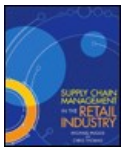

Supply Chain Management in the Retail Industry

by Michael Hugos and Chris Thomas
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Chapter 5: Supply Chain Operations—Deliveries And Returns

Overview

It's probably not surprising that the service sector is the fastest-growing segment of the economy. Most of us are crunched for time, and we're willing to pay to have people take care of some of the necessary chores that people of past generations did for themselves—lawn care, housekeeping, cooking, child care, pet sitting, errand running, and more.

Corporations in supply chains are no exception. They are busy, and they realize they can't specialize in everything—or do it all perfectly—so they entrust some of the details to other companies. In manufacturing and retail businesses, this means tasks like transportation and warehousing of goods. Unlike consumers— who spend more money to have others do work for them—corporations outsource work in order to get it done more cheaply than they could do it themselves. This also impacts their supply chain, however, by adding complexity and increasing the risk of failure.

The final step in the SCOR model introduced in Chapter 3 is "Returns." This means the process of accepting returned or defective goods and sending them "back through" the system to the appropriate supply chain partners, sometimes known as **reverse logistics**.

So this chapter focuses on service-oriented functions and the decisions required to make them effective within a supply chain, including the following topics:

- Managing the ordering process
- Scheduling deliveries
- The impact of returned goods on the supply chain
- Outsourcing supply chain functions

According to research by Procter & Gamble, Number 28 on the Fortune 500 list and the nation's largest manufacturer of household products, blame can be placed equally on three supply chain partners for product out-of-stocks (OOS) at stores: One-third are manufacturers that shipped the wrong order; one-third are problems in a distribution center; and one-third are problems in the store, where the product may have arrived but is not on the correct shelf.[1] This chapter examines the supply chain functions that, when not working well, are the causes of some of these retail headaches.

[1]Marc Millstein, "P&G Transforms Supply Side Dynamics," *Women's Wear Daily*, New York, February 15, 2005.

Order Management

Order management is the process of passing order information from customers back through the supply chain from retailers to distributors to service providers and producers. This process also includes passing information about order delivery dates, product substitutions, and back orders forward through the supply chain to customers.

You may ask, "How difficult would it be to get an order right?" After all, there's not that much to it—or is there? Stephen David, former chief information and business-to-business officer at Procter & Gamble, estimated that at least $250 million of product in the United States is refused by retailers and returned to manufacturers—largely because of "bad data in the system." [2] The wrong product arrived, or it arrived at the wrong store. Somebody, somewhere, botched the order, and the mistake may have been as simple as a single transposed digit on an order form.

For decades, the order process relied on the use of the telephone and a flurry of paper documents: purchase orders, sales orders, change orders, pick tickets, packing lists, and invoices. (A **pick ticket** is the document that signals to a warehouse which items in which amounts must be "picked out" from inventory to be transported to a store as part of an order.)

A company generates a purchase order and calls a supplier to fill the order. The supplier who gets the call either fills the order from its own inventory or sources the required products from other suppliers. If the supplier fills the order from its inventory, it turns the customer purchase order into a pick ticket, a packing list, and an invoice. If products are sourced from other suppliers, the original customer purchase order is turned into a purchase order from the first supplier to the next supplier. That supplier in turn will either fill the order from its inventory or source products from other suppliers. The purchase order it receives is again turned into documents such as pick tickets, packing lists, and invoices. This process is repeated through the length of the supply chain.

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In the last 20 years or so, supply chains have become noticeably more complex than in previous generations. Companies now deal with multiple tiers of suppliers, outsourced service providers, and distribution channel partners. This complexity has evolved in response to changes in the way products are sold, increased customer service expectations, and the need to respond quickly to new market demands.

The traditional order management process has longer lead and lag times built into it due to the slow movement of data back and forth in the supply chain. This slow movement of data works well enough in some simple supply chains. However, in complex supply chains, faster and more accurate movement of data is necessary to achieve the responsiveness and efficiency that is needed. Modern order management focuses on techniques to enable faster and more accurate movement of order-related data.

In addition, the order management process must be capable of handling exceptions and providing people with ways to quickly spot problems and give them the information they need to take corrective action. This means the processing of routine orders should be automated and orders that require special handling because of issues such as insufficient inventory, missed delivery dates, or customer change requests need to be brought to the attention of people who can handle these issues. Because of these requirements, order management has overlapped or merged with a function called *customer relationship management* (CRM), that is often thought of as a marketing and sales function.

