



Why multilayered distribution works best in Europe

Companies looking for higher customer service levels and lower logistics costs in Europe are designing distribution networks with a central warehouse backed up with satellite facilities in major markets.

A FEW MONTHS AGO I WAS INVITED TO A SEMINAR IN BRUSSELS about how new supply chain concepts could reduce supply chain costs for European operations. At the reception afterward, I met a business development director and a supply chain manager of a U.S. consumer products company that was looking to start operations in Europe. During our conversation, they asked me what type of supply chain works best for Europe. The answer was rather complicated, so I invited them to discuss that topic at length over dinner.

Although every company will have distribution challenges that are unique to its products and markets, I explained, for many companies the centrally located warehouses that developed in Western Europe after the establishment of the European Union (EU) are becoming less efficient for distribution in the face of growing road congestion and rising transportation costs. In fact, I pointed out, companies that want to achieve high levels of customer service are moving toward a hybrid model of a central distribution center with satellite warehouses in selected countries.

With this model, I continued, companies have started to implement cross-national distribution structures, a change that is being driven by such developments as EU harmonization legislation; the advent of the Internet, which transcends national boundaries; and the domination of enterprise resource planning (ERP) systems, which foster the standardization of information technology regardless of locale.

[BY MOHAMED LASGAA]

Later it occurred to me that others might also wonder about the best way to serve customers in Europe. This article will help to answer that question by summarizing the conversation of that night.

Europe: A complicated concept

To understand why the approach of a central warehouse supported by satellite facilities makes the most sense for many companies today, it's important to know the lay of the land in Europe, including its culture, political and business history, and transportation infrastructure.

Europe makes up the world's second-smallest continent in terms of area, covering about 10.4 million square kilometers (3.9 million square miles). The only continent smaller than Europe is Australia. In terms of population, however, Europe constitutes the third-largest continent (after Asia and Africa) with a population of 730 million, or about 11 percent of the world's population. Those inhabitants speak many different languages and follow a wide variety of cultural traditions and religions.

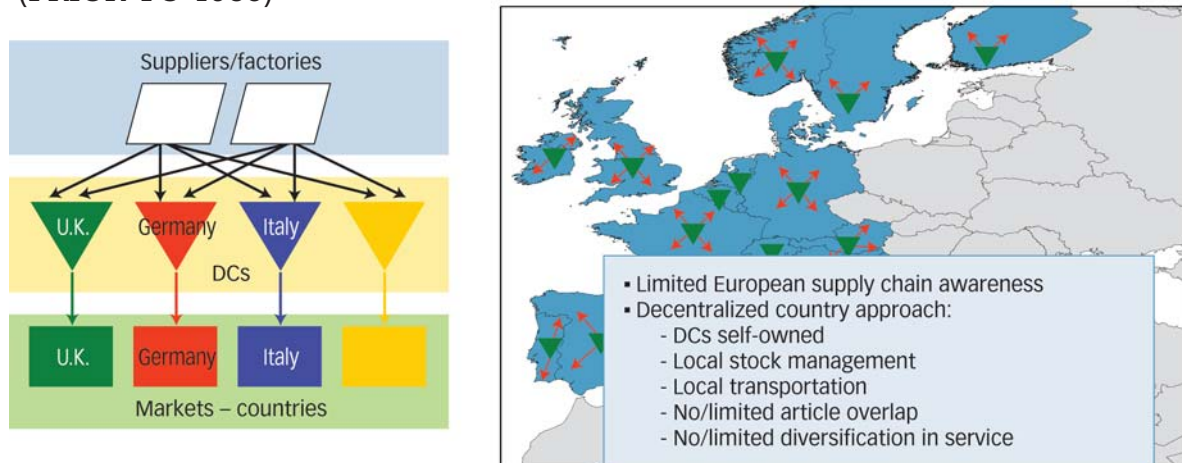
Although Europe includes 45 sovereign nations, the continent has been moving toward some degree of political unity. In 1957, six countries—France, Italy, the Netherlands, Belgium, Luxembourg, and West Germany—agreed to form the European Economic

Community (EEC). The political outgrowth of that original group, the European Union, now includes 27 nations with an area of 4.4 million square kilometers (1.7 million square miles) and approximately 500 million inhabitants. Its gross domestic product (GDP) amounts to 25,000 euros (US \$34,500) per inhabitant on average.

