level of automation ranges from a small conveyor belt transporting products in a small area all the

way up to a fully automated facility where only a few people are needed to handle storage activity for thousands of pounds/kilograms of product. In fact, many warehouses use machines to handle nearly all physical distribution activities such as moving product-filled pallets (i.e., platforms that hold large amounts of product) around buildings that may be several stories tall and the length of two or more football fields.

- **Climate-Controlled Warehouse** - Warehouses handle storage of many types of products including those that need special handling conditions such as freezers for storing frozen products, humidity-controlled environments for delicate products, such as produce or flowers, and dirt-free facilities for handling highly sensitive computer products.
- **Distribution Center** - There are some warehouses where product storage is considered a very temporary activity. These warehouses serve as points in the distribution system at which products are received from many suppliers and quickly shipped out to many customers. In some cases, such as with distribution centers handling perishable food (e.g., produce), most of the product enters in the early morning and is distributed by the end of the day.

Transportation Features and Modes

A key objective of product distribution is to get products into customers' hands in a timely manner. While delivery of digital products can be handled in a fairly smooth way by allowing customers to access their purchase over the Internet (e.g., download software, gain access to subscription material), tangible products require a more careful analysis of delivery options in order to provide an optimal level of customer service. But as we noted earlier, "optimal" does not always translate into fastest.

In terms of delivering products to customers, there are six distinct modes of transportation: air, digital, pipeline, rail, truck, and water. However, not all modes are an option for all marketers. Each mode offers advantages and disadvantages on key transportation features that include:

- **Product Options** - This feature is concerned with the number of different products that can realistically be shipped using a certain mode. Some modes, such as pipeline, are very limited in the type of products that can be shipped while others, such as truck, can handle a wide-range of products.
- **Speed of Delivery** - This refers to how quickly it takes products to move from the shipper's location to the buyer's location.
- **Accessibility** - This transportation feature refers to whether the use of a mode can allow final delivery to occur at the buyer's desired location or whether the mode requires delivery to be off-loaded onto other modes before arriving at the buyer's destination. For example, most deliveries made via air must be loaded onto other

transportation modes, often trucks, before they can be delivered to the final customer.

- **Cost** – The cost of shipment is evaluated in terms of the cost per item to cover some distance (e.g., mile, kilometer). Often for large shipments of tangible products cost is measured in terms of tons-per-mile or metric-tons-per-kilometer.
- **Capacity** – Refers to the amount of product that can be shipped at one time within one transportation unit. The higher the capacity the more likely transportation cost can be spread over more individual products leading to lower transportation cost per-item shipped.
- **Intermodal Capable** – Intermodal shipping occurs when two or more modes can be combined in order to gain advantages offered by each mode. For instance, in an intermodal method called piggybacking truck trailers are loaded onto railroad cars without the need to unload the trailer. When the railroad car has reached a certain destination the truck trailers are off-loaded onto trucks for delivery to the customer’s location.

Modes of Transportation Comparison

In the chart below the six main modes of transporting products are compared for each of the key transportation features. Also shown are the estimated percentages of product movement (i.e., freight traffic) that occurs within the United States for the five modes that handle tangible products. These percentages are taken from the 2006 Statistical Abstracts of the United States and reflect estimates as of 2001.

Mode	Product Options	Speed	Accessibility	Cost	Capacity	Intermodal Capability	% of US Product Movement
Truck	Very Broad	Moderate	High	Moderate	Low	Very High	28%
Railroad	Broad	Slow	Moderate	Low	Moderate	Very High	41%
Air	Narrow	Fast	Low	Very High	Very Low	Moderate	<1%
Water	Broad	Very Slow	Moderate	Very Low	Very High	Very High	13%
Pipeline	Very Narrow	Very Slow	Low	Low	Very High	Very Low	17%
Digital	Very Narrow	Very Fast	Very High	Very Low	Moderate	Very Low	?