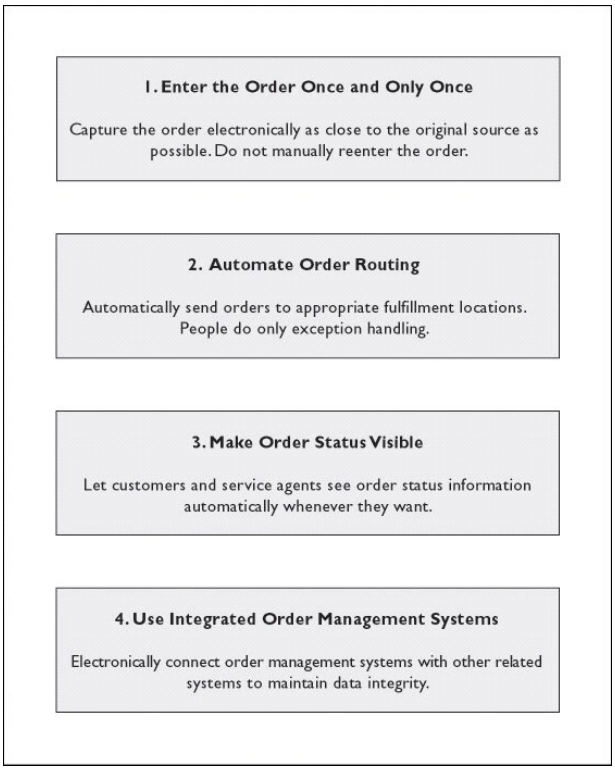

Figure 5-1. Four rules for efficient order management.

No matter how sophisticated the system, order management requires a handful of basic principles for any company:

- **Enter the order data once and only once.** Capture the data electronically as close to its original source as possible, and do not manually reenter the data as it moves through the supply chain. It is usually best if the customers themselves enter their orders into an order entry system. This system should then transfer the relevant order data to other systems and supply chain participants as needed for creation of purchase orders, pick tickets, invoices, and so on.
- **Automate the order handling.** Manual intervention should be minimized for the routing and filling of routine orders. Computer systems should send needed data to the appropriate locations to fulfill routine orders. Exception handling should identify orders with problems that require people to get involved to fix them.
- **Make order status visible to customers and service agents.** Let customers track their orders through all the stages from entry of the order to delivery of the products. Customers should be able to see order status on demand, without having to enlist the assistance of other people. When an order runs into problems, bring the order to the attention of service agents who can resolve them.

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- **Integrate order management systems with other related systems to maintain data integrity.** Order entry systems need product descriptive data and product prices to guide customers in making their choices. The systems that maintain this product data should be able to communicate with order management systems, because the order data is needed by other systems to do things like update inventory status, calculate delivery schedules, and generate invoices. (Interestingly, the Procter & Gamble research cited earlier in this chapter found that from 25 to 70 percent of some key trading partners' master data was inaccurate.) Order data should automatically flow into these systems in an accurate and timely manner.

[2] ***Ibid.***

Delivery Scheduling

Retailers in the United States spent more than $118 billion on logistics in 2003—that is, getting products from the proverbial Point A to Point B.[3] And yet, despite all the technology that's been deployed to avoid it, estimates of OOS incidents in retail range from 8 to 10 percent of the items in a store. The customer looks for a product that's just not there, which often signals a delivery problem.[4]

The delivery scheduling operation is, of course, strongly affected by the decisions made about the modes of transportation that will be used—so the way deliveries are scheduled must fit the constraints of the transportation decisions. For most modes of transportation, there are two types of delivery methods: direct deliveries and so-called **milk run deliveries**.

Direct Deliveries

Direct deliveries are made from one originating location to one receiving location. With this method of delivery, the routing is simply a matter of selecting the shortest path between the two locations. Scheduling this type of delivery involves decisions about the quantity to deliver and the frequency of deliveries to each location. The advantages of this delivery method are found in the simplicity of operations and delivery coordination. Since products are being moved directly from the location where they are made or stored in inventory to a location where the products will be used, it eliminates any intermediate operations that combine different, smaller shipments into a single, combined larger shipment.

Direct deliveries are efficient if the receiving location generates economic order quantities (EOQs) that are the same size as the shipment quantities needed to make best use of the transportation mode being used. For instance, if a receiving location gets deliveries by truck and its EOQ is the same size as a truck load (TL), then the direct delivery method makes sense. If the EOQ does not equal TL quantities, then this delivery method becomes less efficient. Receiving expenses incurred at the receiving location are high, because this location must handle separate deliveries from the different suppliers of all the products it needs.

Milk Run Deliveries

This term refers to the old-fashioned milkman, the dairy delivery driver who stopped at every house to deliver fresh milk in glass bottles. (Probably not in our lifetimes, however.) Today, milk runs are

- Deliveries routed to bring products from a single originating location to multiple receiving locations, or . . .
- Deliveries that bring products from multiple originating locations to a single receiving location.