Initially, the founding member states had only economic objectives in mind. Today the institution is also dedicated to enhancing political, environmental, monetary, and social cooperation and integration.

Despite that push for federal unity and common standards, a number of EU member states retain jurisdiction over many areas of regulation. One example is truck transportation. Austria, for instance, prohibits trucks on its roads on weekends, at night, and on holidays. "LZV" trucks—vehicles of about 25 meters in length—are allowed in the Netherlands but not in Belgium. In Belgium, truck drivers may not pass other vehicles while it is raining or snowing. Moreover, truck drivers may only drive in the right-hand lane of a motorway (highway) during bad weather. The allowable weight for trucks often differs from country to country: Belgium allows 44 kilotons while Austria only permits 35 kilotons. Some countries, such as Germany and France, have implemented highway taxes but other

[FIGURE 1] TRADITIONAL DECENTRALIZED LOGISTICS NETWORK (PRIOR TO 1985)



countries have not. Even labor rules differ. For instance, France allows a 35-hour work week while the Netherlands mandates 40 hours.

Changing distribution models

All of those factors and conditions influence a company's decision regarding how to best serve its customers in Europe. But other business developments have also played an important role in forming service strategies.

Over the last 15 years, European industry has witnessed numerous mergers and acquisitions. The combined companies often found themselves with physical distribution structures that were not necessarily compatible—multiple central warehouses within a 100-kilometer radius, for example, or parallel distribution channels with significant overlap in the customer base.

Because of Europe's cultural, monetary, and language differences, companies historically have maintained multiple marketing and sales organizations, often one in each country. Prior to 1985, most companies operating in Europe followed a decentralized distribution model that was similarly local in orientation and was organized by individual country. Each country had its own warehouse, which companies ran themselves due to the small scale of the local operations and the fact that there were no logistics service providers offering true pan-European coverage. This approach required local management of inventory, and companies did not have full central visibility or end-to-end-control of supply chains. Each warehouse also was responsible for contracting with carriers for transportation services. (See Figure 1.)

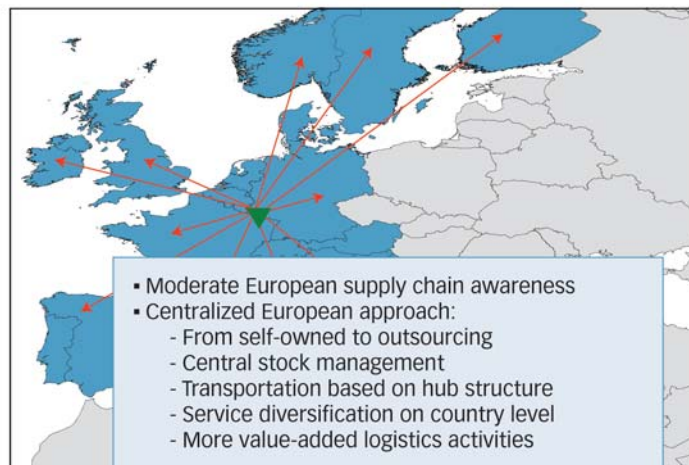
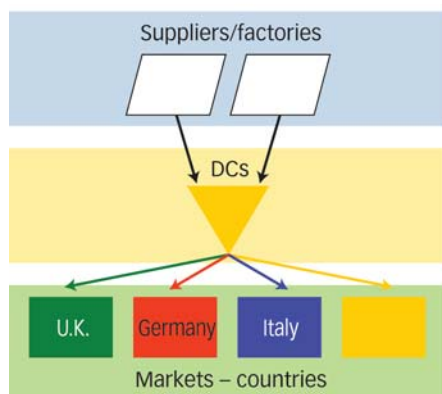
Between the years 1985 and 2000, European com-

panies began employing a centralized model for distributing products. This shift was driven by the desire to implement cost saving programs in their supply chains as part of corporate initiatives to improve shareholder value. Companies saw the opportunity for substantial savings in transportation, warehousing, and inventory through rationalizing and optimizing their European distribution networks. Indeed, many achieved quick wins by making moderate changes in their distribution networks, such as consolidating warehouse volumes and transportation providers and by implementing more effective inventory management policies. (See Figure 2.)