Scheduling milk run deliveries is a much more complex task than scheduling direct deliveries. Decisions must be made about delivery quantities of different products, about the frequency of deliveries, and most importantly, about the routing and sequencing of pickups and deliveries.

The advantages of this method of delivery are that more efficient use can be made of whatever mode of transportation is used, and that the cost of receiving deliveries is lower because the receiving locations get fewer and larger deliveries. If the EOQs of different products needed by a receiving location are less-than-truckload (LTL) amounts, milk run deliveries allow orders for different products to be combined until the resulting quantity equals a truckload amount. If there are many receiving locations that each require smaller amounts of products, they can all be served by a single truck that starts its delivery route with a full truckload of products.

There are two main techniques for routing milk run deliveries. Each routing technique has its strengths and weaknesses, and each technique is more or less effective depending on the situation in which it is used and the accuracy of the available data. Both of these techniques are supported by software packages that, of course, are only as reliable as the

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accuracy of the data being input.

The **savings matrix** technique is the simpler of the two techniques. It can be used to assign customers to vehicles, and to design routes where there are delivery time windows at receiving locations and other constraints. The technique can be modified to take many different constraints into account. It provides a reasonably good routing solution that can be put to practical use. Its weakness lies in the fact that it is often possible to find more cost-effective solutions using the generalized assignment technique. This technique is best used when there are many different constraints that need to be satisfied by the delivery schedule.

The **generalized assignment** technique is more sophisticated and usually gives a better solution than the savings matrix technique—that is, when there are no constraints on the delivery schedule other than the carrying capacity of the delivery vehicle. The disadvantage of this technique is that it has a harder time generating good delivery schedules as more and more constraints are included. This technique is best used when the delivery constraints are simple: total vehicle capacity or total travel time.

Supply Chain Skills—Relocating To Increas Eefficiency Continued

Getting up at the crack of dawn each day to make fresh donuts, pastries, and coffee is a way of life for the thousands of tireless Dunkin' Donuts franchisees around the country. But that is not all they have to do. These small-business owners are responsible for purchasing, transportation, logistics, and warehouse operations at the five distribution centers that provide all baking materials, supplies, and much of the equipment for the Dunkin' Donuts stores throughout the United States.

The United Kingdom-based parent company, Allied Domecq, is essentially a marketing company. The franchisees are responsible for just about everything else. In each region of the country, the franchisees own separate distribution companies that are managed by professional logistics managers. For example, the Dunkin' Donuts Mid-Atlantic Distribution Center (MADC) is a franchiseeowned, stand-alone nonprofit corporation that services 1,400 restaurants in eight states and the District of Columbia.

These hard-working small-business owners know the value of efficiency and productivity, as well as the importance of the right location. By 2004, the current DC location in the southernmost part of New Jersey had become a problem. MADC had been operating out of the cramped 125,000-square-foot DC for six years, and the growing base of Dunkin' Donuts restaurants in the mid-Atlantic region cried out for expansion. But because of the marginal nature of the current location and resistance to expansion from the local municipality in Swedesboro, New Jersey, the company looked elsewhere.

"We liked New Jersey, but we needed to be farther north, closer to New York City where the business climate is better for distribution operations," says Warren Engard, director of distribution operations for MADC. "Just as important, we needed a facility better suited to our operations with more space, more doors, and cross-docking capabilities."

Before deciding on a new location, the company looked at its changing restaurant network. While the New York City area remained the largest single market, more store expansion was planned in Pennsylvania, Baltimore, and Washington. "We had to stay in the middle of these growing markets, so we only moved about 36 miles north to Burlington, New Jersey," says Engard. "If we went much farther north, the costs would have become much higher, and we would have had a problem retaining employees."

The company selected a site in a small industrial park in Burlington, New Jersey, that it shares with a trucking terminal. The site is immediately adjacent to two major highways (the New Jersey Turnpike and Interstate 295) with easy access to several bridges going into Pennsylvania.

The new Burlington facility is a vast improvement over the previous DC in Swedesboro, according to Engard. The old DC was a mere 125,000 square feet with 22 doors. It was so cramped that the pickers and receivers overlapped in time and space. Receiving was done over 16 to 18 hours, while picking was done for 21 hours a day.

"My pickers hated the receivers, the receivers hated the pickers," says Engard. "Everyone was in the aisles at the same time."

The Burlington DC is 300,000 square feet, with 134 doors and a cross-dock layout.The facility is not just larger, but dedicated pick and put-away aisles eliminate congestion. While this arrangement takes up more space, it allows simultaneous picking and receiving 24 hours a day, if need be. Because of the more efficient layout and operations, there is rarely a need for extended hours of picking and receiving.

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"We are more capable in eight hours than we were in 21 hours at the old facility," says Engard, adding that all picking is usually done in one 8-hour shift. Receiving from outside carriers starts at 4 A.M. for frozen goods and dry goods receiving begins at 7 A.M. After 1 P.M., only goods carried on the private fleet are received. Since the vast majority of inbound goods come in as backhauls on the private fleet, the volume of afternoon receiving is significant. Workers and aisle space must be available, and the new facility provides all the space needed.

The DC building has the ability to be expanded another 100,000 square feet, but Engard doesn't anticipate the need for such an expansion anytime soon, even with the likely addition of other Allied Domecq restaurants. (MADC is being asked to service Baskin-Robbins and the Togo sandwich chains, since many of the franchisees have combination shops.)

"Because of our much greater throughput and ability to handle all orders in one shift, we will have all the space we need for years to come," says Engard.

Another way that MADC tightly manages its DC operations is with intense use of its private fleet that it leases from Ryder Transportation. The fleet consists of 62 road trucks and 110 trailers in its road division. In the route division that serves stores directly, there are 95 tractors, 108 trailers, and 12 straight trucks. Most of the 300 employees at the DC are drivers and driver helpers. In fact, only40 employees are receivers and pickers, so the trucking operation is a critical part of the MADC operations.

"The straight truck fleet is increasing because of growing restrictions on tractor-trailers in New York and other cities," says MADC's transportation manager, Tim Kennedy.

MADC is Ryder's largest U.S. customer in one facility, and the truck lessor even operates a three-bay full maintenance and repair facility on MADC's property. Ryder also helps MADC manage its longer-haul trucking routes, half of which used to require one or even two overnight layovers. With the help of Ryder, MADC now uses drivers domiciled in the more remote areas. Its home-based drivers shuttle trailers to Ryder facilities in the outlying regions where they are staged for pickup by the domiciled drivers who will do local delivery and backhaul pickups. These local drivers, in turn, drop off backhaul trailers loaded with supplier materials at the Ryder facilities for the home-based drivers to bring back to Burlington.

"Right now, 85 percent of our supplier material is backhaul freight for our trailers," says Kennedy. "The goal is to build this up to 100 percent."

The MADC private fleet also has 48-state for-hire trucking authority that it uses to fill excess back-haul capacity with freight from selected partners, including GE appliances, Pepsi, and Juicy Juice.

"Our own logistics staff carefully coordinates the movement of these trailers and the available capacity with our Appian Logistics transportation management system, so the trucks are available when we need them," says Kennedy.

MADC also coordinates front and backhaul moves with its sister DCs operated by other Dunkin' Donuts regions. For example, MADC ships bagels up to the New England DC and brings back dairy products and shortening.

"Although we are separate companies, the DCs work closely together," says Engard, adding that three of the DCs are using the same warehouse management and enterprise resource planning (ERP) systems from Integrated Distribution Systems (IDC)." The Midwest and Southeast center will be running off our system, and one of them will have a redundant site to deal with any computer crashes or down time."

Source: Thomas A. Foster, "Dunkin' Donuts' Short Relocation Brings Big Change," *Global Logistics & Supply Chain Strategies*,© Keller International Publishing, New York, March 2005.

Delivery Sources

Deliveries can be made to customers from two sources. *Single product locations* are facilities such as factories or warehouses, where a single product or a narrow range of related items are available for shipment. These facilities are appropriate when there is a predictable and high level of demand for the products they offer, and where shipments will be made only to customer locations that can receive the products in large, bulk amounts. They offer great economies of scale when used effectively.

Modern Considerations for DC Locations

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There are huge cost differences in operating distribution warehouses in the 50 top markets around the United States. In a study by The Boyd Company, a site location consulting firm in Princeton, New Jersey, operating a DC in any of the top ten highest-cost U.S. locations would cost a company more than $14 million annually to operate; while the lowest-cost (ranked #41–50) are less than $10 million annually. Some of the major concerns of companies shopping for a new DC site are:

- **Land values.** It costs 50 percent more to lease a DC site in New York City (#1) than it does in Mobile,Alabama (#50), for example.
- **Labor cost and quality.** Paying unskilled warehouse workers an hourly wage is no longer suffi-cient, and the issue also is not necessarily union-versus-nonunion labor. Many DC facilities are automated and highly computerized, which requires more training and skills that command higher wages.
- **Traffic.** Congestion of nearby ports and highways can significantly delay shipments.
- **Security.** Some companies avoid large population centers simply because of the increased risk of supply disruptions from terrorism threats—not against the company, but in the overall area, shutting down airports, freeways, and the like.