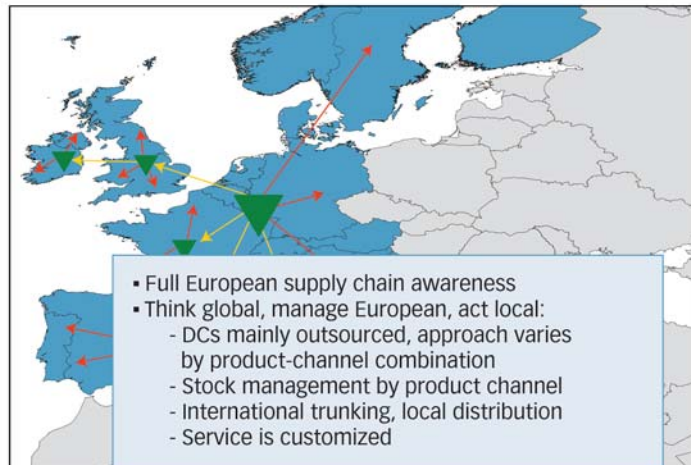
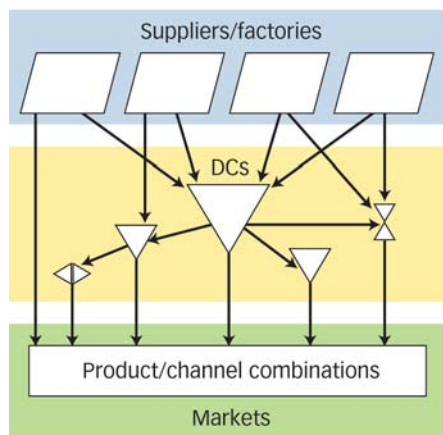
The centralized distribution model supported the notion that savings could be achieved by enforcing economies of scale in warehousing. The distribution of goods to end customers therefore followed a hub-and-spoke pattern with a central warehouse serving as the hub. The central warehouse would ship full truckloads to distribution hubs, which were operated by either an asset-based or a non-asset-based third-party logistics (3PL) provider. Final distribution to the end customer would be carried out through service providers with strong local logistics networks.

To achieve inventory cost savings under this concept, a central warehouse operation had to be more efficient than the sum of the existing local warehouses that had been replaced by the single facility. That wasn't always the case, and centralization didn't automatically lead to economies of scale and accompanying cost reductions. The reason is that regardless of whether a company employs a centralized or a decentralized approach, it must wrestle with the issue of demand uncertainty. Under the decentralized approach, local warehouses had to address demand

[FIGURE 2] CENTRALIZED EUROPEAN LOGISTICS NETWORK (1985 – 2000)



**[FIGURE 3] MIXED EUROPEAN LOGISTICS NETWORK
(2000 AND BEYOND)**



uncertainty in their markets and deal with the lead time for shipments from suppliers. In the centralized scenario, long lead times for supplies from Asia and the United States meant that the central warehouse had to keep sufficient stock to cover demand fluctuations while shipments were in transit. On the positive side, orders were shipped directly from the central warehouse, so stock was required in only one location.

To benefit from this “uncertainty sharing” under a centralized warehouse concept, it was vital that there be significant overlap in product portfolios for individual European countries. That was not easy to achieve because most companies produced an exclusive, dedicated product range for each country. Thus, given the need to meet local product requirements, centralization at one stocking point offered little if any potential for inventory reduction. For this reason, numerous centralization projects were accompanied by product-rationalization programs.

As a general rule, then, centralization of a European logistics network worked best for business profiles that included high-value goods and a strong overlap in product portfolio among the various national markets. For these types of businesses, cost savings were largely achieved through investing less working capital in inventory, reducing their storage capacity, and creating economies of scale in their centralized warehouse operations.

Hybrid model takes hold

Companies selling in Europe, however, could not ignore the growing demand for customer service that was differentiated by product group and/or by distribution channel. At the same time, customers expect that a single standard for lead times and delivery

reliability will apply across the complete product portfolio.