Source: "The Best DC Locations in the U.S.," *Global Logistics & Supply Chain Strategies*, © Keller International Publishing, New York, March 2005.

Distribution centers are facilities where bulk shipments of products arrive from single product locations. When suppliers are located a long distance away from customers, the use of a DC provides for economies of scale in long-distance transportation to bring large amounts of products to a location close to the final customers.

The distribution center is usually a huge, regional warehouse that stores inventory for future shipment, or it may be used primarily for cross-docking.

Cross-docking is a technique pioneered by Wal-Mart, in which truckload shipments of single products arrive at a DC and are unloaded. As these trucks are being unloaded, their bulk shipments are being broken down into smaller lots, combined with small lots of other products, and loaded immediately onto other trucks. These trucks then deliver the products to their final locations.

Distribution centers that use cross-docking provide several benefits. The first is that product flows faster in the supply chain, since very little inventory is held in storage. The second is less handling expense, because the goods don't have to be put away and then retrieved later from storage. The benefits of cross-docking can be realized when there are large, predictable product volumes, and when economies of scale impact both the inbound and out-bound transportation. However, cross-docking is a demanding technique; it requires a considerable degree of coordination between inbound and out-bound shipments.

Supply Chain Strategies—Delivery Scheduling As a Corecompetency Continued

Eastern Bag & Paper Company (www.easternbag.com) is a distributor of paper products, industrial packaging, food service, and janitorial and sanitary maintenance products. It operates out of two distribution centers, one in Connecticut and one in Massachusetts, and has a fleet of 44 straight trucks and 4 tractor trailers. More than 4 million cases are shipped, and 200,000 deliveries are made each year.

Eastern Bag & Paper has developed a very efficient delivery scheduling operation, and it continues to innovate and refine the processes that support this operation. Meredith Reuben is the company's CEO.

The process begins at 4:00 P.M. every business day. All orders received up to that time are down-loaded from the enterprise resource planning computer system to an automatic delivery routing system called RoadShow. Don Burton, director of operations, explains, "We have built in customized parameters—things like tight delivery windows for certain customers, and route preferences, so the system creates routes and schedules that are very efficient."

It takes the RoadShow system and router about two hours to calculate the routes and schedules for all the trucks. At 6:00 P.M. the routes and schedules are uploaded back into the ERP system and the picking labels are printed in each of the distribution centers. By 6:30 P.M., each location has a complete set of pick labels, which correspond to the way each warehouse is laid out.The pick labels tell the employee (called a "picker") where to go for each item and what

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quantity to retrieve. Along with the labels that are attached to each case, a pick list is generated to accommodate a quality control audit.

"We have a QA process that randomly selects orders to audit," Don says." We use the pick list and check it against the set of labels on each case. We probably audit about 10 percent of orders. We track errors such as 'right label on wrong case' or 'short, case not on truck,' or 'short, can't find case.'" Errors are traced back to the individual pickers.

Loading the trucks takes 8 to 10 hours, starting by 7:00 P.M. and finishing by 4:00 A.M. The trucks are on the road soon after. All trucks are equipped with a global positioning satellite (GPS) system. It can pinpoint the location of each truck during the day, creating an activity log that records the truck's movements.

"RoadShow creates a delivery schedule, and the GPS allows us to compare the actual route versus the planned route," Don says." The drivers are always saying RoadShow doesn't accurately reflect conditions. So we can now create very realistic schedules using corrective information that we get from GPS. Drivers are able to achieve 95 percent on-time performance against the schedules that we create."

The company continuously measures its performance and makes adjustments as needed to maintain high levels of customer service. There is a zero-defect program in place that follows a customer order from entry to delivery, with the goal of "perfect orders"—right place, right time, with the invoice completely correct. When Eastern started tracking orders, it was at only 53 percent "perfect." Now, the percentage is approaching 90!

The system results in individual responsibility for errors and corrections.

"Our performance measurements allow us to track individual productivity and error rates by worker," says Don. "We have developed standard productivity rates for different jobs that we can use to compare against the actual productivity of each person. Our error reports allow us to identify the person and the department where an error originated. This is the information we need to continuously make adjustments to our operations so as to keep up high service levels and also keep our costs as low as possible."

It is the continuous measuring and adjusting that makes the activities of delivery scheduling and order fulfillment into a core competency. No matter what the size of the distributorship of the types of products it distributes, these two activities must be core competencies if the company is to be successful.

"Bottom line, distribution is a 2 percent to 4 percent net business—there is no room for errors and low productivity," observes Eastern CEO Meredith Reuben." Measuring people and processes to look for improvements is something that goes on all the time. Process reengineering and investments in new technology to decrease errors and increase productivity is something that we do every year."

One of the future trends for distribution centers is the idea of putting other functions into the DC location, like customer call centers, order processing, and accounting. With office space scarce and expensive in many cities, the cost per square foot of warehouse-style space is far more economical, so companies may choose to locate services that used to be at their headquarters at DC locations instead.

Another financial reality—with today's fuel prices, transporting and delivering goods is expensive and not getting any cheaper. Capabilities in this area are closely aligned with the actual needs of the market that the supply chain serves. For instance, highly responsive supply chains usually have high transport and delivery costs, because their customers expect quick delivery, and this means many small shipments of product. Less responsive supply chains can combine orders over a period of time and make fewer, larger shipments, which results in more economies of scale and lower transport costs.

[3]David Hannon, "Retailers Push the Logistics Learning Curve," *Purchasing* magazine, © Reed Business Information, Inc., New York, September 2, 2004.

[4]Ram Reddy, "Tried and True," *Information Supply Chain*, a newsletter of Intelligent Enterprise, CMP Media, LLC, San Francisco, California, September 4, 2004.

The Reality of Returns

Returned goods, packaging, parts, and waste materials flow through the supply chain in a stream or system commonly known as **reverse logistics**. To a certain extent, improving the accuracy of sales forecasting, order management, and delivery systems will minimize returns, but not entirely. How well retailers and their suppliers manage these items will either add to or detract from the overall efficiency of the supply chain, as well as each company's costs of doing business.

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Too often, reverse logistics has been a rather informal process in retail, with no particular plan or budget. In fact, a survey of more than 300 logistics managers in various industries by the nonprofit Reverse Logistics Executive Council found that 40 percent considered the issue "relatively unimportant." That is not the case, however, for companies on the lookout for cost-saving methods.

While liberal returns policies are certainly convenient and have been used as marketing tools by retailers since the 1980s, customers have become so accustomed to this courtesy that the resulting "fallout" for supply chains has become a real challenge to manage. For example, Americans return

- 4 to 5 percent of consumer electronics items
- Up to 15 percent of mass merchandise items
- Up to 30 percent of books

For online sales, since customers can't "try before they buy," return rates can be well above 50 percent! These statistics really add up. Reverse logistics is estimated to consume $40 billion, or about 4 percent, of the overall logistics costs in the United States. It can also drain as much as one-third of an individual company's profits.[5]

The reality of returning these products is more complex than satisfying the end user or consumer with the resolution of a problem or complaint. Reversing the supply chain is not as tidy, you might say, as keeping it in forward motion. Items come in without packaging, as singles instead of cases or lots or pallets. Their "delivery" is certainly not scheduled! Unless the returned item is going to sit unnoticed in a store's backroom or warehouse forever, even something as simple as an exchange or repair will require at least *some* further supply chain involvement. For example, the store inventory must be updated to reflect the status of the returned item. Then, someone must be responsible for deciding what to do with the item—return it to inventory? Return it to the distributor, importer, or manufacturer? Get it repaired? By whom? Where is it stored in the meantime? Who pays for the repair? Who pays for the return shipping? Who replaces a defective item in the retailer's inventory, or refunds the money originally paid for it? If a new order must be placed, what kind of priority does it receive and who notifies the customer when it arrives? Each of these seemingly routine decisions involves a policy and procedure that must be agreed on by the affected supply chain partners, or problems will surely arise.

Types of Returns and Reverse Logistics Challenges

	BUSINESS TO BUSINESS	***BUSINESS TO CUSTOMER***
Reasons for return	▪ Product defects ▪ Damage ▪ Warranty ▪ Discontinued product ▪ Return allowances ▪ Stock adjustments (such as raw-material surplus)	▪ Product defects ▪ Damage ▪ Warranty and service ▪ Recall ▪ End of use ▪ Did not like, no trouble found
Supply chain challenges	▪ Nonuniform product quality and packaging (sold in pallets, returned singly), which also affects transportation utilization and expense ▪ Outdated and possibly obsolete returned items	▪ Unpredictable demand with little or no advance notice of the return quantity or quality ▪ High number of transactions necessitating efficient disposition, evaluation, and customer credit processes
Opportunities	▪ Opportunities include refurbishing, repair, and remanufacturing to reduce the need to purchase new parts and incentives that would motivate customers to be more efficient in ordering	▪ Opportunities include refurbishing, repair, and remanufacturing the product while delivering customer service that will result in return business. ▪ A customer-focused strategy would

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	▪ A customer-focused strategy requires streamlined, no-hassle policies and fast crediting to the customer's account ▪ Detailed data can be gathered to perform root-cause analysis for product innovation	shift responsibility for handling returns from customer to supplier ▪ Seamless integration of supply chain partner systems helps rapidly and accurately dispose of returned product

One of the reasons it is critical to track returns and have procedures in place to handle them is that they can point to bigger-picture issues, such as product defects or safety concerns. In the case of some products that contain hazardous materials (batteries, electronics equipment, and so on), there are safe disposal requirements that must be adhered to and reported. A tracking system can also point to communication problems tied to customer expectations about the product—for instance, if many customers return an item saying it "doesn't work as well as I thought it would," this may require ads, marketing materials, or product instructions to be modified to prevent future buyers' disappointment.