Companies that differentiate service levels by type of customer might assign an objective of 99-percent service quality to fast-moving or high-margin products and a 90-percent service-level objective to slow movers or low-margin products. In addition, lead-time requirements may differ by distribution channel. For instance, a field-service organization might require 12-hour delivery for spare parts to minimize customers’ downtime, while a wholesaler could agree to a 72-hour delivery schedule because it is simply replenishing its regular stock. By adopting this approach, companies can make customer service their main supply chain driver while avoiding the unnecessary costs that typically are incurred when they apply a uniformly high level of service to all customers, whether they require it or not.

To support this strategy of customer service differentiation, many leading companies have in the last few years developed a “hybrid” logistics model: a central distribution center that is backed up by local (country-specific) satellite facilities. A satellite facility is an extension of the central warehouse, which manages its inventory. The satellite stocks fast-moving products close to the consuming market and provides the high-end, fine-grained service to end customers. (See Figure 3.)

Another major factor encouraging the rise of this hybrid model has been transportation costs. When transportation costs are rising, as they are now, the advantages of a centralized distribution approach are diminished. In general, centralization of warehouses creates savings in inventory but results in higher transportation costs because of the greater distance to market.

Fuel costs play a part in pushing up transportation costs, but they are not the only factor. The volume of freight moving over the road in Europe has increased 40 percent in the past 12 years, leading to serious congestion problems. It's therefore no surprise that on average, transportation represents 35 percent of total supply chain costs within Europe.

To combat congestion, the European Union has begun promoting the use of alternative modes to highway transportation, such as rail and inland waterways. But switching modes may not be cost-effective for some shippers. For example, it would not be practical to ship 20 pallets per week by rail to a location that is just 100 kilometers away. Under a hybrid model, companies can cost-effectively make smaller deliveries over short distances from satellite warehouses while minimizing the chance that road congestion will delay time-sensitive shipments.

In addition, the hybrid model can take advantage of Europe's 3,500-mile inland waterway system, which directly or indirectly connects 13 European countries: Belgium, the Netherlands, Germany, France, Switzerland, Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, and Ukraine. Almost all of the major industrial zones between the North Sea and the Black Sea are connected by water through this network, and companies are using it to resupply local warehouses from the central warehouse.

Visibility enables flexibility

In the traditional decentralized model, country-specific warehouses managed replenishment of their own inventory through individual purchase orders (a pull mechanism). In the new distribution model, inventory is managed both in the central warehouse and in the satellites through a central, European logistics organization for each market channel. This requires central coordination of the stocking policies for the individual satellites.

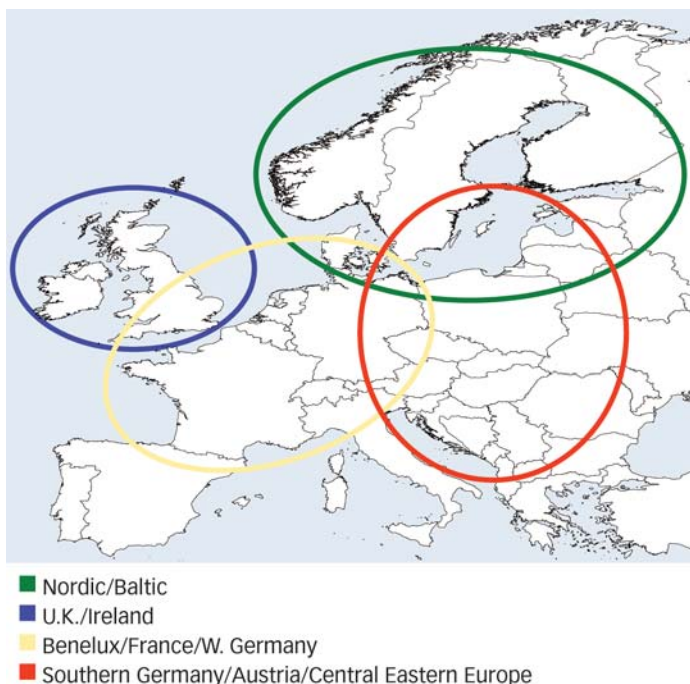
Companies that employ a hybrid model in Europe often outsource the operation of the central warehouse and its satellites to third-party logistics providers. The 3PL can coordinate central purchasing, the stocking policies for the individual satellites, and call-offs of products (direct deliveries from the central warehouse to the customers) under a push mechanism, whereby the central warehouse automatically replenishes the satellites' inventory when a minimum stock level has been reached.