Today's consumers take liberal returns policies for granted, and this adds some competitive pressure to the system. Customer service has become as important in the returns process as it was in the initial purchase of the item. People don't want to have to wait "too long," in line or on the phone—and if they do have to wait, they want to know approximately how long the wait will be, and perhaps even the reason for the delay. If they are asking for a replacement item, they want it and they want it now! A key component of the retailer's returns plan must be to have sufficient capacity (staff, policies, inventory, and so on) to make the transaction or complaint process as quick and hassle-free as possible—for the customer, that is.

Even other members of the supply chain that don't deal directly with consumers must plan for returns. They may be in the form of overstocks, end-of-season items, unsold or damaged goods, products that have been recalled, and mountains of packaging materials. An attempt should be made to recover at least some of the items' original value, if possible. They may be repaired or reconditioned, resold to discounters, used for spare parts, and so on. One consideration that is not directly related to customer satisfaction but important in terms of public perception is the recycling of packaging materials and reusable parts. The general expectation is that companies will be good corporate citizens, which means having an environmental strategy to minimize waste.

[5]Charles Harthan, Sean Monahan, and Patrick Van den Bossche, "Shifting Your Supply Chain Into Reverse," *Executive Insights*, © A.T. Kearney, an EDS Company, Chicago, Illinois, 2004. All rights reserved. Quoted with permission.

Outsourcing Supply Chain Operations

In a survey of more than 300 retailers in the United States, 21 percent listed "outsourcing" as a major priority for 2005.[6] Outsourcing logistics functions (like deliveries) is sometimes known as **third-party logistics (3PL)**. When considering outsourcing service functions to other companies, any member of any supply chain must ask itself the following questions:

- Which of these operations can we handle ourselves?
- At which do we truly excel? (These are known, in "corporate-speak," as **core competencies**.)
- How many of these operations bring money into the company?
- How many of these operations consume money?

The relentless pressure on profit margins that free markets create is a driving force behind the growth of outsourcing. What may be considered as overhead for Company A may be a service that Company B can offer and make a profit doing so. Company B may be able to offer this service for a price lower than it costs Company A to do it in-house. Company A is going to consider outsourcing.

The traditional participants in supply chains are producers, logistics providers, distributors, and retailers. How many of the supply chain operations can be called core competencies of any of these organizations? There are some operations—like credit and collections, product design, and order management—that may not be core competencies of any of the traditional participants. This creates opportunities for new service providers to take on these operations and offer them to the other supply chain participants. Every one of the operations in this book needs to be performed for the supply chain as a whole, but they do not all need to be done by any single company. Indeed, they cannot all be done well by any single company.

Speed and efficiency are the reasons most companies decide to outsource their customer service functions. Third-party

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providers already have the people, processes, and infrastructure in place to handle the customer calls—and it doesn't really matter if there are 10, 100, or 1,000 calls a day, a system must be in place and operational in order to manage the call activity, answer questions, and satisfy customers. Smaller retailers find that hiring a third-party call center improves their image, by giving their customers the same service level they would receive from a larger business. Manufacturers also use third-party service providers, often when they first introduce a product and call volume is highest. Later, they may take over the customer service function themselves as the volume tapers off.[7]

The other force that drives outsourcing is the growing sophistication of the markets that supply chains serve. Gone are the days when Ford Motor Company could run a vertically integrated company that did everything from mine iron ore to produce steel, to design and build automobiles. That structure was only possible because the markets it served were content to buy mass quantities of standard products.

A third reason companies outsource is that they are small and/or growing. They have (or make) the product and people want to buy it, but they don't have the money to build their own infrastructure for added services like delivering it themselves, hosting a 24/7 customer call center, and so on. Instead, they hire outside specialists to handle these functions.

Mass customization is different than past generations' mass production. Markets today demand and pay for all sorts of innovations, customized features, and services. This creates complexity in the supply chain, and participants who specialize in certain areas bring the expertise and efficiencies that are required to manage this complexity.

[6]Study results, "Retail Horizons: Benchmarks for 2004," conducted by BearingPoint, Inc. (McLean, Virginia) for the National Retail Federation Foundation (Washington, DC), January 18, 2005.

[7] "Outsourcing Your Supply Chain Management Function," © DecisionOne Corporation, Frazer, Pennsylvania, July 2001.

Chapter Summary

The ordering, delivery, and returns processes are core connections between members of a supply chain, and the first two are critical functions to prevent retail out-of-stocks. This makes accuracy and timeliness paramount in these systems. This chapter introduced four basic rules for ensuring correct orders.

Orders are fulfilled either directly from the manufacturer, or through an intermediary facility such as a warehouse or distribution center. The types of transportation used and the frequency of orders will determine the delivery schedule and ultimately impact the cost of getting the goods to market. Much of the logistics function is now organized with computer software, but it is only as good as the data being input.

Because consumers expect liberal return policies, customer service has become as important in the returns process as it is in the initial purchase of the item. Returns create a backflow of merchandise, packaging, and unsold items—not just for the retailers, but for everyone in the supply chain who has handled the goods at some point. These must be repaired, resold, recycled, and so on, in an attempt to recover as much of their original value as possible while minimizing waste.

Companies today are very likely to consider outsourcing ordering, delivery, and at least part of the returns process, but they should do so only if it is more economical to outsource and if it prompts their own people to focus on the company's core competencies.

Discussion Questions

1. Why would a company's own product descriptive data be inaccurate? Whose job should it be to update it, and how often should this be done?
2. What kind of retailers would be best suited to direct deliveries from manufacturers? What kind of retailers would be better served by milk run deliveries?
3. Using the topics in the sidebar "Modern Considerations for DC Locations," pick a city and find out the pros and cons of locating a distribution center there. What is the economy like? Where are other, similar facilities located? Does the city, county, or state offer some economic incentives?
4. How would an Internet-based retailer handle transportation needs? Would its overhead be less than a brick-and-mortar store in terms of moving, storing, picking, and shipping?
5. If you were a retailer, are there any business functions that you would not even consider outsourcing to a third-party service provider? If not, why not?

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The Incredible Journey Continues

SEPTEMBER 14—ORDER OF THE DAY

WL receives an EDI order from CVS for 20 pallets of 500-milliliter bottles of Cool Mint Listerine to be delivered by September 16 to CVS's Woonsocket (Rhode Island) warehouse, which serves all New England CVS stores. The order is automatically screened to make sure the numbers requested are reasonable and the source for the order is legitimate before it is passed on to WL's SAP system, an enterprise resource planning tool from SAP AG. SAP prices the order and determines how much of it is already in stock and how much needs to be manufactured. Generally, the order is in stock, since the
E3 Merchandise Transaction System would have predicted store demand.

That same day, SAP transfers the order to WL's Strategic Transportation Planner made by Manugistics. The Manugistics' system determines how best to consolidate order delivery and which shipping companies to use to minimize costs and meet the required delivery time specified by CVS. An action plan specifying those details is drawn up. WL then sends an electronic alert to the chosen shipping companies via EDI.

Meanwhile, the Manugistics action plan is automatically downloaded to SAP, which sends it back to WL's McHugh Software International Inc. warehouse system around 1 A.M. for use by the people on the WL warehouse floor. The McHugh system specifies how the warehouse employees should pick and ship the day's orders.

How does CVS determine prices?

The oral hygiene category manager at CVS headquarters in Woonsocket, Rhode Island, is responsible for deciding what products to stock and how to price them—as well as how to develop promotions with manufacturers to boost sales. To do this, she relies on Category Map, a decision support tool that's connected to the company's massive data warehouse. Category Map draws on data on the past performance of all products as well as market research fed into the system from research firms such as ACNielsen Corp. Using the tool, she can figure out how well Listerine sells compared with other mouthwash brands and how much money CVS makes on the product, given price and sales rates. Category Map also lets her adjust for special promotions. To set the standard sales price for Listerine, she uses a pricing tool with historical performance data, intelligence gathered on competitors' prices, and market data. The tool updates CVS's data warehouse with the official price and also downloads the pricing data to the individual CVS stores, where computers print out shelf tags as prices change. The category manager's recommendations automatically feed into another system, the Merchandise Transaction system made by E3 Corp. The E3 system takes Category Map data and combines it with point-of-sale (POS) data from the CVS stores as well as inventory information to calculate the exact quantities of Listerine CVS should purchase to meet forecasted store demand. On the same day that E3 figures out how much Listerine to order, it generates a purchase order and sends it via electronic data interchange (EDI) to WL; the information is also sent to CVS's warehouse management system made by EXE Technologies Inc., so that CVS warehouse employees and computer systems know when to expect the order. The E3 system has taken three days out of CVS's order cycle process, says Leo Hartnett, vice president of efficient consumer response.

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