Full supply chain visibility is required to support this push concept. The central warehouse must be able to "see" stock levels, actual demand, and sales forecasts for each satellite facility. Such visibility enables continuous optimization of order delivery, either through direct deliveries to customers from the central warehouse or through deliveries from satellite facilities. It also permits continuous inventory optimization via location (or relocation) of products and stock among central warehouses and local satellites.

Furthermore, this visibility facilitates cross docking and merge-in-transit activities at all warehouse locations. It also bolsters the tracking and tracing of goods and orders across the entire supply chain, so that a company can more easily measure performance and maintain control over the flow of goods.

Supply chain visibility depends heavily on supporting technology, including collaborative networking software, vendor-managed inventory (VMI), and "virtual warehousing." Virtual warehousing is a kind of network that creates full visibility of inventory at all stocking points within Europe. This allows fulfillment of orders from anywhere in the network; it is not important where the goods are stored, as long as customers receive orders on schedule. Indeed, virtual warehousing is a necessity if a

[FIGURE 4] MAJOR DISTRIBUTION REGIONS



company is to make optimal use of all available stock. To make virtual warehousing possible, moreover, it is important to have a single European ERP system instead of a variety of local implementations.

Most companies still prefer flexible warehouse solutions. Unfortunately, this results in a rather limited level of automation. That's because logistics service providers don't want to invest in a lot of automation when contracts with their customers typically are just two to three years in length. And for companies that manage their own warehouse operations, the payback period for automated solutions often is too long. The local satellites offer a partial solution: They usually are designed as small-scale operations that can react quickly and flexibly to changing customer requirements, handling workflow peaks and valleys as well as short order-throughput times.

To achieve inventory reductions, companies must rationalize products as generic articles for sale in Europe. Accordingly, hybrid distribution networks facilitate value-added logistics (VAL) that involves customizing generic European articles to meet country-specific requirements. Generic products are stored in the central warehouse and are modified on an assemble-to-order basis. This assembly can be conducted at either the central warehouse or the local satellite.

Some customizations are consumer-driven, such as when different product manuals are needed because of language differences, or when packaging must be changed because of local marketing considerations. In other cases, customizations are government-mandated. Examples include packaging that is required by local environmental regulations, or products that must be reconfigured to comply with local safety regulations.

Produce in the East, distribute from the West

For the moment at least, the hybrid distribution network model is limited to Western Europe. Although companies have shifted some production of high-volume or fast-moving goods to low-cost Eastern European countries such as Bulgaria, Romania, Poland, Hungary, and the Czech Republic, there is no similar trend involving distribution centers. That is because customer requirements for shorter lead times

and better delivery reliability mean that companies prefer to locate satellite facilities near their most important European markets.

But staying close to the customer is just one reason for keeping DCs in Western Europe. As long as ports of entry and road infrastructure in Eastern Europe are of insufficient quality and capacity to support effective and efficient distribution of consumer goods, most of the shipments sourced from Asia and North America will continue to be imported via Western European transportation infrastructure and gateways.

That situation might change 10 to 15 years from now, when relocation of warehouse activities to central Eastern Europe could become a valid option. The extension of the EU into Eastern Europe, now under way, is expected to bring improvements in transportation and logistics infrastructure. In addition, increasing harmonization of monetary, environmental, and tax policies within the union makes cross-national business operations more feasible. For the time being though, importing and exporting both within and outside of the European Union still requires significant cross-border administration and therefore has a negative impact on transportation rates and lead times.

Think, manage, act

Let's return to the conversation with my new American friends. As we finished our dinner, I said that we could sum up the discussion this way: Although Europe may seem to be one big country, it isn't. Every country has its own political, economic, and social system. To serve those national markets most effectively, it makes sense to create a multilayered supply chain that encompasses local, regional, and pan-European structures. This hybrid approach to distribution allows a company to control logistics costs yet maintain a high level of service to reach customers in all European markets.

In other words: Think global, manage European, and act local! △



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